

Westwood MUNC VIII

# C O P U O S

## COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE



Delegates,

Since WestwoodMUNCVIII is being run as an entirely crisis-based conference, it is crucial for newcomers to be familiar with the rules of procedure, as it does diverge from some of the more traditional general assembly procedures. Please see below for a quick rundown of most of the rules we will be following for the duration of the conference:

I. Overview:

Crisis committees are run differently from “normal” Model UN committees. Because they run at a very fast pace, each committee is run in a series of moderated caucuses, designed to maintain a rapid flow of debate and help delegates adjust to crisis updates. The rest of the committee follows normal parliamentary procedure with a few notable exceptions.

II. Format:

As previously stated, the format of debate differs slightly from a general assembly in a crisis simulation. There is no speakers list and therefore, the default method of debate is a moderated caucus. Chairs will require the first motion to be a round robin to ascertain the positions of others in the committee. This will serve as a good jumping off point to see who delegates are most likely to work with and who is most likely to get in the way of achieving their goals. After that, delegates will be able to motion for the “traditional” (un)moderated caucuses, round robins, straw polls, voting procedure, etc. In order to make any of these motions, a delegate must be recognized by the chair after raising their placards. Points and motions may be made between speakers, though note that right of

replies are rarely granted and are only allowed when serious insult to national or personal integrity has occurred.

### III. Public Directives:

Delegates do not work to pass resolutions. Rather, they will pass a series of directives that are binding, take effect immediately and can potentially alter the course of events for the entire crisis simulation. A directive is a specific action that the committee wishes to take. Unlike resolutions, directives do not include preambulatory clauses; instead, delegates will directly state specific orders, similar to operative clauses, following the title and the sponsors and signatories list.

### IV. Personal Directives:

Additionally, individual members of the committee may pass personal directives depending on their particular position, potentially contributing to individual crisis arcs. These directives can range from allocating funds for renewable energy to carrying out assassinations. These actions do not need to be passed by the committee at large and their effectiveness is determined by their feasibility and the crisis staff. It is suggested that delegates refrain from sharing what personal directives they are planning as they should be used to achieve personal objectives that might not always align with the interests of the committee as a whole. These directives are sent to the crisis backroom, who determines whether or not the directive will change the course of the committee.

### V. Communication:

Communication is an essential part of any crisis simulation, and is especially a vital tool when delegates are required to respond to crisis updates. At the beginning of the conference, delegates will be provided with a pen and a pad of paper. They may use the paper to write notes to each other, write up directives, or organize thoughts. Regarding note passing: delegates may pass notes to each other during committee while other members are speaking, but this privilege may be revoked by the chair should it distract from the debate. Specifics about note passing will be addressed at the beginning of the first committee session by the chair. Technology, like computers and cell phones, are not allowed during debate.

#### VI. Conference Prep:

In order to prepare for this conference, it is *strongly* recommended that each delegate consolidate their thoughts and strategy by writing a position paper. Delegates that do not submit a paper by the deadline below will not be eligible for awards. Position papers should:

- Be 1-2 pages in length single spaced, 12 point font
- Describe your role's position and what they contribute to the issue
- Address specific questions from the Background Guide that are relevant to your role
- Outline your role's likely optimal resolution and steps you need to take to achieve it
- MLA or Chicago style citations along with a Works Cited or Bibliography

Please email your position paper to your chairs no later than ***11:59 pm on Saturday, April 5th*** so that they have adequate time to read them. To qualify for any awards you must submit a

position paper by emailing it to [26mmcmann@wpsstudents.org](mailto:26mmcmann@wpsstudents.org) or [26achilangwa@wpsstudents.org](mailto:26achilangwa@wpsstudents.org). Once again, please feel free to email your chairs or crisis director with any questions you may have regarding conference policies or procedures.

Best,

WestwoodMUNCVIII Staff

Dear Delegates,

My name is Madeline McMann. I am honored to be the chair of the COPUOS crisis meeting at WestwoodMUNCVIII; I am a current junior here at Westwood High School, and I have done Model UN since sophomore year. Outside of Model UN, I am the president of our Mock Trial Club, write articles for our newspaper club, and work as a hostess! I am currently taking 3 AP classes along with all honors classes, including two languages. This leaves my schedule very robust, but I will always make time for Model UN since it has had so many positive changes to my life.

I think this topic is especially interesting because I've always wanted to learn about space, and I hope to be a lawyer one day. This committee is great because it is futuristic but not set in the future, that way we can keep the accuracy of the present day countries but think towards the future of our world. I especially enjoy Model UN because it has me think outside of the box and puts me in situations I never thought I could make a difference. I hope that you delegates are as excited about this as I am and come prepared to debate. If you are looking to submit your position paper or have any questions, please email me at [26mmcmann@wpsstudents.org](mailto:26mmcmann@wpsstudents.org). As a reminder the latest deadline for position paper submissions is ***11:59 pm on Saturday, April 5th***. You must submit a position paper to be considered for any awards. Enjoy your preparations!

Best,

Madeline McMann

Dear Delegates,

My name is Alessia Chilangwa, and I am honored to be the co-chair for the crisis meeting of the COPUOS committee. I am a current junior here at Westwood High School, and this is my second year in Model UN (MUN). Apart from MUN, I am the co-founder of my school's Italian club, and I spend my time playing soccer, traveling, and learning geography. I have greatly cherished MUN as an opportunity to think critically, engage in global issues, and encounter diverse perspectives. I treasure the myriad of memories I have made at conferences, and I cannot wait to deliver the same rewarding experience to you all.

Along with my interests in diplomacy, I have a passion for everything science-related, so I am thrilled to run a committee that incorporates both global cooperation and technology. The topic provides a unique opportunity to explore the intersection of scientific advancement and international policy as we debate on resource extraction beyond Earth. I look forward to fostering engaging debates about a subject that is gaining increasing relevance with the burgeoning era of space exploration. Please feel free to email me with any questions or concerns at [26achilangwa@wpsstudents.org](mailto:26achilangwa@wpsstudents.org). Best of luck delegates, and I hope you all are as excited for this committee as I am!

Best,

Alessia Chilangwa

## Committee Overview

Space has always been a highly coveted target for discovery and from the beginning of the space exploration era, nations have been competing over the moon. The space race provided the context for all future space-related endeavors; with the United States and the Soviet Union competing on a global scale, other countries were prompted to follow suit and begin their own space exploration. These newfound endeavors to explore space raised many concerns over the impact that utilizing space can have on the Earth.

This committee is set in the present day where a group of nations backs a space mining corporation. The goal? To mine and extract Helium-3 from the Moon. Helium-3 is an isotope that causes nuclear fission and can be used in a fusion bomb, better known as a hydrogen bomb. While Helium-3 is not the only ingredient in a hydrogen bomb, it is one of the parts needed to create these bombs, since it needs both atomic fission and nuclear fusion to generate an explosion. The combination of these two processes releases massive amounts of energy, hundreds to thousands of times more powerful than an atomic bomb. While the other metals are unknown at this time, many nations have been thinking about opening an investigation into this mining company and what exactly they extracted from the moon.

In October of 1967, the Outer Space Treaty (OST) was entered into force, which is a set of agreements that established the laws of outer space usage. Some of the most important agreements are “the Moon and other celestial bodies shall be used exclusively for peaceful purposes,” “States shall be responsible for national space activities whether carried out by governmental or non-governmental entities,” and “States shall avoid harmful contamination of space and celestial bodies”.<sup>1</sup> This treaty set the foundation for all outer space law since it was the

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<sup>1</sup> United Nations Office for Outer Space Affairs (UNOOSA). Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.



first treaty to ever be signed into action about the usage of outer space. Because of the dated nature of this treaty, its regulations are notably ambiguous for modern space exploration, especially newer space activities. Thus, there is widespread speculation over whether extraction, especially from the Moon, is legally permitted in accordance with the treaty.<sup>2</sup> The Artemis Accords are another important document that serves as laws for outer space and is upheld in many countries. This document was first created as a non-binding agreement that elaborates on the rules and regulations expected to be followed in outer space. These agreements were signed into effect on October 13th, 2020, leading it to be the foremost legislation on outer space. This document states that “the Signatories intend to preserve outer space heritage, which they consider to comprise historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies in accordance with mutually developed standards and practices,” (Artemis Accords).<sup>3</sup> It could be argued that lunar mining is or is not preserving the outer space heritage. This document is explicitly grounded in the OST, allowing for signed nations to gain more perspective on the Outer Space Treaty, along with the rules and regulations for specifically mining and extraction in outer space.

## **Competing Interests: Economic Growth vs. Environmental Protection**

In addition to these treaties, many scientists believe there can be some damage done to the Moon that would have massive consequences. Scientists, like Richard Green, state that “we must be cautious. Some sites are scientifically irreplaceable”.<sup>4</sup> Helium-3, if used correctly, can create nearly limitless clean energy, thus changing the way we see the impact of energy on things such as climate change. This causes some ambiguity within the motives for extracting Helium-3

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<sup>2</sup> Euro Weekly News. "NASA Concerns Rise Over Plans for Moon Mining."

<sup>3</sup> "Artemis Accords." NASA.

<sup>4</sup> Richard Green "NASA Concerns Rise Over Plans for Moon Mining."

from the Moon. If the Helium-3 is being used for weapons versus energy, that causes a divide in national opinions for mining and extraction laws.

Helium-3 fusion offers the prospect of a virtually limitless, clean, and safe energy source and would allow for reduced carbon emissions, which is one of the leading causes of climate change on Earth. This is due to the fact that helium-3 does not produce greenhouse gasses, nor does it contribute to air pollution, unlike fossil fuels. Although all of this seems promising, obtaining this precious resource is both timely and resource heavy. The process of mining and extracting helium-3 will itself be energy-intensive, requiring either the transport of power sources from Earth or the development of energy sources on the Moon. Furthermore, new techniques will be required to efficiently mine the thin layer of lunar rock containing helium-3 and separate the helium-3 from other gases.<sup>5</sup> After all of this, transporting helium-3 back to Earth or to orbital facilities would be costly and logistically complex, making this extraction put out carbon emissions through transportation. This leads to a nuanced argument in the committee, with some nations mining for Helium-3 as a clean energy source and some mining for Helium-3 to turn into weapons, who's to say that mining is legal at all?

## Questions to Consider

1. What constitutes a peaceful use of the moon?
2. How can we deal with the effects of space exploration?
3. What are the effects of mining on the Moon and what can we do to minimize it?
4. Do the motives behind extracting Helium-3 and other metals from the Moon matter?

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<sup>5</sup> European Space Agency (ESA). "Helium-3 Mining on the Lunar Surface." Accessed March 4, 2025.

5. How will nations know the motives behind Helium-3 extraction, weapon power versus clean energy?
6. How will the company be ascertained and what, if any, will the consequences be?
7. How will countries go about finding the group of nations that backed the corporation that mined on the Moon?

## **Bloc Positions**

### **Bloc 1: Space-Exploring Nations (or Space Mining Bloc)**

Position: Advocate for the right to mine celestial bodies (like asteroids and the Moon) for Helium-3 in order to utilize it for cleaner energy and potential weapons. They argue that space exploration should be regulated by private companies and nations with minimal UN interference.

1. United States

★ The United States has always been a spacefaring nation and desires the right to mine the Moon and other celestial bodies. The US has been very vocal about their desire to send personnel up to the Moon and have it be mined for resources such as water and titanium, with their NASA plans starting as early as 2025 to act on these ambitions. The United States is also well known for their threats of nuclear warfare, and these hydrogen bombs are much more powerful than the atomic bombs that have been used by the US, especially in Japan during WWII. The United States also has the financial capacity and the manpower for such expositions and is not heavily influenced by environmental factors to the extent of developing countries. The US is one of the signatories of the Artemis Accords and the Outer Space Treaty.

2. Russia

★ Russia has been known for being a spacefaring nation, especially in the race to the Moon back when they were known as the Soviet Union. Even though Russia did not get to the moon first, they still remain active as ever on celestial topics. The

head of Russia's space agency said his country has been working on a program to build a nuclear power plant on the moon. While this is not exactly on mining the Moon specifically Russia has been very vocal on the fact that they want to send more people to the Moon to explore it. In 2021, they announced plans for a lunar mission to explore the Moon's surface for resources. Russia has also been known for aggressive military tactics and threats of nuclear weapons. Russia has not signed the Artemis Accords but has signed the Outer Space Treaty.

3. China

★ China has benefited from space exploration since in 2020 the Chinese moon mission brought back minerals to China, which gave them a leg up on the global scale since one of the primary ingredients found in this crystal is Helium-3. China has been testing both atomic and hydrogen bombs since the 1960's and claims that their nuclear weapons are only for self-defense and to not be used for offensive tactics on other nations. The nation has, however, been known to threaten the use of nuclear weapons, most notably in 2021 against Japan. While China does acknowledge climate change, they do not take immediate action against it. China is a signatory on the Outer Space Treaty but not on the Artemis Accords.

4. Luxembourg

★ Luxembourg has become interested in space exploration, especially mining the Moon, in January of 2025 Luxembourg successfully sent their first rover to the Moon. Even though the nation has never landed any people on the Moon does not necessarily mean that they cannot mine on the Moon, with all the technological advancements in modern days. Furthermore, Luxembourg offers incentives for private sector companies seeking to develop space mining opportunities and start-ups investing capital to support their growth. It is important to note that Luxembourg does not back these corporations, only finances them; that causes them to have plausible deniability in relation to these corporations. Luxembourg has signed both the OTS and the Artemis Accords.

5. United Kingdom

★ The United Kingdom has been a global power for many millennia, and therefore has created and has access to hydrogen and atomic bombs. The United Kingdom is unsure of whether or not this topic will need to take up military arms in relation to space use. Their space program, The United Kingdom Space Agency has been active for 15 years on April 1st and has been thinking of the possibility of mining on the Moon. Furthermore, they are also aiming for cleaner energy usage in the future. The United Kingdom has signed both the Artemis Accords and the Outer Space Treaty.

6. South Korea

★ South Korea has been known to utilize weapons, even in times where there has been no warfare. While South Korea has not yet been on the Moon, they have stated that they are planning on human settlements on the Moon. Therefore, aligning with a more space-involved nation would be in their best interest, besides gaining and using new technology. South Korea mostly relies on nuclear power in order to fuel their country, South Korea would gain much power by obtaining Helium-3. South Korea has signed both the Outer Space Treaty and the Artemis Accords.

7. Israel

★ Israel has been known in recent years to yearn for space exploration, most notably on the Moon. The Moon colonization effort can stimulate the private sector by encouraging companies to develop technologies for lunar exploration, leading to job creation and economic growth within Israel's tech ecosystem. Israel is aiming to return humans to the Moon and establish a sustainable presence by the end of the decade. Furthermore, Israel would greatly benefit from the clean energy that can be produced by Helium-3, especially in times of warfare since it is more reliable and better for the people than typical fossil fuels. Israel has signed both the Outer Space Treaty and the Artemis Accords.

8. Brazil

★ Brazil has not emphasized an immediate desire for mining on the Moon but could greatly benefit from Helium-3 extraction from the Moon's resources. Currently, Brazil is mainly powered by hydropower, which gives them about 60-70% of their

energy sources. While this is a sustainable method of energy, it cannot always be reliable, especially in times of conflict. With Helium-3, Brazil would have an equally clean energy source that is more reliable for their country. Furthermore, Brazil does not currently possess any nuclear weapons, but they do hold the technologies capable for production of nuclear weapons. This would solidify Brazil as a global superpower and open more doors for Brazil in the international world. Brazil is a signatory to both the Outer Space Treaty and the Artemis Accords.

## **Bloc 2: Small or Emerging Space Nations (Equal Access Bloc)**

Position: Push for equal access to space resources and argue for the establishment of an international treaty that prevents space resources from being monopolized by a few powerful countries or corporations. Wants to mine for Helium-3 but does not currently have the resources to extract Helium-3 from the Moon in order to use for cleaner energy.

### 9. India

★ India has been an active member of the space scene in recent years but does not have the capabilities to extract resources from the Moon. Most notably, through their research of the Moon, they were the first country to find water on the Moon. While India has not been on the Moon, they are very active in research through drones and rovers on the Moon's surface. India's Gaganyaan Mission aims to send its first crewed mission to space, with plans for lunar exploration in the future. Furthermore, India relies on fossil fuels for 80% of the country's energy sources. With the clean energy from Helium-3, India would be in a better economic position since fossil fuels are becoming more expensive as they get less available. India has signed both the Outer Space Treaty and the Artemis Accords.

### 10. United Arab Emirates (UAE)

★ The United Arab Emirates has been vocal about their opinion on mining the Moon but does not currently have the resources to extract from the Moon. The UAE has announced plans for a lunar rover mission called Rashid, set to launch in 2024, indicating its growing interest in lunar activities and potential future human settlement initiatives. This could be helpful if the Moon can be mined and

Helium-3 can be extracted in order to be used. The United Arab Emirates mission will be primarily focused on learning about service and mobility on the moon, not on building infrastructure. This will allow the country to gain intelligence on the Moon that will potentially help in the mining process. The UAE has signed the Artemis Accords, but not the Outer Space Treaty.

11. Japan

- ★ Japan has been known to want to mine the Moon but currently does not have enough resources to extract resources from the Moon. Japan's space agency, JAXA, plans to send astronauts to the Moon by the late 2020s as part of its broader lunar exploration program. Furthermore, in 2024 Japanese lunar exploration company ispace has partnered with lunar extraction firm Magna Petra to harvest Helium-3 on the Moon and deliver it back to Earth. This means that Japan is one of the first countries to state that they are planning on mining the Moon for Helium-3 extraction. Since Helium-3 has almost no radioactive decay, this would make it an extremely valuable resource if cultivated. Currently, Japan has signed both the Artemis Accords and the Outer Space Treaty.

12. South Africa

- ★ While South Africa has never landed on the moon, they have some capability of getting there but are not very capable of mining the Moon by themselves. Recently, the African Union's African Mining Vision has explicitly centred mining as a pathway to continental development and advancement. There is also some explicit political will from the entire continent to venture into space. Currently, South Africa is reliant on coal for around 70% of their energy sources. This creates a potentially massive positive impact on their clean energy sources if Helium-3 can be extracted and utilized. South Africa has signed the Outer Space Treaty, but not the Artemis Accords.

13. Argentina

- ★ Argentina has not publicly announced specific plans to engage in lunar mining and is not fully capable of mining the Moon by themselves. However, they have recently met with the Administrator Bill Nelson from the U.S. National Aeronautics and Space Administration. While Argentina has not been to space

yet, their technological infrastructure, including satellite capabilities and rocket programs, suggests that they could be capable of sending more advanced missions to space in the future. Argentina relies on Natural Gas for 55% and Oil for 33% of their energy sources. Therefore, Argentina would greatly benefit from a cleaner energy source such as Helium-3, along with potential weapon possibilities.

Argentina has signed both the Outer Space Treaty and the Artemis Accords.

14. Mexico

- ★ As time progresses, Mexico is becoming more interested in space exploration but does not currently hold enough advancements in technology to do it themselves. In January 2024, Mexico launched the Colmena mission, marking its attempt to explore the Moon. Besides the Colmena mission, Airbus partnered with the Mexican startup Dereum Labs and the Mexican Space Agency (MSA) for extracting resources from the Moon's surface. The collaboration aimed to identify, capture, and extract resources, with plans to launch two rovers to the Moon in 2022 to test these technologies. Mexico relies on Oil and Natural Gasses for 83.9% of all of their energy sources, making Helium-3 a very lucrative product for cleaner energy. Mexico has signed both the Artemis Accords and the Outer Space Treaty.

15. Nigeria

- ★ Nigeria has shown increasing interest in space exploration and resource extraction, including the potential for lunar mining but is currently incapable of mining the Moon alone. Nigeria's primary space agency, NASRDA, has expressed ambitions toward lunar exploration. Nigeria has established a unit for space missions within NASRDA and progress is gradual, but the agency is steadily advancing its lunar mission objectives. Continued investment in space technology and international partnerships may position Nigeria to participate in lunar mining activities in the future. Currently, Nigeria is utilizing Biofuels and Waste as their top energy source at 43.4%. Helium-3 could vastly contribute to cleaner energy production in Nigeria and therefore poses as a potentially useful material for lunar extraction. Nigeria has signed both the Artemis Accords and the Outer Space Treaty.



## 16. Vietnam

- ★ Vietnam has shown some interest in mining the Moon but does not currently have the resources to mine on the Moon. The country has demonstrated significant interest in space exploration and resource extraction. Vietnam has not publicly disclosed any involvement in mining the Moon for Helium-3 specifically but they have become more involved in the growing international interest in mining the Moon. Currently, Vietnam relies on Coal for 45.1% of the country's energy sources and therefore, Helium-3 would be very helpful in aiding the country towards greener energy sources. While Vietnam has signed the Outer Space Treaty, they have not signed the Artemis Accords.

## 17. Indonesia

- ★ Indonesia has expressed interest in mining the Moon but is not currently capable of doing it by themselves. While Indonesia has not announced plans for lunar mining, their active role in the mining sector and participation in related exhibitions show their commitment to exploring opportunities in resource extraction. The country's mining industry has experienced significant growth, which is driven by international demand for Earth resources, therefore mining for Helium-3 on the Moon could harbor a new economic sector. Furthermore, Indonesia relies on Coal for 71.3% of their energy sources and Helium-3 would be a better option for clean energy sources. While Indonesia has not signed the Artemis Accords, the nation has signed the Outer Space Treaty.

## 18. Australia

- ★ Australia stands at the nexus of lunar resource endeavors and regulatory constraints, leveraging their prowess in robotics, mining, and technological innovation to cement their presence in the realm of space exploration. Their domestically engineered Roo-ver is even set to embark on a NASA-led mission, tasked with collecting lunar soil for the production of rocket fuel. However, their position on lunar mining is inherently paradoxical. They endorse the commercial use of space while also being a signatory of the Moon Agreement, which calls for strict international regulation of lunar mining. The recent discovery of astonishing levels of Helium-3 in Australia's Yorke Peninsula could also contribute to their

complex stance, as terrestrial extraction may prove to be a viable alternative to costly lunar endeavors. While coal and gas comprise 70% of Australia's energy supply, they embrace a shift towards renewables. Australia is a signatory on both the Artemis Accords and the Outer Space Treaty.

19. Slovakia

- ★ The Slovak space sector has seen rapid evolution, with Slovak researchers active in numerous international missions. Despite their keen interests in exploiting the full potential of the extraterrestrial ecosystem to enhance life on Earth, they are curtailed by insufficient investment. Slovakia lacks explicit interest in lunar mining but would likely pursue initiatives that adhere to international regulations and allow them to operate under the leadership of more preeminent spacefaring nations. As an associate member state of the ESA, Slovakia largely aligns with the EU's extraterrestrial approaches and policies. Given Slovakia's dearth of terrestrial Helium-3 deposits as well as their reliance on nuclear energy, comprising 54.7% of their energy supply, they may harbor long-term interests in the isotope. Slovakia has signed both the Artemis Accords and the Outer Space Treaty.

20. Egypt

- ★ The Egyptian Space Agency (EgSA) is an emerging pioneer in research and technological innovation, championing peaceful space exploration to advance Egypt's sustainable development objectives. Foremost, EgSA has focused on satellite development and earth observation and has shown no explicit interest in lunar resource extraction. But given their eco-friendly attitude, they may regard Helium-3 and its potential to advance cleaner energy as a forward-looking prospect. Additionally, they strongly condemn the exploitation of extraterrestrial resources for nuclear weapons. Egypt's energy sector is reliant on natural gas (52%) and oil (41%). Their policy on space exploration is geared towards international cooperation: while they have not signed the Artemis Accords, they are a signatory of the Outer Space Treaty.

21. Singapore

- ★ While Singapore is yet to explicitly communicate their stance on lunar mining, their focus is geared towards space sustainability and environmental monitoring; thus, they are predisposed to fostering peace and responsibility in resource extraction. Already demonstrating distinguished technological prowess, Singapore Space and Technology Ltd (SSTL) is entering a new stage of space exploration with plans to utilize existing extraterrestrial commercial systems for national development. Their exemplary environmental consciousness suggests that Helium-3 could be instrumental in their steadfast pursuit towards green urban development. SSTL abides by the notion that space is a universal domain, as they champion enhanced international cooperation and the cultivation of mutually advantageous partnerships. Singapore's economy remains deeply reliant on oil, which constitutes 71% of their primary energy sources; nonetheless, a transition to cleaner alternatives is steadily unfolding. They are signatories of both the Artemis Accords and the Outer Space Treaty and must navigate their support for commercialization with their eco-friendly attitude.

### **Bloc 3: Preservationists Bloc**

Position: Oppose commercial space mining, arguing it could lead to environmental issues on celestial bodies and space debris. They want space to continue being a scientific and peaceful place, and they advocate for strict rules and regulations for space mining, with the final goal of prohibiting space mining.

#### 22. Germany

- ★ Germany has been known to want stricter legislation in relation to mining on the Moon and space exploration. In September 2024, Germany hosted an event titled "To the Moon and Back: Lunar Policy-making, Security, and Cooperation in Europe and Beyond," which addressed critical issues such as lunar mining legislation, space debris mitigation, and the management of lunar orbital traffic. Germany has not independently pursued lunar mining projects and instead collaborates with international partners on lunar missions. Germany currently relies on Oil for 34.2% and Natural Gas for 26% of their energy sources.

Furthermore, Germany is agreeing not to pursue nuclear weapons, aligning with its dedication to global disarmament efforts. Germany has signed both the Artemis Accords and the Outer Space Treaty.

23. France

- ★ France has not extensively pursued lunar resource extraction, reflecting a cautious stance on lunar mining. While cautious about lunar mining, France actively engages in terrestrial mining projects, particularly for lithium, showing their ability to mine for resources. Additionally, France contributes to lunar missions by providing scientific instruments in order to learn more about the Moon and not extracting resources. France is most reliant on Nuclear Energy to power 40.3% of their energy sources. France does not have much interaction with Hydrogen weapons, but does rely on Nuclear Energy constantly. France is a signatory to both the Artemis Accords and the Outer Space Treaty.

24. Sweden

- ★ Sweden has been known to be environmentally friendly and only utilizes the Moon for research purposes. The idea of mining celestial bodies like the Moon could raise concerns among Swedish policymakers about the potential ecological impact, not just on Earth but on other bodies in the solar system. Sweden is actively involved in space research and has participated in various European Space Agency (ESA) missions. However, Sweden's contributions have focused more on scientific research and technology development rather than resource extraction. Furthermore, Sweden is using 67.8% of renewable energy for the country's energy sources. Sweden has signed both the Artemis Accords and the Outer Space Treaty.

25. Norway

- ★ Norway is highly committed to environmental sustainability and international cooperation in space exploration. Norway has a track record of prioritizing environmental protection, which extends into its space policy. Norway's commitment to the Paris Agreement on climate change and its focus on sustainability could influence its approach to lunar resource extraction, with an emphasis on minimizing environmental harm both on Earth and in outer space.

Norway is an active player in space exploration, primarily through its contributions to the European Space Agency (ESA) and its own national space agency, the Norwegian Space Agency (NOSA). Norway currently utilizes renewable energy for 95.6% of the country's energy sources. Norway is not a signatory on the Artemis Accords, but is on the Outer Space Treaty.

26. New Zealand

- ★ New Zealand is wary of both the positive and negative effects of mining for Helium-3 on the Moon. The country advocates for a balanced approach that considers both the potential benefits and ethical considerations of space resource utilization. New Zealand has actively engaged in international efforts concerning lunar exploration and resource utilization. This agreement emphasizes sustainability in space activities, including the extraction of lunar resources, and aligns with New Zealand's commitment to responsible space exploration. New Zealand's position on lunar mining is characterized by support for international frameworks that promote sustainable and equitable practices. Currently, New Zealand uses 86% of renewable energy for the country's energy sources. New Zealand has signed both the Artemis Accords and the Outer Space Treaty.

27. Kenya

- ★ Kenya has not been very vocal about their abstinence from mining on the Moon, but does touch on the topics in their legal framework. Kenya developed the Kenya Space Policy and Strategy, laying the foundation for its national space framework. It also highlights the importance of establishing a clear legal and regulatory environment to govern space activities. Additionally, Kenya has collaborated with the United Nations Office for Outer Space Affairs (UNOOSA) to develop its space legislation, aiming to align with international treaties and regulations. Kenya utilizes 87.7% of renewable energy for their energy sources. Kenya has signed the Outer Space Treaty but not the Artemis Accords.

28. Costa Rica

- ★ Given Costa Rica's emphasis on environmental preservation and sustainable resource management, the nation advocates for responsible and ethical approaches to lunar mining. This would involve ensuring that any extraterrestrial mining

activities do not harm the lunar environment or violate international agreements. Costa Rica has a large mining economy and therefore, has many legal frameworks that could be used in space. Costa Rican ministers discussed reforms to the mining code amid environmental concerns, the meeting emphasized the importance of protecting the environment. The government did not rule out the possibility of granting mining concessions but stressed the need for sustainable practices. Costa Rica uses 100% renewable energy for their energy sources. Costa Rica has not signed either the Artemis Accords or the Outer Space Treaty.

29. Chile

- ★ Given Chile's commitment to sustainable space exploration and environmental protection, the country ensures that such activities do not harm the lunar environment or conflict with international agreements. Chile has developed a National Space Strategy to position itself as a hub for space services and scientific-technological development. This strategy includes the launch of satellites and the establishment of space infrastructure. While Chile has not explicitly opposed lunar mining, its policies suggest a preference for environmentally conscious and internationally cooperative approaches to space resource utilization. Chile uses 55.3% of renewable energy for their energy sources. Chile has signed both the Artemis Accords and the Outer Space Treaty.

30. Ethiopia

- ★ Ethiopia's space program, shepherded by the Ethiopian Space Science and Technology Institute (ESSTI), remains in its nascent stages, with a focus on cultivating technological expertise, human power, and space infrastructure. Nonetheless, their space sector has experienced accelerated development since 2004, and they are primarily geared toward conducting scientific research and ameliorating terrestrial conditions rather than pursuing space commercialization. Their collaboration with China-notably on an Earth observation satellite (ESTRSS-1)-complicates their stance, as they must strike a balance between this controversial partnership and their advocacy for international space law. While Ethiopia is not a fully green nation, they are actively pursuing a more sustainable agenda through the Climate & Resilient Green Economy (CRGE). They rely on

Biofuels and Waste for 87% of their energy. While Ethiopia lacks an official stance on lunar mining and the extraction of Helium-3, they staunchly advocate for equitable access to space for developing nations and champion global cooperation as a signatory of the Outer Space Treaty.

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