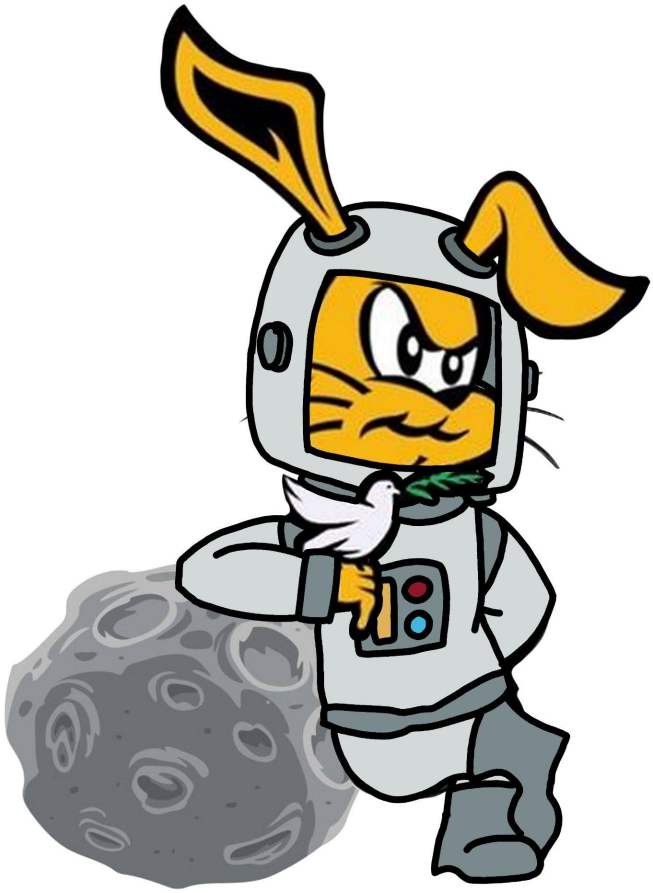
Background Guide

UNOOSA: Space Programs in Developing Nations



BunnyMUN II

L.B. Poly - December 2nd, 2023

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Head Chair Letter

Dear Delegates,

I am Max Beranek, and I am ecstatic to be your co-chair for the Bunny MUN II UNOOSA committee. I am a Junior at Long Beach Poly High School, and this is my third year taking part in Model UN. During all my time in MUN, my speaking, research, and writing skills have improved exponentially, and it has been an absolute blast. Outside of MUN, I play tennis, violin, and am also an avid sports fan (Go 49ers!).

I am very excited to assist you in your thoughtful debate in this UNOOSA room. With space industries becoming more practical by the year, we may soon be able to take advantage of space's vast resources, but we must make sure that precautions are made so the advancements made are not just limited to the powerful nations. I believe that this is a topic which has an infinite amount of interesting solutions. While most delegates will have the same goal, I'm sure that there will be a wide variety of brilliant ideas from you delegates, and I can't wait to hear your thoughtful debate!

Sincerely,

Max Beranek

UNOOSA Committee | Co-Head Chair

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HEAD CHAIR LETTER

Dear Delegates,

My name is Henry Otey, I am one of your co-chairs for Bunny MUN II and I am beyond excited. I am a junior this year at Poly, and this is my second year of MUN. Model UN is an incredibly fun and productive activity, and over the past few years, I have marginally improved my skills in research and communication. Away from MUN, I love to play the French Horn, build tank models, and play video games.

In our room, UNOOSA, I am eager to help stimulate some excellent debate regarding space programs in developing nations. This topic has always resonated with me, and space has endless opportunities. I am excited to see how you delegates find ways to use these opportunities and distribute them equally. I am sure that this room will have a high level of debate, and I wish all of you the best!

Sincerely,

Henry Otey

UNOOSA Committee | Co-Head Chair

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How to Mun

So, you're probably wondering: How do I prepare for debate? Well, here are some starting points to begin your country research!

1. Read through this background guide
    a. find your country in Bloc Positions (pg. 15) and read that paragraph
2. Look for information on your country in the CIA World Factbook and BBC Country Profiles, linked here:
    a. https://www.cia.gov/the-world-factbook/countries/
    b. http://news.bbc.co.uk/1/hi/world/europe/country_profiles/default.stm
3. Look at the Questions to Consider (pg. 16) and try to answer them (do some research on the internet!)
4. Do more research on the internet for:
    a. previous country actions
    b. previous non-governmental organization (NGO) and United Nations actions
    c. possible solutions

During the committee, all delegates will present an "opening statement." This is a short introductory speech and will only last about 30 seconds to 1 minute—nothing too bad! You can practice and time your speech using a timer.
These opening statements are written beforehand. They don't have to be memorized, either. You can print or write your speech, then read off the paper.

Your opening statement should include:

1. Your country's position on the issue at hand
2. What your country has done in the past
3. Possible solutions that align with your country's position
    a. This is what you will discuss in the main part of the committee! Including this in your opening statement is a great way to let other delegates know where you stand.

Committee Description

The United Nations Office for Outer Space Affairs (UNOOSA) works to promote international cooperation in the peaceful use and exploration of space, and in the utilization of space science and technology for sustainable economic and social development. The Office assists any United Nations Member States to establish legal and regulatory frameworks to govern space activities and strengthens the capacity of developing countries to use space science technology and applications for development by helping to integrate space capabilities into national development programmes.

Topic Synopsis

With many advancements in humanity's ability to travel in space, it seems like space is truly the next frontier for the advancement of humanity. This vast expanse is a realm of infinite opportunities and possibilities for mankind. However, these opportunities are only accessible to a small fraction of nations, and concentrated in developed countries, which would only increase the gap in wealth once space industries become established. Delegates in this committee will work to assist in and encourage the long-term development and expansion of space programs, including manufacturing, research, and personnel training, in developing nations through UNOOSA in pursuit of a more equitable realization of space's opportunities.

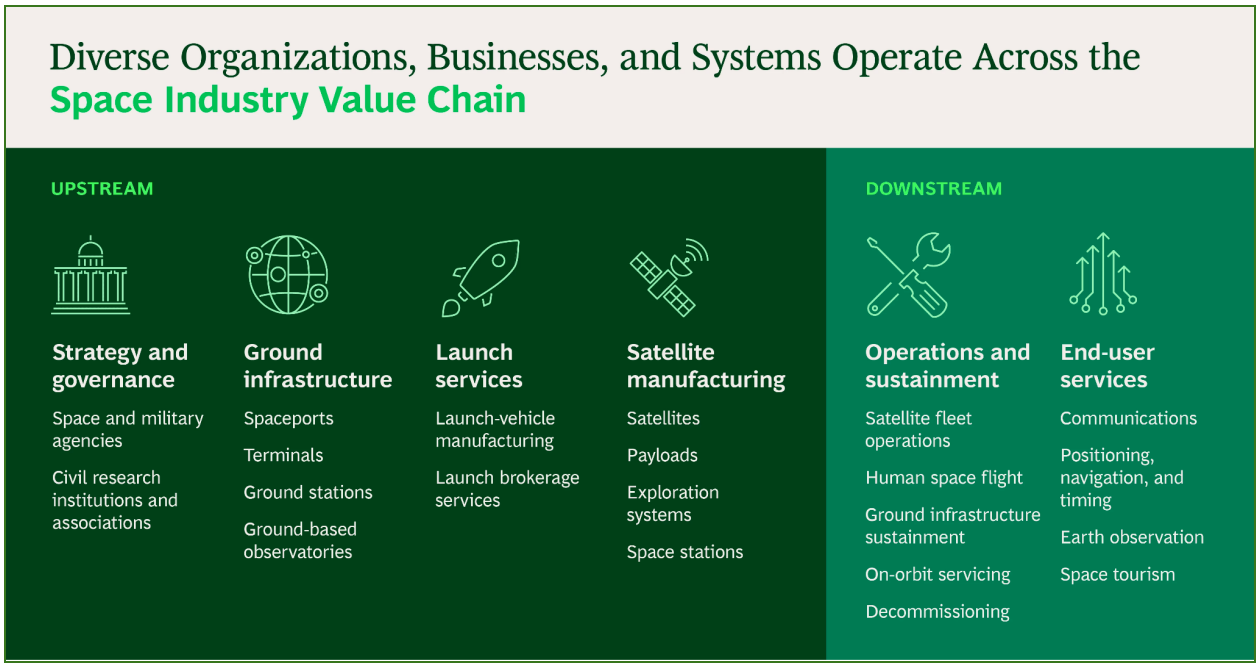
Background

Structure of a Space Program

Throughout the decades, countries have developed space programs for multiple reasons, which include the desire to better understand Earth and outer space, to compete with other countries, to inspire youth, and to develop technology. These programs require vast amounts of resources to operate because of the costly nature of space exploration. While governments have partnered with private companies to increase their funding for space programs, they contribute most of the money from their own budgets.

The significant parts of a space program include manufacturing, ground support, and the launch industry. Manufacturing includes the building of the items going into space, like satellites and rockets. Ground support is the construction or acquisition of facilitatory devices on the ground such as cranes and trucks. Finally, the launch industry is the actual devices used to launch a rocket, such as fuel and a launch tower. This is done by research and development, safety testing, and collaboration with other organizations to ensure the best possible results for the program. R&D can come in multiple forms, but is funded by the government most of the time, including research institutes dedicated to space research, universities, and resources from the private sector incentivized with government funds. Additionally, infrastructure which facilitates communication is considered for the success of a mission.

When the space program reaches its goal successfully, whether that takes years or decades, governments gain useful data or technology that can be financially beneficial. However, there can be a negative cost to such space programs. For example, each mission that sends a rocket into space requires hundreds of thousands of pounds of fuel, which can total over 90% of a rocket's weight. The effects of such large volumes of fuel released directly into the stratosphere are more detrimental to the environment than fuel that is released in other layers of the atmosphere. This is because stratospheric pollution is both more harmful to the ozone layer and lasts longer in the environment.



Opportunities in Space

One possible space industry which has garnered a wealth of attention due to its incomprehensible potential value is the mining of rare metals. While the development costs are steep and much research still needs to be done, the potential for profit in this field is astronomical. Valuable metals like platinum, iron, and gold can be harvested from over 15,000 asteroids that have been confirmed as potential sources. Space mining can also alleviate the severe environmental strain that mining puts on the Earth, emitting a fraction of the carbon dioxide and not leaking toxic chemicals into water sources. However, an economy where space mining has become a reliable source of raw materials would no longer rely on nations such as Democratic Republic of the Congo and Zimbabwe, both of which have economies sustained by precious metal mining.

Additionally, mining operations on asteroids could harvest water. This has a wealth of applications, as it could be sent back to Earth to be used as drinking water or manufacturing, or it could be put through a chemical process to create

rocket fuel. Satellites equipped with solar panels have also been proposed as a more efficient and reliable way to acquire clean and renewable energy since the biggest drawbacks of solar, the day-night cycle and cloud cover, would be eliminated.

Obstacles to Development

However successful these new programs may be, there are still drawbacks—especially in the arena of international relations. These nations often do not have the financial or human capital needed to sustain these space programs. Especially in the face of political, social, and economic unrest, these nations divest resources from their intergalactic endeavors. This opens the door for corporate space programs, like SpaceX, to present themselves as more economic choices for space exploration and monitoring in the global south. However, the countries with government-funded space programs will continue to be largely dependent on the global north's resources and funding.

Since space programs in developing nations are dependent on foreign assistance from developed nations, these nations may lead these countries to be technologically dependent on the global north moving forward. Additionally, developing nations may have less leverage or influence in space-based negotiations and treaties due to their reliance on other nations.

Outside of the political landscape, there are also concerns regarding the environment — even in space. As more space programs send out more satellites, the area surrounding Earth may become more crowded, increasing the risk of satellite collisions. In fact, certain nations including the USA, China, and India perform collision tests, creating more debris for existing satellites to collide with. By increasing the risk of satellite collisions, these space initiatives may become more costly and less effective.

UN Involvement

UNOOSA oversees and implements the Programme on the Peaceful Uses of Outer Space and is committed to assisting all nations in developing their space agencies in order to take advantage of space's many opportunities. This commitment was codified in resolution A/RES/73/6, which emphasized the need for collaboration between the nations of the world, UNOOSA, and non-government organizations (NGOs) to achieve sustainable development in space.

Through their Access to Space for All initiative, UNOOSA provides resources like training and workshops, especially to developing nations, and engages in several fellowships, which are partnerships with educational institutions around the world to develop or improve technologies related to space travel. Their aim is to ensure that more players on the world stage can "use and benefit from space technologies and applications thanks to the cooperation among established space actors, the United Nations and new or emerging space entities." This is very much in line with Sustainable Development Goal 17: Partnerships for the Goals.

There have already been success stories from these partnerships under the Access to Space for All initiative. For example, in 2015, Kenya was selected to work with the UN and Japan on their KiboCUBE project. This important partnership gave them the resources necessary to create their own Kenyan

Space Agency (KSA). Since then, the KSA has been a frequent collaborator on the ISS and China Space Station, has won multiple awards, and in April of this year, has launched their first Earth observation satellite.

Finally, UNOOSA recognizes that a strong space program, in a developed or developing nation, needs a diverse staff. This is why UNOOSA has worked towards female empowerment in the development of space programs, launching the Space4Women Project in 2020 and supporting the Universidad de Valle de Guatemala, who launched a campaign promoting STEM education to girls in their country.

Bloc Positions

African Bloc

Currently, space programs across Africa are underperforming in comparison to other nations. $4.7 billion USD is distributed across African space programs in comparison to NASA's $25.2 billion budget. Additionally, less than half of the continent's countries have established space programs, and the ones that do have deployed satellites in the tens, if any at all. These numbers shy in comparison to nations with hundreds. Africa's distinct lack of success in the space industry is extremely prominent in comparison to other nations.

Asian Pacific Bloc

The Asian Pacific block is well-known for being extremely manufacturing-based and technologically advanced. However, not all nations in this region have dedicated space programs. There are some countries, however, in this region that outshine most other nations not only in this region, but in the world. These nations are China, Japan, and India (as per this definition of the bloc). Developing nations in the Asia Pacific region widely acknowledge that international assistance is needed to get them up and running.

Eastern European Bloc

Having once been engulfed by the Soviet Union, many Eastern European states have developed space programs. However, many eastern European nations are underdeveloped compared to western powers. The front runner in the way of development of this bloc is be Russia, which as a program has some ambitious goals.

Overall, there is a need for development and equality among the other countries in the region,

Western Bloc

The west is a known technological superpower, having some of the most advanced space technology programs globally. The European Space Association (ESA,) is a well established European Union (EU) space agency. Even within the EU, countries like Germany are extremely advanced in the space industry. Further west, the current leader in space exploration, the United States, is home to the most advanced program: NASA. Canada also has an old and renowned space program. The west is an advanced and powerful region in the space industry.

Latin American and Caribbean Bloc

Latin American countries are quite behind in the global scheme of space programs. There is multitude of reasons, but a prominent one is not having the resources necessary to gain traction. Generally, these programs have to operate with insufficient funding. However, the majority of Latin American countries do have space programs. The nations of South America contribute 85 of the 3000 satellites globally. Essentially, Latin America is in need of the resources to utilize said advantages.

Questions To Consider

1. How might your country's economy be affected by space industries?
2. Does your country have the economic means to sustain a space program?
3. How can partnerships be utilized to advance developing nations' space programs?
4. How can healthy competition be ensured in space industries?
5. How can it be ensured that partnerships are not hostile and don't take advantage of smaller nations?
6. How can the structure of a new space program be made more efficient?
7. How can environmental concerns be addressed in the development of new space programs?

References

More on R&D and funding

https://www.oecd.org/sti/inno/space-forum/space-economy-for-people-planet-and-prosperity.pdf

More on space program industries

https://www.oecd-ilibrary.org/docserver/9789264040847-en.pdf?expires=1698893163&id=id&accname=guest&checksum=4A08CBD087D4684661D77E5B4A6BF944

More on Access to Space for All

https://www.unoosa.org/documents/pdf/Access2Space4All/AccSpace4All_Brochure_final.pdf

More on the Space4Women Project

https://www.unoosa.org/oosa/en/ourwork/topics/spaceforwomen/index.html

More on Resolution A/RES/73/6

https://documents-dds-ny.un.org/doc/UNDOC/GEN/N18/343/85/PDF/N1834385.pdf?OpenElement

More on opportunities in space

https://hir.harvard.edu/economics-of-the-stars/

More on environmental impacts of space travel

https://time.com/6273065/space-travel-climate-impact/

More on the environmental benefits of space mining

https://www.technologyreview.com/2018/10/19/139664/asteroid-mining-might-actually-be-better-for-the-environment/

More on Asia Pacific Bloc

Southeast Asian space programmes: Capabilities, challenges and collaborations | ORF (orfonline.org)