# Background Guide

## Special Committee

## 1 | Addressing the Outbreak of the Second Space Race and the Future Colonization of Mars

SDG: 9, 11, and 13

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Last updated: Oct 12, 2025

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# Committee Introduction

Welcome to the Special Committee of GECMUN XII. Compared to other committees that follow either a current issue or historical situation, the Special Committee experiments with unique agendas. Due to the nature of the Special Committee, conferences can cover a wide range of topics, from fictional settings to hypothetical scenarios, from retrospective to futuristic takes on society. Throughout the years of MUN, Special Committees have challenged delegates with unconventional and unique topics - from negotiating peace in post-World War III society to forming vaccines to the apocalyptic world full of zombies. Topics focusing on responses to the rise of future AI power and devising new ways to solve historical conflicts are also examples of agendas of the Special Committee. This year's agenda of the Special Committee of GECMUN XI,  Addressing the Outbreak of the Second Space Race and the Future Colonization of Mars, continues to push delegates to apply their diplomatic skills to navigate international competition and cooperation to explore the possibility of Mars.

In the context of the United Nations, the Special Committee focuses primarily on the decolonization of global issues, including atomic radiation, economic crises, cybersecurity, and the peacekeeping of outer space. The committee works with a variety of different political and social agendas, so it is not limited to one particular area or timeframe.

What sets the Special Committee apart from other committees in Model UN is its flexibility in subject matter. While our GECMUN Special Committee will follow the UNA-USA General Assembly procedure – meaning delegates will draft resolutions to be passed through votes with no delegates holding veto power – it breaks conventional and familiar boundaries. The Special Committee is an environment where all delegates are encouraged to think outside of the box while still having the root of collaboration. The extension of imagination and possibilities makes it one of the most exciting committees at GECMUN XII. Our chairs are excited to make this committee a wonderful memory.

# Agenda Introduction

On January 3, 2030, scientists from several space agencies discovered and confirmed signs of life on planet Mars. With new evidence suggesting the existence of extraterrestrial life forms, researchers believe that Mars is fully habitable. Now in 2040, the international space community is full of excitement and anticipation, for this discovery opens countless opportunities for humanity. Though it has been verified that life on Mars is possible, world leaders and scientists have yet to discuss the implications of this milestone – until now.

While information on Mars continues to spread, both government agencies and private companies have shown significant progress in potentially sending humans to the Red Planet. SpaceX, a leading space business owned by Elon Musk, has plans to construct a city on Mars with at least a million residents by the year 2050. However, heavy risks come with this goal, which is not only shared by SpaceX, but also by space institutions around the world. Firstly, the sheer cost of this project is unprecedented and just setting foot on Mars is estimated to cost half a trillion dollars. When other factors such as life support systems and extraplanetary infrastructure are considered, prices easily exceed billions of dollars. Secondly, poor Martian conditions such as sporadic weather, radiation, and scarce resources will slow the progression of this project. Many respected astronomers and scientists have voiced their concerns about the safety of colonization, even if settlement is feasible.

Therefore, it is absolutely essential that all actors develop a comprehensive plan for colonization before any action is taken. Moreover, another factor to consider is that while signs of extraterrestrial life have been identified, experts are not sure if these life forms still are intelligent – or even if they still exist. Currently, all that is known about these life forms is that their past or present existence is indicative of Martian habitability.

If technology reaches a point where Martian colonization is a feasible and affordable possibility, then a multitude of windows will open for humanity. This circumstance needs to be addressed immediately, due to the growing pressure of climate change and rising sea levels. Throughout the past few years, extreme weather and depleted resources have forced people to seriously consider Martian colonization. The colonization of Mars will not only decrease the probability of human extinction, but it will also free up resources on Earth.

As the sustainability of Earth and the colonization of Mars affect everyone, it is crucial that all actors are involved in determining the next step. Not only will federal space agencies be instrumental in avoiding political conflict, but private companies will play a significant role in deciding who gets to access Mars. Delegates need to consider all three phases of this mission: transportation, colonization, and competition. Due to the historic cost and risk of establishing a colony on Mars, cooperation between public and private stakeholders may be necessary. However, the wealth of rare resources and information hidden in Mars may tempt some actors to work independently instead. The Second Space Race has already started.

# Letter from the Chairs

Hello Delegates! We will be serving as your chairs for the Special Committee in GECMUN XII. Our names are Seunghun Lee, Ruby Chung, and Catherine Chen, and we are more than honored to be organizing this committee for you. A junior attending Yongsan International School of Seoul, Seunghun is extremely excited to be your Head Chair for the Special Committee. After competing as a delegate for the past two years, this will be his third year with GECMUN. In his free time, he loves to play volleyball on the varsity team and watch basketball as a passionate New York Knicks fan. Ruby is a junior attending Busan Foreign School and will be your Deputy Chair. After participating in numerous Model UN conferences as both chair and delegate, she is thrilled to have the opportunity to work with such a unique and forward-thinking agenda. Outside of the MUN atmosphere, she enjoys spending time with her friends, baking cookies and brownies, and going to karaoke in her free time. Catherine is a sophomore at Taipei American School and will serve as your Associate Chair for the Special Committee. She loves sports, especially basketball, so feel free to approach her about it! She started doing MUN in 6th grade and has been going to conferences ever since.

We are thrilled to have the opportunity to chair the Special Committee, where you will be tackling unique and unconventional topics with your peers. As both our committee and agenda suggest, we are different from normal MUN rooms, and we hope that everyone takes advantage of their creativity. The chairs are looking for passionate delegates who show a deep understanding of their position, the topic, and potential resolutions to address the agenda. Above all, we hope we can have fun discussing and debating the possibility of a Second Space Race while showing respect and professionalism the entire time. We look forward to making this conference a successful and memorable event. Please feel free to reach out to any of the chairs if you have any questions, and we will see you soon in March!

# Key Terms

**Bilateral / Multilateral Agreement**
A formal agreement between two parties, or more – usually states or organizations – for cooperation, resource-sharing, or joint missions to fund space exploration. Delegates may collaborate with other stances for beneficiary actions and find a solution to take the victory of Second Space Race.

**In-Situ Resource Utilization (ISRU)**
The ISRU is the utilization of local resources from special environments such as lunar or Martian soil to support research and missions. The ISRU produces oxygen, water, fuel, and other resources so that there is no need to travel back to Earth for resources, then long-term human colonization would be more possible.

**International Space Station (ISS)**
A satellite orbiting Earth that was built through international cooperation and the contributions of several countries. It serves as a platform for scientific research, technological development and space exploration to flourish away from the planet.

**Life Support Systems**
Life Support systems on Mars are technologies that provide astronauts with basic necessities such as air, water, food and suitable temperature. They will be established on Mars as human colonization begins on the planet. They help sustain human life and protect humans against the harsh conditions of Mars.

**Martian Infrastructure**
The necessary physical and technological facilities needed to support life and recreational activities on Mars, inducing refuges, transportation networks, communication systems, and power sources. Suitable infrastructure for humans is crucial for establishing a permanent settlement on the planet.

**Planetary Protection**
A set of guidelines designed in order to prevent biological contamination of other planets by Earth organisms, also protecting Mars from unnecessary microorganisms from harming the environment. As Mars may contain natural resources and life, planetary protection is crucial in ethics, science, and diplomacy.

**Second Space Race**
A “competition” between private companies and federal governments to gain an edge in space exploration, commercial launches, and the establishment of planetary colonization. Unlike the first, the Second Space Race involves companies from multiple countries as well as a variety of different nations.

**Space Colonization**
The process of establishing human settlements on extraterrestrial bodies such as the Moon or Mars. To achieve this, it is critical to have adequate habitats, life support systems, infrastructure, and resources. Scientists hope that space colonization will provide a way to expand human presence for scientific, economic, and survival purposes.

**Space Law & Policy**
Established in the late 1950s and 1960s by the international community, The Space Law & Policy governs human activities in space to enforce peace and cooperation. It involves many corollary treaties, focusing on space exploration, satellite use, new technologies, and more. However, a new era of exploration may surpass the issues addressed in this legislation.

# Historical Background

Since the last Apollo mission in December 1972, no human has ever stepped foot on the surface of another celestial object in the Solar System. However, countless changes and innovations have been made over the course of six decades, and the international community is in a new era of space exploration.

The race to reach Mars started in 1960 during the First Space Race, when the Soviet space program and National Aeronautics and Space Administration (NASA) launched a series of probes to the Red Planet. While NASA would have the first successful flyby of Mars in July 1965, the Soviets would accomplish the first soft landing in December 1971. Four years later, NASA would launch Viking 1 and 2, a mission that would provide the space community with information about the Martian atmosphere and surface. It also searched for signs of life, although experiments came back inconclusive.

Over two decades later, a remarkable discovery was made in 1997, when the Mars Global Surveyor captured the photo of the famous “Face on Mars”. Some scientists and space enthusiasts believe the face is proof of intelligent life.

In 2001, the Mars Odyssey satellite from NASA found large quantities of hydrogen beneath the surface, indicating the presence of ice. Two years later, it was announced that there was enough ice under the southern pole of Mars to fill Lake Michigan twice. The NASA Phoenix Lander then confirmed the presence of water in soil samples in 2008, and almost a decade later, liquid water was found in subglacial lakes on Mars. In 2024, radars detected the presence of liquid water deep under the Martian surface.

The discovery of water has pushed both state space agencies and private companies to learn more about the habitability of Mars. While NASA has sent a total of six rovers to Mars, both the China National Space Administration (CNSA) and the European Space Agency (ESA) have successfully landed their own rover, in 2021 and 2028 respectively. More agencies have begun to launch either their own Mars missions or collaborative programs to explore Mars. Space companies have also shown immense interest in Mars: SpaceX has been continuously improving its Starship program, although it failed to meet its goal of reaching the planet by 2026. No agency or company has yet to set foot on the Martian surface.

Then in 2030, scientists from the Japan Aerospace Exploration Agency (JAXA) found signs of life on the Red Planet. From its ongoing Martian Moons eXploration (MMX) mission, researchers from JAXA accidentally came across a geological formation that suggests life. After this groundbreaking discovery of life, NASA, CNSA, ESA, and ROSCOSMOS have all sent their own spacecraft to gain further details of the formation, though none of them have been willing to share information. As a result, throughout the past decade, agencies and companies have been in an intense standoff where competition has started to replace cooperation.

# Current State of Affairs

Ever since signs of life were found on Mars by JAXA ten years ago, tensions have heightened between space institutions around the world. Due to the unprecedented potential – and profit – of colonizing Mars, each nation wants to accomplish the feat as independently as possible. Governments have thus shunned the topic of space exploration in international summits, and many federal agencies have cut joint missions with their foreign counterparts. Many political trends, such as worsened ties between the United States and former allies, have added fuel to the fire. Currently, due to increased scrutiny and expired partnerships, there are no active alliances in the space community.

As collaboration has dramatically decreased over the past decade, technological innovation has also slowed down. While most agencies have gathered the information and science to send humans to Mars, no government has the astronomical amount of funding necessary to actually do so. In addition to suffering from limited resources and supplies, federal space agencies are losing public interest and support in setting foot on Mars. After several years of minimal progress, people are beginning to question whether colonizing the Red Planet is even possible or urgent in the context of other global issues.

While the public space sphere is experiencing rifts between agencies, private space companies are seeing larger and more lucrative investments from their governments. In an attempt to compensate for lost innovation, federal agencies are looking to work more closely with private businesses to prepare for colonization. By working with companies, governments hope to not only replace their former partnerships with other agencies, but also improve their chances of getting to Mars first. Although increased investments have benefited most space companies, some international businesses have been forced to either commit to their country of origin (and lose sales from other nations) or lose money to rival domestic companies. Not only that, many citizens are still unconvinced as to why so much money is being allocated to space exploration.

Another complication to the current situation is the lack of a relevant space policy on Martian colonization. The primary international framework that is currently referred to is the 1967 Outer Space Treaty, which has served its role in outlining what is allowed in space for the past several decades. Due to the Outer Space Treaty, the international community has avoided militarizing space by agreeing to disarm dangerous satellites and technologies. But as new innovations and discoveries are made, there are mutual concerns that the policy is outdated. Not only does it not consider the current state of human development, but it is unclear about what colonizing Mars would look like. Several topics, such as territorial claims and resource allocation, are not addressed in the Outer Space Treaty or any other space framework. Astronomers and politicians are both worried that the absence of a relevant international treaty will result in unintended consequences – namely, conflict on either Earth or Mars.

With growing social pressure on both public and private actors, the space community is desperate to colonize Mars while simultaneously trying to secure national interests. Though some agencies and companies are hoping to prioritize reaching the Red Planet, others believe it is necessary to first restore the trust of the general public. Even then, certain experts have pointed out that a policy must first be drafted and approved before further actions. These questions must be answered and a consensus must be reached. That is the sole purpose of the International Space Summit, which looks to leaders of the space community to finally come to terms with current circumstances. With limited seconds, supplies, and support, the summit will be a testament to the readiness of humanity in space exploration as a whole.

# Stances of Parties

**NASA (National Aeronautics and Space Administration)**
Established in 1958, NASA (National Aeronautics and Space Administration) has been one of the leading figures in the face of space exploration. From reaching distant areas to making milestone accomplishments, NASA has already set its ambitions on Mars as well. NASA currently has several ongoing Mars missions, including the operation of various rovers and data-collecting devices. However, NASA has also been significantly slowed down by federal cuts and complications with the United States government.

**JAXA (Japan Aerospace Exploration Agency)**
Founded in 2003 by the Japanese government, JAXA (Japan Aerospace Exploration Agency) has already made multiple achievements in space research. JAXA has been a leader in innovation, and it is renowned for experimenting with both new and existing technologies. It has applied its inventive mindset in exploring Mars, as seen with their Martian Moons eXploration (MMX) program, which focuses on the two moons of Mars.

**ESA (European Space Agency)**
The ESA (European Space Agency) is an independent organization in Europe, and since its inception in 1975, it has grown to consist of 22 member states. As one of the largest space agencies in the world, the ESA concentrates on expanding the regional influence of Europe in space research while also focusing on conserving the climate. Since its 2003 Mars Express mission to its current Mars Sample Return (MSR) mission, the ESA has actively worked with both local and international institutions to explore Mars.

**CNSA (China National Space Administration)**
When the CNSA (China National Space Administration) was established in 1993, the Chinese government focused on increasing its role in global space research. Since then, the agency has grown at an unprecedented rate, launching countless satellites, rockets, and even space stations into operation. Under its Tianwen program and the Zhurong Rover, the CNSA has also made strong strides in better surveying the Martian surface.

**ROSCOSMOS (State Corporation for Space Activities)**
Since 1992, the State Corporation for Space Activities (ROSCOSMOS) has been the official space agency of the Russian government. Considered to be the successor of the Soviet Space Program, the agency has a history of being a pioneer in space exploration and innovation. While ROSCOSMOS has a heavy focus on domestic missions, it has also worked with the ESA to organize ExoMars, a joint program that looks for life on Mars.

**ISRO (Indian Space Research Organisation)**
The ISRO (Indian Space Research Organisation) is the government space agency of India. Established in 1962 by the Indian government, the ISRO has focused on developing new technologies and research that fulfill national needs. The ISRO has shown consistent interest in exploring Mars, as seen by their Mars Orbiter Mission (MOM) in 2013 to better understand the Martian atmosphere.

**CSA (Canadian Space Agency)**
Founded in 1989 by the Canadian government, the CSA (Canadian Space Agency) has been an active member in international space research. By using its extensive research and expertise, the CSA has been able to address several domestic issues such as remote healthcare. When it comes to Mars, the CSA has supported both local scientists by providing government funds and global initiatives by sharing space technologies.

**UKSA (United Kingdom Space Agency)**
When the UKSA (United Kingdom Space Agency) was opened in 2010, British scientists focused on improving their global role in space exploration. Hence, the UKSA has been a strong advocate of domestic talent and skills, and it has shown constant support for local industries and academia. It has openly worked with other agencies such as the ESA to complete ambitious missions on Mars, such as landing a rover on the Martian surface.

**AEM (Mexican Space Agency)**
Also established in 2010, the AEM (Mexican Space Agency) is the federal space agency of Mexico. By developing new infrastructure and innovations, the AEM has prioritized the civilians as the beneficiary of its research. The AEM has also collaborated with many private companies to start new programs that will increase Mexican involvement in the exploration of Mars.

**AEB (Brazilian Space Agency)**
The AEB (Brazilian Space Agency) is the federal space agency of Brazil, and it was founded in 1994 to coordinate space operations in the country. The civilian institution is responsible for overseeing initiatives and developing infrastructure for national goals in space innovation. In 2020, the AEB signed the Artemis Accords to show its support and interest in advancing the exploration of both the Moon and Mars.

**UAESA (United Arab Emirates Space Agency)**
Established in 2014 by the United Arab Emirates government, the UAE Space Agency has focused on increasing the competitiveness of its domestic space program. It has also emphasized economic growth and scientific research through the involvement of local talent. In 2020, it launched the Emirates Mars Mission to gain a better understanding of the Martian climate and atmosphere.

**SSAU (State Space Agency of Ukraine)**
The SSAU (State Space Agency of Ukraine) has been the federal space agency of Ukraine since 1992. In addition to contributing to domestic and international research, the SSAU has recently focused on national security as a top priority. Nevertheless, the SSAU has also expressed clear interest in working with the Artemis Program to ultimately enhance the space exploration of Mars.

**SANSA (South African National Space Agency)**
Formed in 2010, the SANSA (South African National Space Agency) has been in charge of leading the space program of South Africa. The SANSA has made several programs to promote research and expedite industrial development in local industries. By working on initiatives such as the Deep Space Network, the SANSA has shown some commitment to researching Mars.

**SpaceX**
Founded by Elon Musk in 2002, SpaceX is one of the leading private companies in all of space exploration. Ever since its inception, the company has shown massive passion and commitment to reaching Mars in the near future. Using its cutting-edge rocket technology and innovative Starships, SpaceX hopes to send a spacecraft to Mars by 2026. However, despite making immense progress and developments with space agencies like NASA, SpaceX has suffered from several costly accidents as well.

**Blue Origin**
Founded by Jeff Bezos in 2021, Blue Origin is a relatively new figure in the world of private space research. Similar to SpaceX, Blue Origin has concentrated on making space exploration more accessible and cost-efficient to raise the level of civilian involvement. Through its EscaPADE program, Blue Origin plans on sending two spacecraft to the surface of Mars. The company has received significant backlash on space tourism, especially with celebrities and public figures.

**Virgin Galactic**
Established as a space tourism company in 2004 by Richard Branson, Virgin Galactic has been in the scene of private space research for decades. As the first commercial spaceline in the world, the company has concentrated on providing passenger trips and increasing awareness about the universe. Although it has remained a mainstream actor in private exploration, Virgin Galactic has struggled from financial losses and technological failures.

**The Boeing Company**
The Boeing Company (also known as Boeing) is an aircraft company founded in 1916, and it has since produced planes, rockets, satellites, missiles, and more. While it has not been involved in space tourism, Boeing has been heavily involved in the development of various satellites in orbit. By working with other companies and federal agencies, Boeing has already started development

on new technologies for potential use in reaching Mars. Unfortunately, Boeing does have a troubling record of safety violations and accidents.

**S7 Space**
S7 Space is the first private Russian commercial space company to use "Zenit" launch vehicles for multiple launch projects, such as the Sea Launch spaceport, since its founding in 2016. Although not directly related to Mars exploration, S7 Space owns the Sea Launch Platform, which S7 Space has developed interest in using for space exploration and launch missions. Within S7 Space, they have shown interest as well as marketed for the development of their own reusable rockets that could be used on the Sea Launch Platform.

**MDA Space (MacDonald, Dettwiler and Associates)**
Founded in 1969, MDA Space, originally MDA Canada, is the leading space company in Canada, closely working with NASA on many missions throughout its history. MDA Space has continuously developed rover technology and prototypes that expand to the ESA's Exomars mission, which is set to detect any signs of past life on Mars.

**Astroscale**
Astroscale, founded in 2013 and situated in Japan, works to improve space infrastructure, including removing debris around Earth's orbit as well as continue to develop satellites for life extension. However, Astroscale is not involved in any Martian exploration, mostly focusing on developing on-orbit technologies and working on missions within Earth's vicinity.

**Innospace**
Founded in 2017, Innospace, a South Korean private space company, specializes in the development of hybrid rocket technology and reusable launch vehicles. Although not currently participating in any known Mars exploration projects, Innospace's technology could potentially be used in future missions. As of right now, Innospace's focus remains on satellite launches and inertial systems, as such in their collaboration with the AEB.

**AgniKul Cosmos**
Working to make launch services and space exploration more accessible, AgniKul Cosmos, founded in 2017, continues to develop launch vehicles more mobile and customizable. AgniKul's technology is not currently used or designed for long and complex missions, and therefore is not directly related to any projects around Martian exploration. AgniKul's focus right now mostly revolves around satellite launches with challenges within Earth's orbit.

**PLD Space**
Founded in 2011, PLD Space is a Spanish aerospace company that mainly develops commercial launch services such as the MIURA 1-5. Unlike other similar launch focused companies, PLD Space has its sights on Moon and Mars exploration using newly developed MIURA Next Heavy and MIURA Next SuperHeavy. PLD Space plans to also develop a spacecraft, "Lince", which could potentially contribute to future Mars exploration efforts.

**Orbital Space**

Orbital Space, the leading UAE aerospace company founded in 2018, focuses on the development of space technology. Orbital Space has already collaborated with many public and private partners on many lunar missions, providing research opportunities for students and researchers alike. Orbital Space is involved in Martian exploration, specifically the Emirates Mars Mission, which launches a probe around the orbit of Mars.

**Embraer**

Being one of the world's largest aerospace companies, Embraer, founded in 1969, has made significant contributions in the development of satellite technology and communications. Embraer mostly focuses on commercial and military aviation development, but has also extended to the development of nanosatellites. However, Embraer has no relation with Mars exploration, with no clear future plans in that area, but their nanosatellite technology could be a part in future space research.

# Possible Solutions

## Establishment of a Joint Space Program

After suffering from a severe decline in innovation and net progress, some space agencies are desperate to restart joint initiatives. By rebuilding alliances with other countries, governments are hoping to accumulate the necessary amount of resources and funding for reaching Mars. While this solution is most promising in bringing back the collaborative nature of the international community, there are a few concerns. Firstly, this solution is dependent on the number of agencies who agree to work with other nations. If an insufficient number of countries choose to participate or only agencies with relatively weak programs are involved, the purpose of a joint program is lost. Secondly, choosing to enter a joint initiative comes at a cost for individual space agencies. By agreeing to cooperate, agencies will need to sacrifice the possibility of keeping all the resources and knowledge of colonizing Mars to themselves. While it is undeniable that exploring the habitability of Mars will contribute to the global community, the individual interests of specific agencies must be considered at all times.

## Conference to Draft Space Treaties

Another solution could be to host a conference with the purpose of drafting a new space treaty that is relevant and applicable to the current situation. Due to the outdated nature of the 1967 Outer Space Treaty, both experts and politicians believe it is imperative for a new set of guidelines to be installed. However, there are countless unanswered questions about what regulations should be considered and how they should be enforced. As these are international treaties, it is usually impossible to require all signatories – which could include federal agencies, private companies, or both – to comply with the law. Moreover, while a space conference may produce a successful treaty, some skeptics argue that it wastes resources and time that could have otherwise been spent on more innovation. There is also no guarantee that the conference will fulfill its intended purpose, nor is it fixed that the moratorium will occur in a timely manner.

# Questions to Consider

1. How can the international space community create a realistic plan to reach Mars?
2. How will the resources, funding, and support for exploring Mars be properly secured?
3. How can government space agencies return to their former status and rebuild alliances with each other?
4. What should governments do to manage their domestic interests while simultaneously maintaining the trust of other partners in the space community?
5. What role do private space companies play in exploring and colonizing Mars, and how should they be credited for their technological contributions?
6. What are some measures that can be implemented to ensure all actors have a mutual understanding of what Martian exploration entails and allows?
7. How can a new international treaty or policy contribute to the space community's ability to reach Mars in a sustainable and peaceful way?
8. How can federal agencies hold one another accountable and guarantee that all actors – including those with smaller space programs – work together?
9. In what ways can the government convince the general public that space exploration is both a worthwhile investment and a necessary commitment?
10. How will the international community respond to the possibility of meeting and interacting with another intelligent species on Mars?

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