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# CHAIR REPORT

**COMMITTEE: THE UNITED NATIONS OFFICE FOR  
OUTER SPACE AFFAIRS (UNOOSA)**

**CONFERENCE: ENGMUN**

**CHAIRS: TARFAH ALSHEHAB AND FAHAD ALHAYANI**

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**ENGMUN**  
FOR SCIENCE AND ENGINEERING

# WELCOME MESSAGE

## Dear Delegates:

Welcome to UNOOSA at ENGMUN! We are excited to guide you through these important discussions on Sustainable Space Exploration and Space Debris Management. As first-time participants, we understand this may be a lot to take in, but don't worry we're here to help!

This report is designed to give you a simple and clear understanding of the topics, key issues, and guiding questions. We've broken down each topic into manageable sections, so you can begin your research and feel confident when it's time for debate. Remember, ENGMUN is about collaboration, learning, and finding solutions together. Your participation will help shape the future of space activities and governance.

# AGENDA TOPICS

## Topic 1: Sustainable Space Exploration: Engineering Challenges and Solutions

### Background:

Space exploration has moved beyond simple missions to the Moon and the International Space Station (ISS). Now, we are aiming for much more ambitious goals, like establishing permanent human settlements on the Moon, sending astronauts to Mars, and exploring deep space. To make these goals a reality, we need to think about sustainability: meaning, how we can make space exploration safe and long-lasting, without harming the environment or relying too much on Earth.

Space missions today face many challenges: we need technologies to keep astronauts alive and healthy, we need efficient ways to travel long distances, and we need to ensure that we're not leaving harmful impacts on space itself. This topic focuses on overcoming these engineering challenges.

### Key Issues to Address:

- **Life Support Systems:** On long space missions, astronauts will need systems that provide clean air, water, food, and waste management. These systems must be closed-loop, meaning they can recycle everything without needing supplies from Earth.
- **Radiation Protection:** Space has dangerous radiation that can harm astronauts. This is especially a problem when traveling to Mars, where there is no protective atmosphere like Earth's. How can we protect astronauts from this radiation?
- **Efficient Propulsion Systems:** Rockets today are very slow and use a lot of fuel. But if we want to travel to far places like Mars, we need new propulsion systems that are faster and more fuel-efficient. How can we develop new technology, like nuclear or electric propulsion, to make space travel quicker and less dependent on fuel?

### Questions to Consider:

- What are the biggest technological challenges your country is facing in making space exploration sustainable?
- How can countries work together to develop life support systems, propulsion technologies, and radiation protection that are safe for all astronauts?
- How can space missions be designed to have minimal impact on the space environment (e.g., avoid creating space debris or pollution)?

# AGENDA TOPICS

## Topic 2: Space Debris Management: Keeping Earth's Orbit Clean

### Background:

Space debris, or “space junk,” is made up of old satellites, rocket parts, and other debris left over from past space missions. As more satellites and rockets are launched, more debris is created. Some of this debris is too small to see, but it can be just as dangerous because it travels at incredible speeds and could destroy active satellites or even damage future missions.

Managing space debris is essential because without proper action, space could become too crowded with junk for new missions to happen safely. This topic focuses on how to prevent the creation of space debris, how to clean up the debris that already exists, and how countries can work together to make space safer for future exploration.

### Key Issues to Address:

- **Preventing New Debris:** Every space mission can potentially create new debris. One solution is to ensure that old satellites are safely de-orbited when their mission ends. What can countries do to make sure that space missions are designed in a way that doesn't contribute to the growing debris problem?
- **Active Debris Removal:** There are plans to remove debris from space, like using robotic spacecraft to capture and bring junk down into Earth's atmosphere, where it will burn up. What technology is needed to remove debris, and what countries should lead these efforts?
- **International Cooperation:** Space debris is a global problem that requires international rules and cooperation. How can countries work together to create rules about how to deal with space debris? How can private companies be involved in cleaning up space debris?

### Questions to Consider:

- What role does your country play in preventing space debris, and how can it help make space cleaner?
- How can international agreements (such as the UN's Space Debris Mitigation Guidelines) be improved to make sure space debris is managed effectively?
- How can private companies be encouraged to help reduce space debris, and what incentives could be offered to them?

# PREPARATION GUIDELINES

## 1. Position Paper:

- What is a position paper? It's a document where you explain your country's views on both topics and suggest potential solutions.
- How to write it: In your position paper, you should outline your country's policies and actions related to space exploration and space debris management. Be sure to mention any key partnerships or agreements your country is involved in.

## What to include:

- Your country's stance on sustainable space exploration and space debris management.
- Policies, technologies, or partnerships your country supports to solve these issues.
- Any challenges your country is facing related to space exploration or debris management.

## 2. Research Focus:

- What to focus on: Research your country's space agency (e.g., NASA for the U.S., ESA for Europe, CNSA for China, etc.), its space policies, and any international agreements your country is part of (e.g., the Outer Space Treaty).
- Look at other countries: Focus on countries with strong space programs (like the U.S., Russia, China, Japan, and the EU) to understand their positions and interests in space exploration and debris management.

## 3. Key Documents:

- Familiarize yourself with the Outer Space Treaty, which outlines the rules for space exploration.
- UNOOSA's Space Debris Mitigation Guidelines: These are guidelines that explain how countries should manage space debris to ensure space remains safe for everyone.
- Research space policies from international space agencies like NASA, ESA, and JAXA.

## Expectations During Debate

Present your country's position clearly and confidently, supporting your ideas with facts. Work together with countries that have similar views, but also be open to learning from others. Propose realistic, creative solutions that can work for all space-faring countries. Respect different opinions, listen carefully, and try to build agreements that everyone can support.

Remember: MUN is about collaboration and diplomacy. You don't have to have all the answers right away, but be prepared to discuss and negotiate solutions.

We're excited to see you take the lead and use your skills to solve these important issues. If you have any questions or need help with anything, feel free to reach out to us before the conference.

Best regards,

Tarfah AlShehab and Fahad AlHayani