



FORUM: Special, Political and Decolonization Committee (SPECPOL)

AGENDA: Possible Challenges to Space Security and Sustainability

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Esteemed Delegates and Honorable Advisors,

It is my utmost honor and immense pleasure to welcome every single one of you to TTMUN'26.

Ever since its first session in 2015, TTMUN Conferences have been an undeniable portrayal of unity, collaboration, and resilience by the fellow members of the TTMUN Club. As the executive team of TTMUN'26, we have dedicated countless hours to organize the 11th annual session of TTMUN; while doing so, we have maintained the same passion and dedication with every step we have taken to sustain the quality of TTMUN. That being said, as the Secretary-General of TTMUN'26, I would like to thank my fellow executive team members and our remarkable advisor, Vesile Acar, whose support made it possible to organize this conference and host you here at our school on the 27th, 28th, and 29th of April. Yet, beyond its tradition, TTMUN'26 is shaped by its purpose.

Our mission in TTMUN Club is to foster mutual growth in a collaborative environment where we are not only discussing real-world issues but also work towards solutions. Therefore, in correlation with our mission, we have chosen the theme of TTMUN'26 to be "Bridging Divides in Human Rights". The significance of the theme lies in the unfortunate irony of the persistence of human rights violations. Today, our world is witnessing and turning a blind eye to human rights violations that the United Nations was initially established to ensure that the world would never witness and do so again. Acknowledging this, we, the youth shall not only wait for our turn to come tomorrow but shape it today. Hence, as the executive team, we hope for a fruitful conference where everyone, regardless of their role, contributes to the debates, lobbying, and discussions, bearing the urgency of our global reality in mind.

As we embark on this journey, this mission will be in action over the course of three days as the delegates will have the opportunity to be active in one of nine committees of TTMUN'26 with fifteen diverse agenda items that seek to solve the serious issues that our world is facing. While doing so, let's embrace the unparalleled value of collaboration, respect, and empathy for a better future. Finally, I hope that you have an incomparable MUN experience and once again as the Secretary General, I wholeheartedly welcome everyone to the TTMUN'26.

“All my hope is in youth!”

—Mustafa Kemal Atatürk.

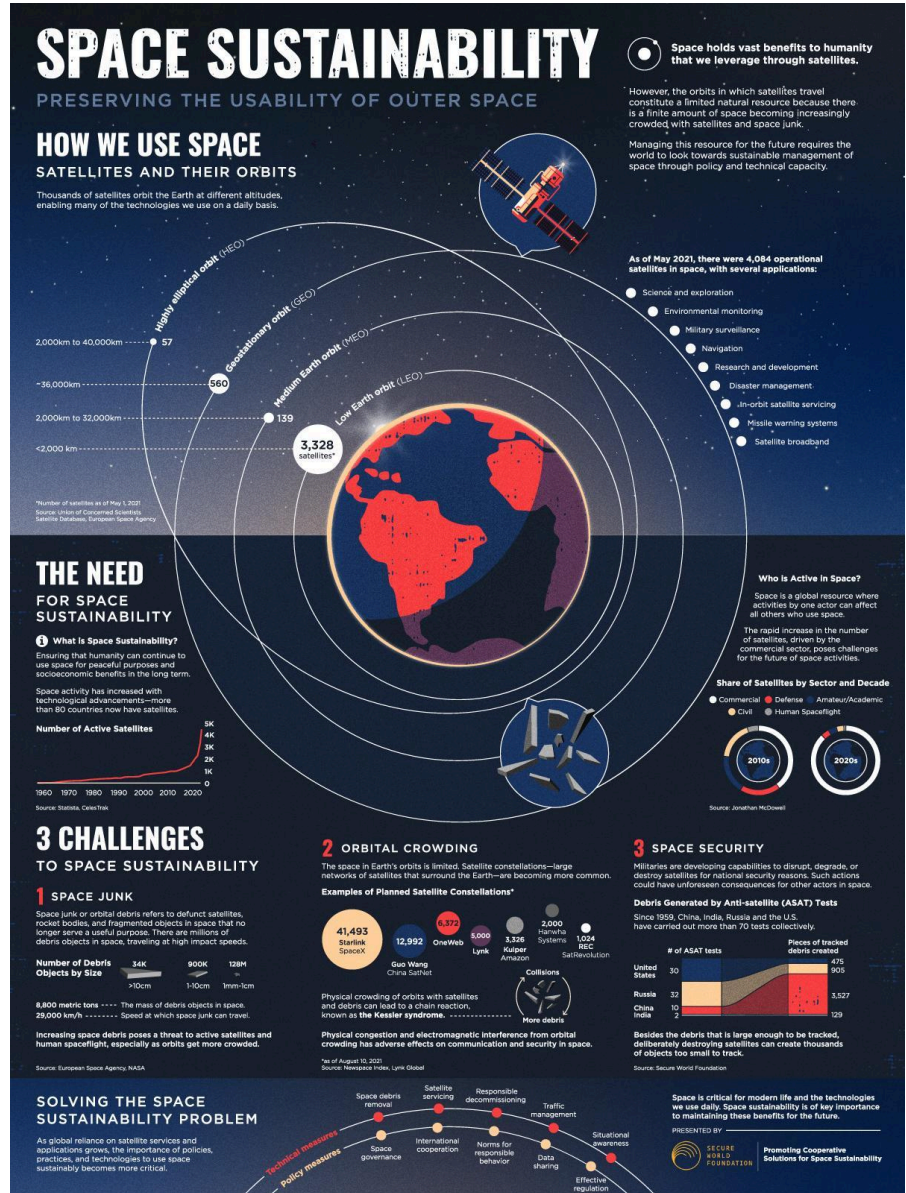
Yours sincerely,

Derin Halatçı - Secretary General

INTRODUCTION

Nowadays, space is no longer an empty and unexplored area but a rapidly developing domain with increasing participation from both countries and private companies. In recent years, space-related activities have grown significantly, leading to more satellites and space objects being placed into Earth's orbit. This has made space more crowded and raised serious concerns about safety and long-term sustainability.

At the same time, growing military interest and the development of counterspace technologies pose risks to the security of outer space. These challenges highlight that space safety and security are closely interconnected and must be addressed together. Therefore, international cooperation and effective regulations are essential to ensure that outer space remains peaceful, secure, and sustainable for future generations. Immediate and coordinated global action is necessary to prevent long-term damage to the space environment.

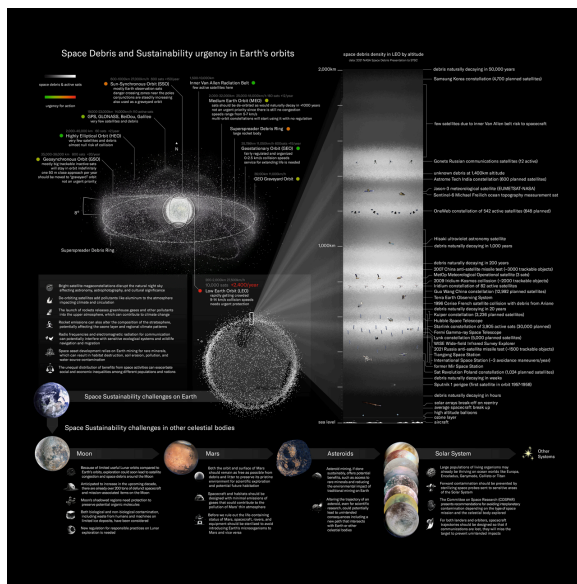


DEFINITION OF KEY TERMS

- **Space Security**

Space security is the protection and responsible management of space systems, infrastructure, and services to ensure reliable access and safe use of space for all purposes. It includes defending satellites and space assets from natural hazards, accidents, or deliberate attacks, as well as preventing the weaponization of space and the misuse of counterspace technologies. Over time, the concept has evolved from a strictly military focus during the Cold War to a broader understanding that also includes environmental threats and the security of space-based services. Ensuring space security is crucial for maintaining international peace and stability, because many countries depend on space for communications, navigation, weather monitoring, and national defense.(Vedda, 2008) Expanding the definition to cover all these aspects helps manage risks and supports the long-term, peaceful, and sustainable use of outer space.

- **Space Sustainability**



Space sustainability is the practice of using and managing space responsibly to ensure that space activities can continue safely and effectively for the long term. It involves protecting the orbital environment from debris, responsibly using space resources, and designing spacecraft and missions that minimize environmental impact both in space and on Earth. Space sustainability also includes supporting human and economic benefits on Earth, such as climate monitoring, disaster management, education, and innovation, while requiring close cooperation between governments, private companies, and international organizations to establish rules,

standards, and sustainable practices. Ultimately, it ensures that future generations can explore, use, and benefit from space without depleting or damaging its resources. (*Space Sustainability: A View from the Global Space Industry* Space Sustainability: A View from the Global Space Industry, n.d.)

- **Counterspace Capabilities**

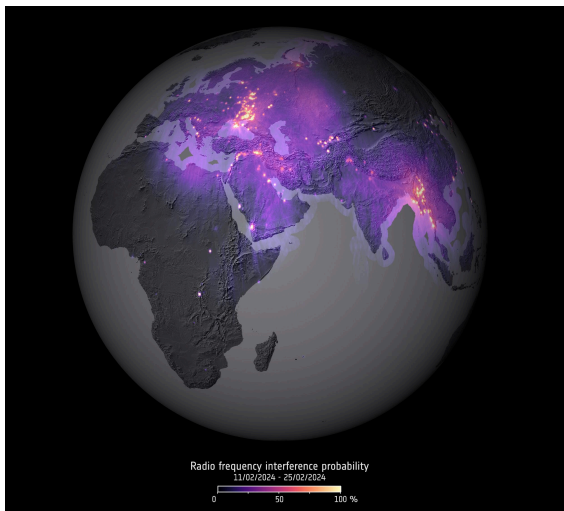
Counterspace capabilities are technologies and systems designed to interfere with, disable, or destroy satellites and other space assets belonging to another actor. These can include jamming communications, cyberattacks, or direct-ascent anti-satellite weapons. While some states view them as part of national defense and deterrence, counterspace capabilities raise serious concerns because they can generate large amounts of space debris and increase the risk of conflict in orbit.

- **Space Debris**

Space debris refers to all non-functional, human-made objects in Earth's orbit, including defunct satellites, rocket parts, and fragments from past collisions or explosions. As the number of objects in space increases, debris poses a growing risk to operational satellites and spacecraft. Even small pieces can cause serious damage due to their high speed, making debris one of the biggest challenges to space sustainability and safety.



- **Radio Frequency Interference (Jamming and Spoofing)**



Radio frequency interference involves the disruption or manipulation of satellite communication signals. Jamming blocks or weakens signals, while spoofing sends false signals to mislead systems such as GPS. These actions can seriously impact aviation, maritime navigation, emergency services, and military operations, making them a significant threat to both space security and everyday life on Earth. As reliance on satellite-based systems continues to grow globally, the risks associated with such interference are becoming increasingly critical for international stability and security.

- **Space Governance**

Space governance refers to the system of international laws, rules, norms, and institutions that regulate human activities in outer space to ensure its peaceful, safe, and sustainable use. It is based on the idea that outer space is a global commons and cannot be owned by any state, meaning all countries share responsibility for its use and protection. Its main legal foundation is the 1967 Outer Space Treaty, which establishes key principles such as peaceful use, non-appropriation, and state responsibility for space activities, including those of private companies. Space governance is also supported by UN bodies like COPUOS, which promotes cooperation and develops space policy guidelines. Today, it is increasingly important due to challenges such as space debris, rising commercial space activity, and the risk of militarization.

BACKGROUND INFORMATION

The rapid expansion of space activities since the early 2010s has led to significant challenges affecting both the space environment and life on Earth. One of the primary concerns is the increasing accumulation of space debris, which raises the risk of collisions and threatens operational satellites. Additionally, issues such as radio frequency interference, including jamming and spoofing, can disrupt critical services like navigation, aviation, and emergency response systems, demonstrating the direct impact of space-related risks on daily life. Furthermore, the growing number of actors in space, including commercial companies, has made coordination and regulation more complex. Existing international frameworks, originally designed for a smaller number of participants, struggle to keep up with these developments. At the same time, the testing and development of counterspace capabilities contribute to geopolitical tensions and increase the risk of conflict in space.

These challenges are interconnected, as threats to space security, safety, and sustainability influence one another. Addressing them requires improved governance, better information sharing between stakeholders, and stronger global efforts to manage the long-term use of outer space.

CURRENT SITUATION

Outer space has become a vital domain for global security, economic development, and technological innovation. As of 2026, the number of active satellites has risen to approximately 14,000, driven by increasing participation from both states and private actors. This rapid expansion has significantly intensified pressure on the space environment. (*Secure World Foundation: A*



Retrospective on Strengthening Space Safety, Sustainability, and Security in 2025, 2025). One of the primary concerns is orbital congestion and the growing amount of space debris. Debris from collisions, fragmentation events, and defunct satellites continues to accumulate, increasing the likelihood of further collisions. Experts warn that a major incident could trigger a cascade effect, potentially rendering certain orbits unusable for extended periods. At the same time, space security is increasingly shaped by geopolitical tensions. The development of counterspace capabilities by major powers raises concerns about the potential militarization of outer space and the erosion of the principle of its peaceful use. This has made space a more contested and strategically sensitive domain. The growing role of the private sector adds another layer of complexity. While commercial investment is accelerating innovation and expanding access to space, many new actors lack experience in managing the long-term sustainability of space activities, increasing the risk of irresponsible practices. Furthermore, the need for effective space traffic management and space situational awareness (SSA) has become more urgent. With more actors operating in orbit, improved coordination and data-sharing are essential to ensure safety; however, global governance mechanisms in these areas remain limited and fragmented. Overall, the current situation is characterized by rapid growth, rising risks, and insufficient international regulation, highlighting the need for stronger cooperation and more effective governance frameworks to ensure the long-term sustainability and security of outer space.

MAJOR PARTIES INVOLVED

China,

has emerged as one of the most advanced and comprehensive space powers. Over the past two decades, it has rapidly expanded its space capabilities across civilian, commercial, and military domains. China operates a wide range of satellites supporting communications, navigation (notably the BeiDou Navigation Satellite System), meteorology, and intelligence, surveillance, and reconnaissance (ISR).



Its military doctrine increasingly emphasizes the strategic importance of space as a “commanding height” in modern warfare. In terms of counterspace capabilities, China is developing a diverse and sophisticated arsenal. This includes direct-ascent anti-satellite (ASAT) weapons capable of physically destroying satellites, as well as non-kinetic systems such as electronic warfare tools (jamming and spoofing), cyberattacks targeting satellite networks, and directed-energy weapons like lasers that can temporarily dazzle or permanently damage satellite sensors. These capabilities pose significant risks not only to adversary space systems but also to the broader space environment, particularly due to the potential generation of long-lasting orbital debris.

Russia,

remains a leading space power with extensive experience dating back to the Cold War. It maintains a robust portfolio of space assets, including satellites for navigation (GLONASS), missile early warning, communications, and reconnaissance. Space continues to play a central role in Russian military strategy, particularly in ensuring command and control, precision targeting, and strategic deterrence.



Russia is also actively developing and maintaining a wide range of counterspace capabilities. These include direct-ascent ASAT systems, co-orbital systems that can approach and potentially interfere with other satellites, electronic warfare tools designed to disrupt satellite signals, and cyber capabilities targeting ground stations and space infrastructure. (*DEFENSE INTELLIGENCE ENCYCLOPEDIA*, n.d.) Additionally, Russia has demonstrated a willingness to test such systems, raising concerns about debris generation and the escalation of tensions in space. Its activities reflect a broader strategic objective to challenge the technological and military advantages of other major space actors.

The United States,

plays a leading role in addressing challenges to space security and sustainability, as its space capabilities are central to its national security, global influence, and economic stability. U.S. space activity spans three main sectors: civil (led by NASA, contributing to scientific advancement and soft power), national security (including surveillance, early warning systems, and military operations supported by satellites in GEO and LEO), and commercial (driven by companies like SpaceX and Amazon, which provide communication and launch services).



However, the U.S. faces increasing challenges, including orbital congestion and the growing risk of the Kessler Syndrome, which threatens long-term space sustainability. At the same time, its space assets are vulnerable to counterspace capabilities developed by rivals such as China and Russia, including anti-satellite weapons, cyberattacks, and electronic warfare. In response, the U.S. promotes stronger space governance through international cooperation, supports UN-led initiatives like the United Nations Committee on the Peaceful Uses of Outer

Space, and works with allies to enhance space security. Overall, maintaining U.S. leadership in space is seen as essential not only for its own interests but also for ensuring stability and sustainability in the increasingly competitive space domain.

The European Union,

plays a growing and strategic role in addressing challenges to space security and sustainability, recognizing space as essential for economic stability, technological development, and defence.

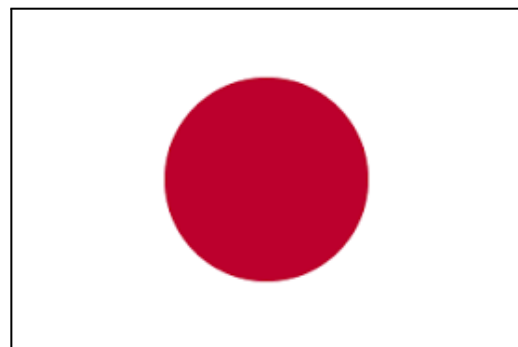


Through its EU Space Strategy for Security and Defence, the EU aims to enhance the resilience, protection, and autonomy of its space systems and services by improving space domain awareness, strengthening response mechanisms to space threats, and developing new technologies. It places strong emphasis on sustainability by promoting space debris mitigation, safer satellite

operations, and the need for effective space traffic management to prevent collisions and long-term damage to the orbital environment. (*EU Space Strategy for Security and Defence - European Commission*, n.d.) The EU also works to ensure secure and continuous access to space, while reducing dependency on external actors. In terms of security, it actively addresses risks from counterspace capabilities by improving coordination among member states and establishing information-sharing systems to detect and respond to threats. Furthermore, the EU supports international cooperation and rules-based governance, engaging within the United Nations framework and working closely with partners such as the United States and NATO to promote responsible behaviour in outer space, prevent escalation, and strengthen global space security.

Japan,

plays an increasingly important role in addressing challenges to space security and sustainability, particularly through its close cooperation with the United States. Space has become a key domain for national security and deterrence within the U.S.-Japan alliance, with capabilities such as satellite communications, navigation, intelligence, and space domain awareness shaping modern military operations and decision-making. Since the 2008 Basic Space Act, Japan has strengthened its institutional framework, expanded investments in space technologies, and integrated space more directly into its security strategy. This is reflected



in recent developments such as the establishment of the U.S. Space Forces–Japan and joint initiatives like hosting space surveillance payloads on Japan’s satellite systems, demonstrating deeper operational cooperation. At the same time, Japan is adapting to the

growing role of private actors in space by encouraging commercial involvement, with the government acting both as a key customer and coordinator to align industry capabilities with national security needs. Through these efforts, Japan contributes to enhancing space security, improving resilience against threats, and supporting the sustainable and cooperative use of outer space.

North Korea,

is another emerging space actor whose activities are closely tied to its broader military ambitions. It has successfully conducted satellite launches and continues to develop its space

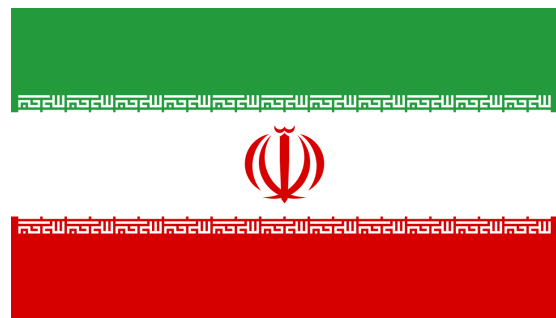


launch vehicle technology, which shares critical components with its intercontinental ballistic missile (ICBM) program. This dual-use nature has drawn significant international concern, as advancements in space technology can directly enhance its missile capabilities. (*D E F E N S E I N T E L L I G E N c E a G E N c Y*, n.d.) In the realm of counterspace, North Korea is believed to possess non-kinetic capabilities such as GPS

and communications jamming, which it has demonstrated in past regional incidents. While its ability to physically target satellites remains limited, its growing technological base suggests potential future developments. Even at its current level, North Korea's activities contribute to uncertainty and instability, particularly in East Asia.

Iran,

represents an emerging but increasingly relevant actor in space. While its capabilities remain more limited compared to China and Russia, Iran has made notable progress in developing indigenous space technologies, including satellite launches and ground infrastructure. Importantly, its space program is closely linked to its ballistic missile development, as both rely on similar technologies such as rocket propulsion and guidance systems.



Iran has also demonstrated the ability to conduct non-kinetic counterspace operations, particularly through electronic warfare. It has been reported to use jamming techniques to interfere with satellite communications, which can disrupt civilian and military services alike. Although Iran does not yet possess highly advanced space systems, its activities raise concerns about regional stability and the potential misuse of dual-use technologies.

RELEVANT INTERNATIONAL DOCUMENTS

International space law explains the key treaties, principles, and legal framework that govern how countries use outer space, emphasizing peaceful use, cooperation, and the prevention of conflict.

- **International Space Law Explained**

<https://www.un.org/en/peace-and-security/international-space-law-explained>

The Secure World Foundation report provides an overview of recent global efforts and ongoing challenges in improving space safety, sustainability, and security, highlighting the need for stronger cooperation and updated governance measures.



- **Secure World Foundation**

<https://www.swfound.org/publications-and-reports/>

The United Nations publication on treaties and principles on outer space compiles and explains the key international agreements and legal principles that govern state activities in space, including rules on peaceful use, liability, registration, and international cooperation.

- **UNITED NATIONS TREATIES AND PRINCIPLES ON OUTER SPACE**

<https://digitallibrary.un.org/nanna/record/442231/files/>

The article on challenges to the sustainability of space exploration examines key risks such as space debris, resource limitations, and increasing human activity, emphasizing the need for responsible practices and stronger governance to ensure long-term access to space.

- **Challenges to the Sustainability of Space Exploration.**

<https://doi.org/10.1080/1477762080190792>

The Outer Space Treaty explains the fundamental rules governing outer space, including that it must be used for peaceful purposes, cannot be owned by any country, prohibits weapons of mass destruction in orbit, and holds states responsible for their activities in space.

- **Outer Space Treaty (1967)**

<https://www.nasa.gov/history/SP-4225/documentation/cooperation/treaty.htm>

Challenges to Security in Space report explains how growing global space activity and advances by countries like China and Russia are creating new threats to the security of space systems that support military, civilian, and commercial functions, and examines the implications of these threats for U.S. and allied space capabilities.

- **CHALLENGES TO SECURITY IN SPACE**

https://aerospace.csis.org/wp-content/uploads/2019/03/20190101_ChallengestoSecurityinSpace_DIA

Study on the Application of Confidence-building Measures in Outer Space report explains how a group of United Nations governmental experts examined existing space uses, legal frameworks, and international cooperation to identify and recommend confidence-building measures that can increase transparency, reduce the risk of conflict, and help prevent an arms race in outer space.

- **Study on the Application of Confidence-building Measures in Outer Space**

<https://digitallibrary.un.org/nanna/record/3964708/files/SS-27>

SOLUTION ALTERNATIVES

Solution 1: *Expanding the Use of Copernicus for Space Sustainability and Security*

A practical and cooperative solution to challenges in space security and sustainability is the expanded international use of the Copernicus Programme, led by the European Union, in partnership with the United Nations Office for Outer Space Affairs. Copernicus provides free and open Earth observation data, which can be integrated into global governance efforts to enhance transparency and cooperation among states. By improving access to satellite data—especially for developing countries—this system can support space situational awareness (SSA), help monitor the environmental impacts of launches and debris re-entry, and strengthen disaster response capabilities without relying on militarized space assets. Furthermore, its open-data model reduces information asymmetry between states, contributing to confidence-building and lowering geopolitical tensions. A realistic implementation would involve a UN General Assembly resolution encouraging voluntary data-sharing partnerships with Copernicus, alongside UNOOSA-led capacity-building programs to train states in effectively using such data. This solution is both feasible and cost-effective, as it builds on an existing system while promoting sustainability, transparency, and peaceful cooperation in outer space.



Solution 2: *Creating an International Fund for Active Debris Removal and Sustainable Space Practices*

The establishment of a UN-coordinated International Fund for Active Debris Removal (ADR) and sustainable space practices, administered through the United Nations Office for Outer Space Affairs in cooperation with the World Bank and relevant space agencies. This fund would provide financial and technical support for projects aimed at removing existing space debris, developing safer satellite technologies, and improving end-of-life disposal practices. Contributions could be based on a voluntary scale, with major spacefaring nations and private companies contributing a larger share, while developing countries benefit from capacity-building and access to safer technologies. The fund could also incentivize responsible behavior by offering grants or reduced launch costs to operators that comply with debris mitigation guidelines, such as deorbiting satellites within a specified timeframe. Additionally, it would support research into innovative debris removal technologies, including robotic capture systems and controlled re-entry methods. This approach builds on existing UN development financing models and avoids politically sensitive restrictions, while directly addressing one of the most urgent threats to space sustainability: the accumulation of orbital debris.

Solution 3: *Developing a Binding UN Code of Conduct for Space Activities*

The negotiation of a Binding International Code of Conduct for Space Activities under the framework of the United Nations, particularly through the Committee on the Peaceful Uses of Outer Space and the Conference on Disarmament. Unlike existing voluntary guidelines, this code would establish clear legal obligations for states regarding responsible behavior in outer space. Key provisions could include a ban on destructive anti-satellite (ASAT) testing, mandatory debris mitigation standards, and requirements for safe satellite operation and end-of-life disposal. It could also introduce rules on avoiding harmful interference with other states' space assets and promote transparency through required data-sharing and reporting. To ensure feasibility, negotiations could begin with a coalition of willing states and gradually expand participation, similar to other international arms control agreements. While achieving universal agreement may be difficult due to geopolitical tensions, even partial adoption by major space actors would significantly strengthen global norms. This solution directly addresses both security concerns (militarization and conflict risks) and sustainability issues (debris and congestion), making it a comprehensive and impactful approach within the UN system.

USEFUL LINKS.

The UNOOSA page on COPUOS working groups explains that under the Committee on the Peaceful Uses of Outer Space (COPUOS) there are specialized working groups, such as the Scientific and Technical Subcommittee's Working Group of the Whole and others, that focus on specific issues like long-term sustainability, space science and technology, and related topics to support international cooperation, technical review, and implementation of guidelines for peaceful and sustainable space activities.

- <https://www.unoosa.org/oosa/en/ourwork/copuos/working-groups.html#STSCWGLTS>

The COPUOS Scientific and Technical Subcommittee Working Group on the Use of Nuclear Power Sources in Outer Space focuses on promoting and facilitating the implementation of internationally agreed safety frameworks and principles for the use of nuclear power sources in space, providing a forum for States and organizations to discuss their plans, experiences, challenges, and technical information related to nuclear power applications beyond Earth.

- <https://www.unoosa.org/oosa/en/ourwork/copuos/working-groups.html#STSCWGNPS>

The COPUOS Legal Subcommittee Working Group on the Definition and Delimitation of Outer Space focuses on examining issues related to how “outer space” is defined and where it begins/ends under international law, including reviewing national legislation and practices as well as responses from States and organizations on questions such as suborbital flights and legal boundaries of space.

- <https://www.unoosa.org/oosa/en/ourwork/copuos/working-groups.html#LSCWGDD>

The UNOOSA page on the Committee on the Peaceful Uses of Outer Space (COPUOS) explains that COPUOS is a United Nations committee established in 1959 to promote international cooperation in the peaceful exploration and use of outer space, to review space-related activities and legal issues, and to serve as a global forum where States discuss and monitor developments in space science, technology, law, and sustainable space activities through its Scientific and Technical and Legal Subcommittees.

- <https://www.unoosa.org/oosa/en/ourwork/copuos/index.html>

The Space-Mining.com guide to COPUOS explains that the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) is a UN body created to ensure that outer space is explored and used for peaceful purposes and the benefit of all nations by developing international space law, promoting cooperation, and addressing scientific, technical, and legal issues related to space activities.

- <https://space-mining.com/a-complete-guide-to-copuos-the-un-committee-on-the-peaceful-uses-of-outer-space/>

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