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Committee on the Peaceful Uses of Outer Space (COPUOS)

Topic: "Regulating the Use of Outer Space for Experimentation and Weapon Transportation"

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I. Committee background

COPUOS, standing for the Committee on the Peaceful Uses of Outer Space, was set up by the General Assembly in 1959 to govern the exploration and use of outer space for the benefit of all humanity: for peace, security, and development. The Committee's responsibilities include reviewing international cooperation in peaceful outer space activities, identifying potential UN space initiatives, promoting space research, and examining legal issues related to space exploration.

The Committee was instrumental in the creation of the five treaties and five principles of outer space. International cooperation in space exploration and the use of space technology applications to meet global development goals are discussed in the Committee every year. Owing to rapid advances in space technology, the space agenda is constantly evolving. The Committee therefore provides a unique platform at the global level to monitor and discuss these developments.

II. Topic Overview

In more than 60 years of space activities, more than 6050 launches have resulted in some 56450 tracked objects in orbit, of which about 28160 remain in space and are regularly tracked by the US Space Surveillance Network and maintained in their catalogue, which covers objects larger than about 5-10 cm in low-Earth orbit (**LEO**) and 30 cm to 1 m at geostationary (**GEO**) altitudes. Only a small fraction - about 4000 - are intact, operational satellites today.

Times have changed and new developments have arisen as well as new challenges to overcome compared to sixty years ago. There has been an increased number of satellites, accompanied by space debris, causing the atmospheric pollution which we can see today.
This raises the question, how contaminated is the Earth's atmosphere currently and how can it affect us worldwide?

III. Historical Background

Space experimentation has always been intertwined with its use for both scientific experimentation and military applications. This dual-use nature has defined the "Space Race" and continues to shape international policy today.

Space-based experimentation began with the launch of the Soviet Union's **Sputnik 1** in 1957. While it had no scientific instruments, its simple radio signals allowed scientists to study the density of the upper atmosphere by observing its orbital decay.

However, the real push for scientific experimentation came with later satellites, like the **Explorer 1** (U.S. 1958), which was the first U.S. satellite. It carried scientific instruments to detect cosmic rays, which led to the discovery of the Van Allen radiation belts.

- **Hubble Space Telescope (1990):** after the success of the Apollo missions and the end of the cold war era, the US continued exploring advanced technologies for human space travel, thus creating the Space shuttle, which played a major part in the launch of the first space telescope, the **Hubble** telescope. The Hubble allowed for the discoveries of new galaxies, exoplanets and stars, which fueled the curiosity of scientists to further explore the universe.
- **International Space Station (ISS):** this collaborative project represents the pinnacle of international space experimentation, providing a platform for long-term research in microgravity, biology, and physics.

The militarization of space has existed since the beginning of the space age, as the rockets used for launching satellites were originally developed as intercontinental ballistic missiles (ICBMs) for military purposes. The primary use of space for military applications is not for "transporting" weapons in the traditional sense, but rather for military support functions that provide a decisive advantage in conflicts on Earth

IV. Current Situation

Since the Outer Space Treaty was signed, new challenges have emerged, including the exponential increase in satellites, the risk of space debris, and the development of new military and experimental technologies.

Over 140 million pieces of space debris currently orbit the Earth, with a total mass of over 13,000 tonnes. This debris contains defunct satellites, discarded rocket stages, and fragments from collisions. This imposes a threat as it can cause a major chain reaction of collisions, which in turn creates more debris. As the debris builds up and causes these collisions, it can harm satellites transporting weapons, data, or even astronauts who would then be at risk.

This pollution has also increased costs as more money is required for satellite operations, requiring investment in expensive debris mitigation and removal, and threatening valuable space assets.

Furthermore, it is necessary to take into account this atmospheric pollution as it can affect the cost of experiments made in space or even impact the instruments or environment being experimented.

While the Outer Space Treaty provides a strong legal basis, there is a clear and present need for updated regulations to address modern technological advancements and prevent space from becoming a new arena for conflict.

V. Past International Action

- The **Outer Space Treaty** (**OST**) was considered by the Legal Subcommittee in 1966 and an agreement was reached in the General Assembly in the same year. The Treaty was largely based on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, which had been adopted by the General Assembly in 1963, but added a few new provisions. The Treaty was opened for signature by the three depository Governments (the Russian Federation, the United Kingdom and the United States of America) in January 1967, and it entered into force in October 1967.

- The **Limited Test Ban Treaty** was created in the early 1960s as both U.S. president John F. Kennedy and Soviet Premier Nikita Khrushchev expressed deep concern about the strength of their respective nations' nuclear arms forces, leading them to complete the first arms control agreement of the Cold War. This treaty was created with a main goal to reduce the radioactive contamination of the environment from nuclear testing, which had become a major health concern at the time.

- In 1978, the international community introduced the idea of "**Prevention of an Arms Race in Outer Space**" (**PAROS**) as part of its efforts to ensure space security, mainly stating that outer space should be used for peaceful purposes. In 1982, PAROS was added as an item to the Conference on Disarmament's agenda, and has since been present on the agenda of multilateral discussions.

VI. Involved Actors

VII. Problems to Address

- **The Dangers of Space Debris:** space debris, even tiny pieces, poses a threat to active satellites and crewed spacecraft like the International Space Station (ISS). In LEO, where most of the debris is concentrated, objects can travel at speeds of up to 10km/s, at which a small fragment can strike a satellite with enough force to cause significant damage or even destroy it, creating thousands of new pieces of debris, thus creating a chain reaction that would make certain orbits unusable.
- **Collision Risks:** as the space debris continues to be exponentially increasing due to more launches, anti-satellite weapon tests, and fragmentation from past collisions, a collision with even a tiny piece of debris could cause catastrophic damage due to the immense

kinetic energy involved. This is a significant threat to any spacecraft, including those transporting military payloads.

- **Orbital Decay:** atmospheric contamination can cause atmospheric drag on objects in LEO. This drag is a subtle, but continuous, braking force that causes a satellite's orbit to slowly decay, forcing it to spiral closer to Earth.
- **Contamination of Instruments:** small particles, such as paint flakes and micrometeoroids, can pit or degrade sensitive optical instruments like telescopes and sensors. This degradation reduces the clarity and accuracy of scientific observations, from astronomical studies to Earth-monitoring experiments. The accumulation of debris can also deposit on spacecraft surfaces, altering their thermal properties or electrical performance.
- **Ambiguity and Militarization vs. Weaponization:** militarization, such as the use of satellites for communication and surveillance by military forces, is permissible under the OST. However, the weaponization of space, specifically the placement of conventional weapons in orbit, is a "gray area" as it is not explicitly prohibited by the treaty's ban on weapons of mass destruction. The treaty also notes that dual-use technology, which has both civilian and military applications, and the development of anti-satellite (**ASAT**) weapons, further complicate the regulation of space and pose a threat to its peaceful use.

VIII. Conclusion

In conclusion, the increasing militarization of space, coupled with outdated international regulations, pose significant threats to the long-term sustainability of space activities.

In essence, the future of space exploration and its benefits to humanity are at a crossroads. The legacy of the Cold War's space race has left a trail of orbital debris and a legal framework that is no longer sufficient to govern a new era of space activity. To preserve space for future generations, there is an urgent need for concerted international action to mitigate the growing threat of debris and establish clear, updated regulations that prevent the weaponization of space and foster a new era of global cooperation.

IX. Questions to consider

1. What is space debris and how does it affect future operations?
2. Is it possible to clear up space debris? If so, how? How is it created in the first place?
3. What is Res Communis Omnium?
4. What exactly does the OST prohibit?
5. Which issue is the most important to address at the moment and how could it be resolved?
6. What does the Limited Test Ban Treaty prohibit and where?
7. What does the PAROS initiative state and why is it frequently mentioned in the agenda of other discussions?

8. How can atmospheric contamination influence the cost of operations of either making an experiment or transporting weapons?

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