

XXXVI

TECMUN

Committee on the
Peaceful Uses of Outer
Space

XXXVI TECMUN
Session Schedule

Wednesday, April 19th

Registry	8:00 – 9:00 h.
Opening Ceremony	9:00 – 10:00 h.
Recess	10:00 – 10:30 h.
First Session	10:30 – 12:30 h.
Recess	12:30 – 13:00 h.
Second Session	13:00 – 15:00 h.
Meal	15:00 – 16:00 h.
Third Session	16:00 – 18:00 h.

Thursday, April 20th

Master Conference	8:30 – 9:30 h
Recess	9:30 – 10:00 h..
Fourth Session	10:00 – 12:30 h.
Recess	12:30 – 13:00 h.
Fifth Session	13:00 – 15:00 h.
Meal	15:00 – 16:00 h.
Sixth Session	16:00 – 18:00 h.

Friday, April 21th

Seventh Session	8:00 – 9:30 h.
Recess	9:30 – 10:00 h.
Eighth Session	10:00 – 12:00 h.
Recess	12:00 – 12:30 h.
Ninth Session	12:30 – 14:40 h.
Meal	14:40 – 16:00 h.
Closing Ceremony	16:00 – 18:30 h.

XXXVI TECMUN
General Agenda

Secretary General: Ixtli Zenit Ramírez García

COORDINACIÓN GENERAL

Chief of General Coordination: Anael Oliveros Aguilar
Coordinating Supervisor for Media Content: Cristian Rodríguez Lane

ASAMBLEA GENERAL

Subsecretary General: Jade Artemis González Díaz
Coordinating Supervisor: Lia Naomi Mejía Vargas

Reunión de Alto Nivel para la Asamblea General

President: Paulina Moreno Rosales

- A) Medidas para hacer frente al desplazamiento masivo en África subsahariana y en los campos de refugiados de las subregiones.
- B) Estrategias para regular el embargo de armas dentro de Sudán del Sur para garantizar la rendición de cuentas por la violencia sexual relacionada con la guerra civil (CRSV).

Primera Comisión de Desarme y Seguridad Internacional

President: Karla Isabella Juárez Zárate

- A) Estrategias para frenar los tiroteos perpetrados en centros escolares, manteniendo un enfoque en los Estados Unidos de América y en la República Federal de Alemania.
- B) Medidas para evitar la detonación de un conflicto nuclear a causa de la utilización de armas atómicas en la disputa entre Ucrania y la Federación de Rusia.

Tercera Comisión en Asuntos Sociales, Culturales y Humanitarios

President: Catherine Romina Espinoza Mora

- A) Estrategias para disminuir el riesgo de escasez de recursos de las personas con discapacidad, debido a la falta de oportunidades laborales, dificultad para realizar actividades, movilidad limitada y discriminación en Europa, con énfasis en el Reino de España.
- B) Acciones para combatir la discriminación hacia los inmigrantes afrodescendientes en las estructuras institucionales con respecto a la educación y la salud en Europa Occidental como efecto de la negación generalizada y la injusticia social.

Instituto Interregional de las Naciones Unidas para Investigaciones sobre la Delincuencia y la Justicia

President: Daniel Hilario Salazar Meléndez

- A) Estrategias para la prevención del reclutamiento de niños, niñas y adolescentes por parte de grupos de la delincuencia organizada, igualmente para la reinserción social de las víctimas en el triángulo norte de América Central y los Estados Unidos Mexicanos.
- B) Estrategias para la debida aplicación de los marcos jurídicos internacionales en materia de trata de personas con fines de explotación sexual en las rutas hacia Europa Occidental y central, con énfasis en las víctimas provenientes de la región de los Balcanes y la ex Unión Soviética.

World Food Programme
President: Melissa Murillo Yáñez

- A) Measures to reduce and prevent malnourishment due to food scarcity in the Democratic Republic of the Congo, with emphasis in childhood and pregnancy.
- B) Strategies to counteract the impact of climate change in food production within Southern Africa.

United Nations Development Programme
President: Daniela Alejandra Moreno Villagrán

- A) Actions to increase the education level in West and Central Africa with emphasis in the improvement of the post pandemic conditions.
- B) Strategies to counter the disruption of sexual and reproductive health in the Republic of Mozambique with emphasis on the consequences of the Cyclone Idai.

CONSEJO ECONÓMICO Y SOCIAL
Subsecretary General: Elena Ramírez Sandoval
Coordinating Supervisor: Mariana Goytia López Gutiérrez

United Nations Programme on HIV/AIDS
President: Dereck Zayd Ibarra Martínez

- A) Approaches to prevent and counter the stigmatization and discrimination of the HIV and AIDS-infected sectors of the sex industry in the Sub-Saharan African region, with a special preeminence on the dearth of essential services along with the violence and aggression toward those who trade sex.
- B) Strategies to confront and hinder the spread of sexually transmitted infections and HIV regarding the people afflicted by sexual assaults in Central and Eastern Europe, with a special preeminence on the various social constraints of marginalized groups along with the lack of awareness and education mechanisms.

Comisión de la Condición Jurídica y Social de la Mujer
President: Arantza González de la Peña

- A) Medidas para contrarrestar la violencia contra las mujeres a mano de los policias de la moral en la República Islamica de Irán, así como la represión de las manifestantes por parte del Estado.
- B) Medidas para erradicar el infanticidio y el aborto selectivo femenino en Asia haciendo énfasis en la república Popular China y la República de la India.

Programa de las Naciones Unidas para el Medio Ambiente
President: Aretxa Abaunza Díaz de León

- A) Mecanismos para reducir la contaminación del agua por nicotina y microplásticos generados por el desecho de filtros de cigarros y cigarrillos electrónicos desechables en el sudeste de Europa.
- B) Medidas para prevenir la pérdida de ecosistemas en América del sur a causa de la sobreexplotación de recursos naturales.

L'organisation des Nations Unies pour l'éducation, la Science et la Culture

President: Angel Uriel Vega Salinas

A) Mesures pour protéger et restituer l'éducation des femmes musulmanes avec insistance sur l'Asie occidentale et l'Asie du sud.

B) Stratégies pour faire face aux effets de la fonte du *permafrost* et des pôles sur la région du cercle polaire arctique, en soulignant la perte du territoire et culture des peuples autochtones.

Fondo Monetario Internacional

President: Abraham Alejandro Carlos Mendoza

A) Estrategias para asegurar el desarrollo económico sostenible en el sur de América, con especial atención en la destrucción de la selva amazónica para el despeje de nuevas tierras para la ganadería y el cultivo.

B) Medidas para mitigar el riesgo en la recuperación económica posterior a la pandemia en la Unión Europea, con énfasis en la crisis laboral debido a la alta oferta de empleos y en las necesidades de empleo insatisfechas de personas desempleadas o subempleadas.

Committee on the Peaceful Uses of Outer Space

President: Yamir Bandala González

A) Measures to reduce the adverse effects caused by the collision of space debris in the atmosphere as a consequence of the space industry.

B) Strategies to cope with the adverse effects generated by the unauthorized use of weapons in outer space.

AGENCIAS ESPECIALIZADAS Y ORGANISMOS REGIONALES

Subsecretary General: Diego Márquez Sánchez

Coordinating Supervisor: Iris Giselle Balderas Arreola

African Union

President: Carmen Dannea García Aguilar

A) Mechanisms to safeguard the integration of the population in the Republic of the South Sudan for the *coup d'etat* in 2013 with an emphasis on the economic crisis.

B) Strategies to reduce violations of human rights of Congolese population caused by the exportation of coltan to developed countries.

Caribbean Court of Justice

President: Bruno Ramírez Barcelata

A) Barbados Royal Police Force Incident involving Tamika and Lynnel Gilbert on October 11th 2016 (Gilbert Family v. The State of Barbados).

B) The State of Trinidad and Tobago 's non-appliance of the Common External Tariff in the acquisition of brown sugar from non-member countries of the Caribbean Community (The State of Belize v. The State of Trinidad and Tobago).

Comité Internacional de la Cruz Roja

President: Monserrat Ríos Fernández

- A) Medidas para mejorar la calidad de vida de desplazados y personas detenidas provenientes del Emirato Islámico de Afganistán después de la retirada de tropas militares de los Estados Unidos de América en el territorio.
- B) Estrategias para la asistencia de víctimas del reciente conflicto Ucrania-Rusia, con enfoque a la violación del Derecho Internacional Humanitario.

Counter-Terrorism Committee

President: Samuel Ortíz Delgado

- A) Actions to reduce the financial support to the terrorist organization Da'esh in the Gulf of Guinea, with emphasis on human trafficking as an illicit source of revenue.
- B) Strategies to reduce explosive, suicide, and firearms attacks under the Taliban regime in the Kabul region of Afghanistan, with emphasis on attacks against minorities and civilians.

Historical Security Council

President: María Fernanda González Rosales

- A) Measures to counteract threats and negotiate arrangements between the Republic of Cuba, the United States of America and the United Socialist Soviet Union, in relation to the discovered Soviet nuclear missiles in the Republic of Cuba (1962).
- B) Actions to avoid further hostilities and usage of military response caused by the first North Korean armed intervention in the Republic of Korea, remarking the nonexistent official peaceful agreement of the division of the Korean Peninsula (1950).

Organización de los Estados Americanos

President: José Manuel Cervantes Sánchez

- A) Estrategias para limitar las consecuencias de la lucha contra grupos criminales en la República de El Salvador dando énfasis al reclutamiento forzado y la protección de los derechos humanos.
- B) Medidas para contrarrestar la creciente gentrificación en Hawái con énfasis en la crisis social de hawaianos nativos sin hogar y su relación con la industria turística.

“Cuando sientas que pierdes el rumbo, recuerda para qué estás aquí y por qué lo estás haciendo.”

-Anonymous

For your moment,

Eleven years ago I stepped into a TECMUN debate room for the first time. That day I accompanied my brother, who was representing the Republic of El Salvador, as he debated about the homicides of rural groups in Latin America caused by drug trafficking. On the other hand, I was just admiring everything he and the delegations that made up the debate were arguing, as well as the tenacity with which they were looking for some way to help those who needed it most. They inspired me in a way that I will never forget in my life. It was then that I realized that I wanted to do it too, I wanted to become what they were at that time, agents of change. Later I had the opportunity to participate as a delegate, in my first model uncertainty and fear prevailed. I felt insecure about myself, I thought my opinion was not important and for that reason I did not express it. At that time I was regressing because I didn't feel like the agent of change that my brother once encouraged me to be. It wasn't until my second year participating in TECMUN that I discovered my potential, I questioned why I should be afraid to speak up for things that deserve to be heard. I was representing the Islamic Republic of Iraq in the Historic League of Arab States, this year I was thinking a lot about the fact that something could go wrong in the debate, that's why I started to remember the reason why I decided to participate in this model; I wanted to get out of my comfort zone. Once I was at the closing ceremony, I promised myself that I would always do my best to leave my mark wherever I went, as well as continue to learn and inspire others. For me, this model represented evolution.

I share with you a part of my story in TECMUN because just like me, you are probably looking to evolve after a period of regression, or i don't know, maybe you are aiming to fulfill other objectives. Regardless of the path you want to take in your life, you should never be silent about what seems unfair, participate and give your opinion because the power of change is in the actions you decide to do or not, learn because cultivating your mind is essential to understand yourself and others, help those who need it most because you have privileges that many people in the world can not enjoy, finally inspire yourself and inspire others, you never know if you will become an example for them to follow. Do things with passion, love and purpose every day, do it for you.

Whatever the reason you decided to participate in TECMUN is, take advantage of the fact that you are here today. Today you have the opportunity to expand your limits, you have the opportunity to learn, to teach and to motivate whoever needs it. Always remembering that you will have a support network that trusts you so you can achieve your goals. Be that person you always wanted to find to guide you in your learning process and trust you, because you are capable of doing it.

I'm living my last TECMUN after five wonderful years, therefore I want to thank you for inspiring me, for giving me reasons to go further and further. I thank you for being part of one of my greatest passions. I hope that after these three days nothing will be the same for you, I hope that you have made friends, that your committee has reached a resolution project, that you have found your passion, that you have enjoyed yourself and that you have learned something new. But above all, I hope you have **evolved.**

Ixtli Zenit Ramírez García
Secretary General for the
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“Education is the most powerful weapon you can use to change the world” -Nelson Mandela

Dear participant,

Whenever I have to write a letter or a speech for you I start the same way, expressing how much I admire your presence in this model. It is not easy to talk in public, do an extensive research, defend what you believe, propose innovative and creative solutions and, above all, open your eyes to today's world. I admire that you are willing to give your best, that you have decided to invest time and energy in seeking to solve the great unknown of today, during these three days of model, "how can I make my world a better place?"

I confess that for me, this is not just a simulation of a United Nations model. I am here, because I love to see more than nine hundred students with a smile on their faces as they enter their debate rooms, happy at the end of the day because they were able to make at least one resolution to their topic hoping one day to make it happen. That passion and dedication is the one that motivates me and that gives me faith that our world will not fall.

This work is one of the best things that has happened to me in life, it makes me feel part of the change and part of those smiles that I love so much to appreciate. I know that the Conference Officer for the United Nations International Children's Emergency Fund, who began with all the enthusiasm this great journey in 2020, is now proud to be something she never imagined it could be: member of the High Secretariat as Chief of General Coordination.

So from my own experience I can assure you that you can achieve the unimaginable. There will be many obstacles, stumbling blocks and difficult decisions to make but I can also promise you that with a lot of passion, dedication, patience and the support of the people you love most everything else will gradually go away.

Without further add, I thank you for making the decision to participate in this model and I wish you to leave those rooms with a big smile as once I did.

Anael Oliveros Aguilar
Chief of General Coordination for the
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Dear delegation,

I want you to know that even though I will not have much contact with you during the model, you helped me fulfill a dream. I want to thank you for being part of what is going to be my last United Nations model. In these days you are going to be part of a resolution project that is trying to solve a worldwide problem that affects millions of people. Even if this is just a model, I thank you for your ability to dream and have the energy to solve this kind of problem.

TECMUN for me was more than a dream. Throughout my high school it was my family, my support and my happy place. I met the most important people for me, from the first committee I was in, my presidencies and the High Secretariat. This project made me grow as a person and gave me the opportunity to live unique experiences. Presidents, thank you for staying by my side through thick and thin, for trusting me to lead your committee by the hand throughout the semester. Today I say goodbye to you and to you TECMUN. I hope I have left my mark on you and if I did not, I apologize. I promised to always give you my best, and I swear I did.

Delegation I hope that TECMUN has changed your perspective of the world a little bit and that it has influenced you as it did me. And lastly I want to express my admiration for your work as a delegation, I know it is not easy and I know it took you time to get here. If no one has told you, I am very proud of you. I love you Tecmun and you will always be my happy place.

Elena Ramírez Sandoval
Subsecretary for the Economic and Social Council
for the
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“We should not fear change itself, but only who we might change into”

-Mitsy

Dear participant:

This is the first time I have the opportunity of writing a letter for you and I would love to start by expressing my admiration for you. Maybe I haven't had the opportunity to meet you yet, but I'm sure you're an incredible person, after all, you're here reading this and you're giving space to my words. Life is a roulette of events inside a roller coaster of emotions and it seems a coincidence that you are here today. Thank you for making this model possible and for being here today.

I will do my best to give you a unique experience even the days after this model. It seems like a joke or some kind of brainwashing considering the number of people whose mouths these words come out, but Tecmun changed my life in such a beautiful way that it is almost impossible to describe. I would like to be able to see you in the future knowing that although I did not make a stratospheric impact on you, I was part of something you enjoyed during your adolescence.

Life is only one and it never hurts to remind you to live it to the fullest for you. I am proud to know that I have the opportunity to work with you this semester and that you have had the courage to be part of this version of Tecmun. Life takes many turns and perhaps your vision to help resolve conflicts in a theoretical way can take you further than you imagine. At the end of the day, every great change begins with taking the first step.

This is not the text you expected, I am sure that with so many ideas, more than one of you will be somewhat confused, but I would like to be able to share with you so much that I have to reduce each central idea to a sentence. What I'm trying to say with so much verbiage is that despite falling I encourage you to always get up. I encourage you to fight to be better, to defend your ideals and change the world in your own way with the day to day. You are capable of great things and the only thing you should fear is fear itself because despite being a method of defense, your limits are imposed by you.

Life is nothing more than a journey and a story of constant learning. Count on everyone present at the time you read this because you are not alone. To finish digressing, I don't wish you luck because you don't need it to be successful, instead I wish you enjoy these three days as much as the rest of your life.

I trust that great things await you.

Yamir Bandala González

President of the Committee on the Peaceful Uses of Outer Space for the
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Background

The Committee on the Peaceful Uses of Outer Space (COPUOS) was created with 18 members by the United Nations in 1958 to prevent rivalries between powers in the cosmos. COPUOS adopts an annual resolution on international cooperation as a measure to regulate the use of space resources, dealing with space debris and asteroid threats, and solving legal issues related to the peaceful use of the interplanetary space. It has 100 member states and two subsidiary bodies: the Scientific and Technical Subcommittee, and the Legal Subcommittee. It monitors the developments focused on security and peace in outer space with the help of both non-governmental and intergovernmental organizations such as the International Institute for the Unification of Private Law (UNIDROIT) and the Open Lunar Foundation.

Faculties

The committee's regulatory framework aims to strengthen the international legal regime

governing outer space, with the purpose of maximizing the benefits of the use of peaceful space science and technology in addition to the objective of increasing international cooperation in space activities at all levels.

- Assists and encourages space research programs through a common framework guiding cooperation in space research.
- Facilitates international cooperation in the exploration of the solar system through the general mandate of the Committee
- Ease the exchange of information related to outer space activities between participant nations
- Suggests modifications to international space legislation and international space law for the preservation of the space and earth environment

Topic A

Measures to reduce the adverse effects caused by the collision of space debris in the atmosphere as a consequence of the space industry

*By: Yamir Bandala González
Regina Covarrubias Rosales
Ana Paula Urbano Chávez
William Vázquez Hernández*

Context of Space Debris

According to the World Economic Forum, space debris can consist of discarded¹ launch vehicles or parts of a launched spacecraft floating around hundreds of kilometers above Earth surface. This term also refers to any piece of debris² left behind by humans in outer space. In 1957, the North American Aerospace Defense Command (NORAD) started a database that would be filled with information on all space debris. This Database was first filled with the information of the artificial satellite Sputnik, which was launched by the Soviet Union on October 4, 1957, this satellite is considered as the first piece of space junk.

During this period, more than 6,250 rockets have been launched on space missions and about 13,630 satellites have been launched into orbit. The National Aeronautics and Space Administration (NASA) recognizes more than 27,000 pieces of orbital debris larger than one meter, more than 3,000 inactive satellites still orbiting the earth, and 34,000 orbital pieces larger than ten centimeters as space debris. On the other hand, the European Space Agency (ESA) estimates that there are around 900,000 objects measuring between one and ten centimeters that can be considered space debris. As stated by the Nature magazine, most of the space debris and inactive satellites are in ruins and according to the NASA Program Office report, 16,602 of the debris belong to the remaining parts of satellites and rockets.

On the authority of the ESA, space debris include: payload, which are inactive satellites and fragments produced by wear and tear and collisions; Rockets, the remaining parts of stages used to propel missions in orbit; And, mission-related objects such as tools, screws, cables, cameras, etc. There are two main sources of orbital debris, the first is routine space activity and the accidental breakup of satellites and stages put into orbit by such activity, putting in consideration every mechanism that is required to keep the maintenance and launch of satellites. The second is the testing or use of destructive anti-satellite weapons (ASAT). As it was claimed by the ESA, about 2,250 of the inactive satellites are in orbit and are considered space debris "orbital debris rarely re-enters Earth's atmosphere, and when it does, it fragments during reentry, causing very small pieces to fall to the surface", (Rossetto E, 2020)."

Space Debris in the Atmosphere and its Collisions (focused on LEO orbit)

¹ **Discard:** to get rid of something no longer needed (Cambridge Dictionary, 2022)

² **Debris:** broken pieces of something larger (Cambridge Dictionary, 2022)

Currently there are three orbits that store garbage: the Low Earth Orbit (LEO) which is located between 160 and 2,000 kilometers of terrestrial height, the Cemetery orbit 17, located at 36,000 kilometers of terrestrial altitude and the Geostationary orbit which is located at a precise height of 35,786 kilometers above the equator. Although some space debris extends beyond the Geostationary orbit, it is estimated that there are around 3,000 fragments of debris between fifteen centimeters and one meter in diameter in the Geostationary orbit, which makes it the second orbit with the largest amount of space debris. Space debris is most concentrated in LEO, space debris in LEO re-enter the atmosphere after a few years, which can be considered as a period of time between a decade and a century. Many of these pieces of debris do not reach the ground in the process of re-entering the atmosphere because they burn up between the mesosphere and thermosphere, creating another increase in Carbon Dioxide production. NASA's Orbital Debris Program Office (ODPO) estimates that, on average, one piece of debris has fallen to Earth every day from the year 1980 to the present. This wastes and polluting factors work as a direct consequence of leaving inactive satellites in Earth's orbit. It is estimated that more than 50% of the inactive satellites will remain in orbit for a century before being able to reintegrate into the atmosphere. "In a kind of domino effect, it would multiply the amount of debris and it would make it difficult to use the Earth orbit until it was useless", (Delgado J, 2018). NASA indicates that due to the speed and volume of debris in LEO, the equivalent of 2,000 kilometers per hour and eight meters per second on average. The current and future space services, exploration, and operations pose³ a risk to the safety of people and property located in outer space. Through a computer simulation, NASA made an estimate for the next 200 years in which the amount of debris in LEO larger than twenty centimeters in diameter is predicted to be 1.5 times larger, and it is estimated that debris between ten and twenty centimeters in diameter will increase 3.2 times. The Inter-Agency Space Debris Coordination Committee (IADC), which brings together thirteen space agencies from different countries and groups of countries, works to advance knowledge of space debris and to develop environmental management strategies to preserve outer space through documents such as the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space "this is the result of many years of work by the Committee and its Scientific and Technical Subcommittee" (UN, 2010). Document that stipulates that the mission planning, manufacturing, and operation of spacecraft and the

³ **Pose:** to cause something, especially a problem (Cambridge Dictionary, 2022)

orbital stages of launch vehicles must be taken into account to prevent the release of space debris, breakups, accidental collisions, and limit interference with Leo orbit.

Adverse Effects of Space Debris

The explosions of the upper stages of launch rockets represent the most important contribution to the problem of space debris since they generated about a hundred tons of fragments in LEO and the Geostationary orbits during approximately 200 explosions. Increased space debris traffic also equates to increased collision risk for the launch vehicles and orbiting satellites. The Space Surveillance Network is in charge of detecting, tracking, cataloging and identifying artificial objects that orbit the Earth. If it predicts a collision between a listed object and a known operational satellite, it notifies the operator, which requires hours or days to execute a maneuver and try to avoid the possible collision.

There is a list created by NASA with data of 115 missions that have ended in the destruction or fragmentation of satellites, ships and rockets, this list is incomplete due to the restricted information about spy satellites. The first official record of the generation of space debris corresponds to the detachment of the rocket stage Ablestar that did put the Transit 4A satellite into orbit, on June 29, 1961. This ended up as the first intentional destruction of a satellite when the Soviet Union destroyed it in 1964 with a tracking missile, being responsible for almost a thousand traceable debris. Since 1961, there have been more than 560 fragmentation incidents in outer space caused by fuel explosions in rocket stages and seven direct collisions. The most serious collision happened in 2009 with the collision of the inactive Kosmos 2251 satellite and the operational Iridium 33 satellite, which generated 2000 pieces of debris larger than ten centimeters.

The Kosmos 1408 satellite was launched in 1982 and was destroyed in 2021, it weighed more than 2,000 kilograms and its destruction generated 1,500 pieces of traceable orbital debris which are still in orbit. While satellites perform hundreds of collision avoidance maneuvers each year, including on the International Space Station (ISS), which has performed 29 debris avoidance maneuvers since 1999, including three in 2020. After its total destruction, the space station crew was told to take refuge in the capsules from the docked spacecraft for two hours as a precaution against a collision with debris. To remove space debris, a drone must be sent to keep the same speed as each object and move it to a lower orbit or re-enter it to the atmosphere, this method is ineffective as it produces great masses of CO₂ in the atmosphere.

In some cases, it culminates in the generation of more space debris in Earth orbit as the relative orbital speed of space debris reaches 56,000 kilometers per hour. A frequent conflict when removing this debris is property rights since it is not allowed to take a satellite or rocket belonging to another country without permission of the nation state.

Weapons Testing as the first source of Space Debris

The destruction of domestic satellites for the purpose of weapons testing is another counterproductive⁴ solution to the reduction of space debris. In 2007, People's Republic of China tested an ASAT weapon that successfully collided with the non-operational Chinese weather satellite Fengyun-1C at an altitude of 863 kilometers. This collision was responsible for generating a cloud of more than 3,000 pieces of space debris, the largest cloud of debris created by humans. Both the United States and the Soviet Union developed and tested destructive ASAT weapons during the 1970s and the 1980s. These tests created more than 700 pieces of large debris, of which approximately 300 remain in orbit.

The US ASAT was a kinetic energy weapon designed to go at high speeds and destroy satellites in a collision. It was successfully tested in 1985 destroying a one ton satellite orbiting at 525 kilometers altitude and creating more than three thousand pieces of space debris larger than one centimeter. It is estimated that the remaining debris will disintegrate from orbit in a decade. China tested a kinetic energy ASAT weapon in January 2007 against the meteorological satellite, the Feng Yun 1C, a one-ton satellite in orbit at 850 kilometers altitude which was turned into 2,000 fragments between five and ten centimeters on each side, 35,000 of about one centimeter and about a million debris of one millimeter. In June 2007, a US ASAT test created three thousand registered pieces of debris, resulting in the second ASAT test with the highest amount of space debris that were concentrated in the most populated part of the LEO orbit.

Between 1959 and 1995, the United States and the Soviet Union conducted more than 50 ASAT in space, creating more than 1,200 pieces of traceable orbital debris. Since 2005 the United States, Russia, China, and India have conducted another twenty six ASAT tests in space, five of which have destroyed satellites and created more than 5,300 pieces of traceable orbital debris. The amount of debris created from these intentional events rivals the number

⁴ **counterproductive:** having an effect that is opposite to the one intended or wanted (Cambridge Dictionary, 2022)

of satellites in LEO as over the past decade, commercial space companies have transformed the space industry and extended the economic sphere of influence into near-Earth space. This was possible by providing services critical data like Earth observation data addressing global issues like the climate crisis and communications data providing access to the global internet. The United States and the USSR stopped testing their missiles in the 1980s so as not to saturate LEO. Although, on February 19, 2007, a stage of the Briz-M type of the Russian Proton rocket launched in 2006 exploded due to the high temperature derived from friction with the atmosphere, being the cause of a thousand fragments of between one and ten centimeters that are in orbit.

Common techniques of space debris removing

To avoid space debris generated by collisions, there are different methods such as an outer layer known as Whipple Shield that protects the walls of the satellite from a possible collision, the programming of a satellite to leave its orbit at the end of its useful life, the passivation as the removal of any internal energy contained in the vehicle at the end of its useful life to reduce the chances of it exploding, the reuse of rockets, and the surface vaporization of a satellite. It is important to take in consideration that even a small amount of paint that collides with other pieces of space junk, spacecrafts or satellites could cause another substantial amount of space debris and serious damages in the cases of spacecrafts and satellites. On another perspective, this may be known as the Kessler Syndrome. The term known as Kessler Syndrome is a phenomenon in which the amount of debris found in the earth's orbit reaches a point where it keeps being the cause of the creation of more space debris. This means, when two big pieces of space debris collide, the hundreds or thousands of space debris generated even in a microscopic scale, it still has the chance of creating more debris.

According to NASA, debris in orbits below 600 kilometers will fall back to Earth orbit within a couple of decades, debris 1,000 kilometers above the equator will continue to circle the Earth for a century or more. Many methods have been developed to try to remove and prevent the generation of space debris, but most of them are still in process of adjustments or are completely inefficient. These methods involve determinant factors such as economical resources and the lack of materials used to create systems used for special mechanisms to remove space debris since not all the countries can be involved with them. The creation of

drones directed to the removal of debris as the first source of the removal of space debris between five and ten centimeters have a minimum cost of 103 million dollars to produce while there are at least 2.5 million kilograms of fuels required for their usage. Taking this in consideration, it is counterproductive to send a drone to remove a maximum of a hundred pieces of space debris by mission. An inefficient solution today is the laser orbital debris removal system, which corresponds to the second most used system to remove space debris; the use of a satellite or terrestrial laser to completely remove an object corresponding to approximately five centimeters in diameter costs approximately one million dollars.

Space industry and new technologies directed to the removal space debris

Satellites located in LEO have a limited Field of View therefore, at least twenty four satellites are required to complete Earth coverage. Space debris has continuously accumulated, so far, 5250 space launches have been sent correctly. According to NASA, the amount of space debris objects increases at an annual rate of 5%. The global space economy, valued at around 4,238 million dollars in 2019, includes a variety of activities related to space research, exploration, and utilization. There are several ways in which the industry can be divided for analysis, the main one being to distinguish between the use of space for communication purposes and the research and exploration of space for scientific or commercial purposes as satellites and devices in space are often used for commercial communications, but may be related to non-commercial purposes, such as military use or scientific research.

According to a study carried out by Space Investment Quarterly Reports in 2021, it is estimated that the space industry will reach two billion dollars in annual revenue by 2040 and despite the 50% reduction in the value of space shares, it expects the costs of launching satellites and equipment to be reduced by 95%. The estimates of Space Investment Quarterly Reports coincide with the forecasts published by Morgan Stanley, in 2018 for the Bank of America. In March 2021, the Baikonur Cosmodrome in Kazakhstan launched the End-of-Life Services (ELSA-d). Its launch is made up of two components: a satellite, designed to capture a piece of space debris, and a satellite that will act as space debris. ELSA-d cannot be docked to just any space debris but if successful, future satellites are expected to be launched with an ELSA-compatible docking plate as part of their design to facilitate re-entry to Earth. The Gossamer Orbit Lowering Device (GOLD) is an untested system that uses ultra-thin balloons

to catch large pieces of space debris in order to drag the debris into a lower orbit and burn it up in the atmosphere in a corresponding amount of time to six months.

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Topic B

Strategies to cope with the adverse effects
generated by the unauthorized use of weapons
in outer space

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Introduction to the use of weapons in outer space

Since the 1960s, the risk and concerns⁵ about a possible arms race have been increasing. Per year there are approximately 1400 objects and studies related to the perfection of motor systems and sources, of which at least 50% can be used and implemented in weapons technology. In addition, the still existing space race focused on proving to other nation states the technological advances of a specific nation is added, as the Russian Federation did on October 4, 1957 with the launch of Sputnik-1, considered the first artificial satellite. Similarly, the United States of America demonstrated a precise breakthrough⁶ in space technology when on July 20, 1969 the crew of Apollo eleven set foot on the moon. Soon after, nations began to develop technologies capable of being used for warfare in outer space. They were accompanied by international regulations that today due to misinterpretation have allowed the use and development of these weapons.

The Outer Space Treaty (OST) of 1967, the first document focused on the regulation of the use of weapons in outer space proves a series of principles that affect the placement of weapons in outer space, in addition, there are a series of treaties and disarmament agreements emanating from the United Nations Office for Disarmament Affairs (UNODA) and the Disarmament Conference. Although disarmament provisions and international humanitarian laws set up some restrictions on the use of space weapons, none prohibit the use of weapons in space, and therefore, some countries such as the United States of America and the Russian Federation consider their use proper if it is non-aggressive instead of non-military. In 2020, the United States Department of Defense adopted a space strategy that defined space goals until 2030 in which the use of outer space was not only considered for defense purposes, but also to defeat any enemy as a hostile use of outer space. In the same year, members belonging to the North Atlantic Treaty Organization, such as the French Republic, the United Kingdom of Great Britain and Northern Ireland, the Commonwealth of Australia, and the United States of America, have implemented large-scale programs with the purpose of actively using weapons of mass destruction from or against space.

Prohibition of the use of weapons in extraterrestrial space

⁵ **Concern:** to cause worry to someone (Cambridge dictionary, 2022)

⁶ **Breakthrough:** an important discovery or event that helps to improve a situation or provide an answer to a problem (Cambridge dictionary, 2022)

Legal principles in the use of outer space have been discussed since the 1950s, but were formalized and entered into force in October 1967 with the Outer Space Treaty. The OST was considered by the Subcommittee on Legal Affairs and an agreement was reached in the General Assembly. The Outer Space Treaty decrees a series of policies and principles that affect the placement of weapons in outer space. This treaty establishes that all celestial bodies, mainly the Moon, would be used exclusively for peaceful uses.

On the other hand, the OST prohibits the placement of weapons of mass destruction as nuclear weapons in Earth orbit, and in outer space. This document does not prohibit the use of conventional weapons using a nuclear and mass destruction mechanism that enter outer space as part of the trajectory of an intercontinental ballistic missile. This turned into a determinant factor that in the future would allow the unregulated use of weapons in outer space. There are a vast number of disarmament treaties and agreements from UNODA and the Conference on Disarmament (CD) that are limiting but permissive when considering the use of weapons in space.

These documents mainly focus on preventing the use of weapons of mass destruction in space. Documents created by the CD and the agreements provenient from UNODA are participants in the active negotiation against the use of weapons that can be launched into the atmosphere. Specifically, the conference on disarmament documents CD/2181 and the CD/2193 try to prevent and limit the use of massive destruction weapons in the 2020s. The environmental protection regulations and the Prohibition of the Use of the environment as a weapon contrary to the Environmental Modification Convention (ENMOD) apply to space weapons with similar terms. These terms are applied directly to international regulations and impose principles of responsible conduct as the main method of prevention against a possible military career in outer space.

Development of military technology in space

Most of the space weapons that have already been put into space are intended to be used for military purposes. These purposes vary from communications and navigation, to supporting military operations to carry out precise attacks on specific targets. Some weapons that developed countries are focusing on because of a lack of regulation in these specific weapons are; anti-satellite weapons, weapons designed to incapacitate or destroy satellites for strategic or tactical purposes. Chemical lasers, lasers intended to be used as a directed energy source to

disable missile strikes in space. Particle beams⁷, laser like instruments created to act as anti ballistic missile defense systems and military spaceplanes, used as a display of military power in the event of an armed conflict in space. Some nations such as the United States of America, the People's Republic of China, the Russian Federation and the Republic of India, which are the main countries that to date are developing weapons equipment in space, do so considering that it will be the next frontier for international conflicts.

The term peaceful uses is divided by different meanings depending on the nation state, for the Russian Federation, this phrase refers to the prohibition of weapons for non-military purposes as used in the 1959 Antarctic Treaty in the context of demilitarization. According to this interpretation, all military activities in space should be illegal. On the other hand, the United States of America asserts that the phrase prevents the use of weapons for aggressive purposes and, consequently, all military purposes would be lawful as long as they are not directed at any nation. As long as nations retain the ability to weaponize space or use nuclear weapons, the use of other types of weapons is justified due to the flexible interpretation of the treaty based on its basic principles. Another reason for the use of these weapons is the lack of governance in space, since up to now, there is no organization that has the power to fully regulate the legal and structural issues of space.

Anti-satellite use of weapons

There are a large number of nation states that have in their possession technology related to anti-satellite direct ascent (ASAT) weapons. On the other hand, only a few nation states have used ASAT weapons in physical tests like the Russian Federation, the United States of America, the People's Republic of China and the Republic of India. The anti-satellite direct ascent weapon launched by the United States of America was a kinetic energy weapon designed to go at high speeds and destroy any satellite by collision. It was successfully tested in 1985, being responsible for the destruction of a one-ton satellite that orbited 525 kilometers above the Earth's atmosphere. The test created thousands of pieces of space debris larger than one centimeter. Because it was carried out at a relatively low altitude, atmospheric drag caused the vast majority of the large debris to disintegrate from orbit a decade later.

The next ASAT test of relevance was carried out by the People's Republic of China. This nation state tested a kinetic energy anti-satellite direct ascent weapon in January 2007

⁷ **Beam:** a line of radiation or particles flowing in one direction (Cambridge dictionary, 2022)

against a one-ton satellite in orbit at 850 kilometers above sea level. The same way the US test did, the Chinese anti-satellite direct ascent test created thousands of large pieces of debris. Aside from the United States of America, a large fraction of the debris generated by this test will remain in orbit for a few decades because atmospheric drag is much lower at the altitude at which the test was conducted.

Between 1959 and 1995, the United States of America and the Soviet Union conducted more than 50 ASAT tests in space, in which a dozen weapons impacted the satellites. These events generated more than 1,200 pieces of traceable orbital debris and raised global concern for an alleged excessive use of these weapons. Since 2005, the United States of America, the Russian Federation, the People's Republic of China and the Republic of India have conducted 26 other anti-satellite direct ascent tests in space, five of which have destroyed satellites and created more than 5,300 pieces of traceable orbital debris. A test carried out by the Russian Federation in 2020 destroyed an obsolete satellite but raised concerns about a future space arms race and the unethical use of these weapons in full view of many member states of the United Nations (UN).

Consequences of the use of anti-satellite direct ascent weapons

As a consequence of the several national large-scale programs with the purpose of developing weapons of mass destruction against space, the year 2020 ended with a test of an ASAT weapon. This test was carried out by the Russian Federation on December 15 "Russia claims work to prevent the transformation of outer space into a battlefield, but at the same time, Moscow arms space by developing and deploying capabilities that seek to exploit the United States of America reliance on space-based systems." (James Dickinson, 2020). The end of the year 2020 also brought the adoption of the Draft Resolution on Responsible Behavior in Outer Space on December 7 at the Plenary Meeting of the United Nations General Assembly. This resolution, proposed by the United Kingdom of Great Britain and Northern Ireland, looks to name existing and potential threats, as well as irresponsible or potentially threatening activities.

This resolution also focuses on international security with a view to develop and implement rules and principles of responsible behavior on reducing the risks of misunderstandings about the use of outer space. The concern of the nation states stems from their use, even though an anti-satellite direct ascent test is not directed against another

nation's technology, it serves as evidence that a state has the capabilities needed to conduct attacks against others. “These capabilities have led to changes in the national space policies of all key states, to a cycle of development of counter space technologies and a range of ways in which to interfere with the space assets of others” (Cassandra Steer, 2020). The most notable type of ASAT test is the use of direct ascent missiles, tests that only the United States of America, People's Republic of China and the Republic of India conducted against real objects. In all cases, the launch was directed at satellites that belonged to the state that carried out the test and was not regulated by any international space committee.

International law and the regulation of the use of weapons in orbits close to the terrestrial atmosphere

Prior to the adoption of the OST, the use of outer space was subject to general international law and members of the UN were bound by its terms; these laws continue to apply among members of the UN, but are modified for those states that are part of the Outer Space Treaty. General international law and the Charter of the United Nations are a central part of the body of space treaties due to its translation from Latin together with the OST. The States Parties to the Treaty carry out activities in the exploration and use of outer space in accordance with international law and the Charter of the UN, in the interest of maintaining international peace and security and promoting international cooperation and understanding. as stipulated in Article III of the Outer Space Treaty.

Except for the limitations introduced by space-related laws, international law does not contain any rules related to the military use of space or the placement of any weapon in outer space. For which reason, it has been deduced that such uses are permitted, subject to the observance of the norms of international law which declares that all members will refrain⁸ in their international relations from the threat or use of force against the territorial integrity or political independence of any State. In any other way it will be considered incompatible with the Purposes of the United Nations. These limitations do allow individual or collective defense if an armed attack against a Member of the United Nations occurs until the Security Council has taken the necessary measures to maintain international peace.

The Outer Space Treaty and other applicable space laws place a limited number of limitations on activities in outer space, leaving states with great latitude in developing

⁸ **refrain:** to avoid doing or stop yourself from doing something (Cambridge dictionary, 2022)

whatever offensive and defensive military capabilities they deem necessary to protect various national security interests in outer space. In accordance with Article IV of the OST, the placement in orbit around the Earth of any object that carries nuclear weapons or any other type of weapons of mass destruction is not regulated or permitted. Likewise, the establishment of military bases, installations and fortifications in space is prohibited, together with the testing of any type of weapon and the carrying out of military maneuvers on celestial bodies. The Outer Space Treaty is silent on the use of conventional weapons in the vacuum of space as are states, which hopefully can retain the ability to legally use anti-satellite direct ascent missiles.

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XXXVI TECMUN
Glosary of Forbidden Words

Forbidden Words

Defined by the United Nations, are non diplomatic terms participants must avoid to mention during their speeches on the debate and in the writing of resolution proyects.

Forbidden Words	Permitted equivalents
First world countries	Developed countries
Third world countries	Developing countries
Gay	Member of the LGBTIQ+ community
War ⁹	Belic conflict
Rape	Sexual Harassment
Terrorist ¹⁰	Extremist
Kill or murder	Deprive someone of their life
Death	Casualties
Assassination	Homicide
Army	Military forces
Money	Economic resources
Poor	Lack of resources
Okay ¹¹	Yes or agree
Black ¹²	African American

⁹ The word war can be used in order to refer to historical contexts, such as the Cold War, the First World War, etc. It can only be used in the Historical Security Council to refer to armed conflicts.

¹⁰ Only the Counter-Terrorism Committee can make use of the term terrorist and its variants.

¹¹ Is the only forbidden word in the Caribbean Court of Justice.

¹² The word black, with regard to race, is not forbidden but it is recommended to limit its use and refer to this sector as African American or Afrodescendants.

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Glossary for Resolution Projects

Preambulatory Phrases

Preambulatory Phrases are used at the beginning of every Resolution Paper in order to give context about the resolutions made for the topic. Preambulatory Phrases must be written in italics followed by a sentence that gives said context. For each Resolution Paper there must be five sentences beginning with a Preambulatory Phrase.

Affirming	Desiring	Noting with deep concern
Alarmed by	Emphasizing	Noting with satisfaction
Approving	Expecting	Noting further
Bearing in mind	Expressing its appreciation	Observing
Believing	Fulfilling	Reaffirming
Confident	Fully aware	Realizing
Contemplating	Further deploring	Recalling
Convinced	Further recalling	Recognizing
Declaring	Guided by	Referring
Deeply concerned	Having adopted	Seeking
Deeply conscious	Having considered	Taking into consideration
Deeply convinced	Having examined	Taking note
Deeply disturbed	Having received	Viewing with appreciation
Deeply regretting	Keeping in mind	Welcoming

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Glossary for Resolution Projects

Operative Clauses

Operative Clauses are used at the beginning of every resolution within the Resolution Paper on the debated topic. They must be written in italics and bold.

Accepts	Endorses	Notes
Affirms	Draws the attentions	Proclaims
Approves	Emphasizes	Reaffirms
Authorizes	Encourages	Recommends
Calls	Expresses its appreciation	Regrets
Calls upon	Expresses its hope	Reminds
Condemns	Further invites	Requests
Confirms	Further proclaims	Solemnly
Congratulates	Further reminds	Affirms
Considers	Further recommends	Strongly
Declares accordingly	Further requests	condemns
Deplores	Further resolves	Supports
Designates	Has resolved	Takes note of
		Transmits
		Trusts