SUSTAINABLE DEVELOPMENT
YOUTH CONVENTION 2019

COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

ISSUE OF SPACE SUSTAINABILITY

TOPIC GUIDE

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ABOUT THE CHAIRS

Rayhan Erlangga Rahadian - Chairperson

Rayhan is a self-professed nerd who writes prose (for himself) as a hobby and appreciates a good game of StarCraft. In MUNs he enjoys watching delegates gain confidence in speaking up and contributing actively to the discussion. He hopes all delegates will have a fruitful time at SDYC!

Huang Feiyang - Chairperson

The man, the myth, the legend - Huang Feiyang has returned from his self-imposed exile to wreak havoc upon the mun scene once again. He had peaked a while back prowling through various UNSC councils, but now spends his army days watching debates on Youtube and reading economics texts as a proxy for living in the real world. He encourages delegates to do their research and engage in council discussion. Despite his questionable facial expressions, he is mostly harmless and he welcomes delegates to approach him for feedback, casual chats or just good memes.

Vernicia Neo Shu Qi - Chairperson

Vernicia has returned to the MUN scene once again despite many resolutions to retire. However, she is still more than glad to chair at SDYC and hopes that all delegates will have a meaningful and fun experience as well.

COMMITTEE INTRODUCTION

The United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) was formally and permanently set up in 1959 by the General Assembly with the purpose of governing the exploration and use of space for the benefit of humanity instead of the interests of corporations or a few countries. It is serviced by the United Nations Office for Outer Space Affairs, which itself was separately established in 1958, and tasked with monitoring multilateral projects in outer space, supporting extraterrestrial development programs as well as analysing judicial and legislative issues arising from such developments.[1]

The Committee meets annually in Vienna to discuss issues pertinent to outer space, such as but not limited to: weather in outer space, the existential threat posed by asteroids on slingshot parabolic orbits and the continued occurrence of global warming due to human activities.[2] It is assisted by two subcommittees – the Scientific & Technical Subcommittee as well as the Legal Subcommittee[3]. While the Scientific and Technical subcommittee considers the main technical challenges in space, such as space debris and space weather, the Legal subcommittee focuses on judicial matters regarding outer space, such as mechanisms for multilateral cooperation and the challenges of handling space debris from a legal perspective.

UN-COPUOS has played a significant role in ensuring that no unilateral or multilateral action is taken in outer space for non-altruistic purposes, such as exploitation and militarization, through close cooperation with key governmental and transnational space agencies. Since its inception, the Committee has also passed 5 key treaties which set the foundation for international space legislation: the Outer Space Treaty; the Rescue Agreement; the Liability Convention; the Registration Convention and the Moon Agreement.

[1] THE UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS AND THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE. (n.d.). Retrieved August 04, 2016, from http://www.un.org/events/unispace3/bginfo/oosa.htm
[2] Strength of International Space Law to Prevent Militarization of Outer Space, Respond to Other Current Challenges Weighed in Fourth Committee. (n.d.). Retrieved August 04, 2016, from http://www.un.org/press/en/2010/gaspd458.doc.htm
[3] Lerouche, A., Osman, H., Tuzlukov, O., & Schmidt, L. (n.d.). UBCMUN 2016 General Assembly Background Guide. Retrieved August 4, 2016, from http://ubcmun.org/assets/general-assembly-fourth-background-guide-ubcmun- 2016.pdf

Membership of the Committee has increased from an initial count of 24 member states to 77 member states today, signifying the international community's increasing interest in outer space affairs.[3][4][5] In contemporary times, the Committee releases guidelines about the sustainability of extraterrestrial activities. It has also played a crucial role in the multinational efforts to monitor and clear space debris, and has engaged in extensive efforts to promote efficient use of space technology and improve weather monitoring. The Committee on the Peaceful Uses of Outer Space has sought to help less developed countries develop various technologies through educational programs and the co-facilitation of cooperation programs in regions such as Africa. Such civilian space program efforts have led to better resource management and sustainability in countries e.g. Egypt and Morocco, which improves quality of life for their citizens.

This Committee will be a unified special meeting incorporating both the Scientific & Technical Subcommittee and the Legal Subcommittee[6], for a combined discussion of both legal and technical matters pertaining to key space-related sustainability issues. Delegates representing members and non-state entities in the council are expected to cooperate to find both legally and technically grounded solutions to the issues inherent in the topic, while keeping in mind the objective of COPUOS to utilize space for the benefit of humanity.

[4] CONFERENCE REPORT "Safeguarding Space Security: Prevention of an Arms Race in Outer Space" (March 21-22, 2005, Geneva). (2005, July 14). Retrieved August 4, 2016, from http://www.china-un.ch/eng/cjjk/cjjblc/t203796.htm
[5] Philps, A. (n.d.). What is more scary than the militarization of space? Retrieved August 04, 2016, from https://www.chathamhouse.org/expert/comment/what- more-scary-militarization-space
[6] Kleiman, M. J. (2011, February 7). Patent rights and flags of convenience in outer space. Retrieved August 04, 2016, from http://www.thespacereview.com/article/1772/1

SPECIAL RULES OF PROCEDURE

The Committee on the Peaceful Uses of Outer Space operates under certain special procedure as compared to normal United Nations committees. As this is a special meeting of the Committee, corporations have been invited to send representatives to attend the meeting and to provide their expertise on key space-related issues. These corporations will be able to vote on procedural motions with the same weighting as any UN member state but will be unable to vote on any substantive motions including, but not limited to, resolutions themselves. Corporations, will however, be permitted to introduce amendments and resolutions. Most motions will operate under the same voting guidelines as conventional United Nations committees. However, for the passing of resolutions, consensus voting is needed among all member states within the Committee.

KEY QUESTION

How can stakeholders (both states and non-state entities) ensure a sustainable, secure, conflict-free and commercially viable outer space while pursuing national or individual interests?

TOPIC INTRODUCTION

There has been a recent influx of space exploration and utilisation missions due to the greater need for satellites by corporations, particularly in the field of telecommunications. This is accentuated by the higher public opinion of space programs in several countries, one of them being the United States, which has had a resurgence in support for higher funding for NASA (National Aeronautics and Space Administration)[7]. This has been further complemented by heightened international competition in the space arena: from Japan, which has pioneered technologies such as the solar sail; India, which dominated headlines for successfully launching a satellite to Mars and slowly building up a satellite-launch capability; China, which has repeatedly tested anti-satellite weapons and launched space technologies; and Russia, which has emerged as a dominant space power had been the sole country capable of launching to the International Space Station as well as pioneering several satellite technologies.

Besides sovereign nations, private corporations and transnational entities have also played a significant role in recent years. Private corporations like SpaceX have been working on developing their own indigenous launch capability and promoting it to the United States federal government and the United States Air Force[8]. Joined by other companies such as Blue Origin and Sierra Nevada, these private entities have spearheaded the creation of a new generation of spaceflight technology, such as SpaceX's development of the Falcon 9 rocket, which allows for a rocket to be reused after launch. This is in stark contrast to previous rockets, which could not be reused and would simply be ejected and allowed to crash or orbit in space. This development allows for significantly cheaper launches and reduces the waste of resources. Besides, it reduces the contribution of booster parts to the ever-growing amount of orbiting space debris.[9]

However, several pertinent issues need to be addressed before mankind can fully reap the benefits of outer space, such as the persistent threat of space junk and space debris, the commercialisation of space and multilateral cooperation between countries to improve the future of extraterrestrial technology.

[7] Simberg, R. (n.d.). Property Rights in Space.
Retrieved August 04, 2016,
from http://www.thenewatlantis.com/publications/property-rights-in-space
[8] Moltz, J. C. (2008). The politics of space security: Strategic restraint and the pursuit
of national interests.
[9] "SpaceX Asks the U.S. To Fund a Public-Private Partnership for Deep Space Exploration." Futurism.
Accessed July 24, 2019.
https://futurism.com/spacex-asks-the-u-s-to-fund-a-public-private-partnership-for-deep-space-exploration

KEY DEFINITIONS

Space Debris:

Space debris refers to the vast amounts of defunct man-made objects in space, produced by collisions or the neglect of unused satellites. Orbiting the Earth at high speeds, they pose a significant risk of structural damage to functional satellites such as the ISS.

Civilian Space Research:

Civilian Space Research refers to space research that was taken for non-military purposes. Some of these purposes include the procurement of data to improve resource management, and the research into future strategies to avoid extreme weather events e.g. flooding.

Launch Capability:

Launch Capability describes a country's ability to provide launch facilities for certain equipment, such as satellites or lunar landing equipment. It is a key indicator, along with Operational Capability, of the extent of any country's space program.

Operational Capability:

Operational Capability describes a country's ability to operate extraterrestrial equipment. This, along with Launch Capability, is a key indicator of the extent of any country's space program.

Suborbital Spaceflight:

Suborbital spaceflight refers to spaceflight of an object or spacecraft which does not enter full orbit around the Earth, but instead merely ascends to orbit altitude before descending to Earth.

Sovereignty:

Sovereignty (in the context of space) generally exists until the boundary between Earth and Outer Space, after which that region would not be considered as a region of any national territory.

KEY DEFINITIONS

Technology Sharing

Technology Sharing generally refers to the licensed use of space technology traditionally provided to less developed countries for the purpose of usage that is generally civilian in nature.

Asteroid Mining:

Asteroid mining refers to the mining of raw materials from asteroids with the intention of extraction. Asteroids are astronomical objects orbiting the sun without the characteristics of planets or comets, but they may have been originally involved in planet formation before some unexpected events lead to their fragmentation.

Space Tourism:

Space tourism refers to the provision of spaceflight services to high-spending 'tourists' (Private individuals who travel to outer space for leisure), often for a sum in the hundreds of thousands of dollars for a simple suborbital spaceflight. This is done for the purpose of recouping the high investment cost by the provider of spaceflight services.

Extraterrestrial Property Rights:

The 1967 UN Outer Space Treaty has already prevented nations from laying claim or owning extraterrestrial property. This treaty was ratified by most countries including those with major influence in space exploration. The International Moon Treaty of 1979 prevents private ownership of any extraterrestrial property. This, however, was ratified by only 15 nations, none of them being major spacefaring nations.

Karman Line:

The Karman Line is defined as the point in space where the atmosphere becomes too thin to support aeronautical flight, and is considered by many to be the boundary between Earth and Outer Space. This definition, however, is not universally agreed upon by all parties.[10]

[10] "Where, Exactly, Is the Edge of Space? It Depends on Who You Ask." Science & Innovation, December 20, 2018. https://www.nationalgeographic.com/science/2018/12/where-is-the-edge-of-space-and-what-is-the-karman-line/.https://futurism.com/spacex-asks-the-u-s-to-fund-a-public-private-partnership-for-deep-space-exploration

KEY ISSUES

Space Debris and Satellite Traffic

When satellites are left unused in space or parts are left in space, they may begin orbiting, potentially posing a threat to functional spacecraft. These parts are known as space junk, and their increasing presence must be addressed to ensure that spacecraft are able to safely navigate the cosmos without having to risk potential collisions. With millions of space debris orbiting the planet at up to 17,500mph, managing and observing these pieces of space junk have become of utmost importance. Ranging in size from small particles to defunct satellites, space debris poses a huge risk to functional satellites and spacecraft occupants, no matter their size.[11] Already, multiple satellite failures have been attributed to space debris collision, incurring huge economic costs due to lack of action on space debris. In addition, space debris can possibly pose a threat to the environmental stability of our atmosphere, harming our natural environment and potentially endangering human beings. Deorbiting debris has been shown to deplete ozone, albeit not on a scale significant enough to impact global ozone levels.

However, as space debris continues to be generated on an exponential level, the sheer amount of orbital debris re-entering our atmosphere might soon be able to impact our global ozone levels and threaten our safety.[12] Without sufficient checks and balances to minimize space debris, we may cause a cascade event in which space debris would be continually generated to the extent of hindering future space activities for generations until their eventual removal. As such, the prevention, management and minimization of space debris are key to ensuring sustainability in space exploration and usage. Research into novel methods of cleaning up space junk has become increasingly imperative in order to reduce risks of accidents in space. Past discussions have resulted in the adoption of a set of Space Debris Mitigation Guidelines endorsed by the General Assembly in 2007. These guidelines highlight multiple measures to be taken as well as principles to take into account when engaging in activities in outer space to reduce the amount of waste in low earth orbit. The 1968 Rescue Agreement also requires States Parties to return any "foreign" space objects discovered in their territory to their owners, ensuring a process of recovery and return.

[11] Garcia, Mark. "Space Debris and Human Spacecraft." Text. NASA, April 13, 2015.
http://www.nasa.gov/mission_pages/station/news/orbital_debris.html
[12] Spaceflight, Leonard David 2017-11-27T11:36:23Z. "Spaceflight Pollution: How Do Rocket Launches and Space Junk Affect Earth's Atmosphere?" Space.com.
Accessed July 24, 2019.
https://www.space.com/38884-rocket-exhaust-space-junk-pollution.html

The Legal Subcommittee is currently working on tackling the national and international aspects of mitigating space debris, apart from the scientific research being conducted. Several solutions have been proposed to solve this issue. The first of such solutions is the Space Infrastructure Service, a refuelable depot which allows for the change of orbits for satellites to 'graveyard orbits'. These are orbits specifically designated for unusable spacecraft, away from conventional orbits, to prevent collision with operating spacecrafts. There are also proposals by countries like Japan to use satellites or other space machinery to capture space debris. In 2014, Japan studied the possibility of using spacecraft as a 'space net' to trawl for space junk. However, an experimental mission in 2017, which employed the use of a tether to decelerate the orbiting junk, failed, due to complications in planning and execution. The experiment was repeated in 2018, with the British Remove DEBRIS satellite successfully capturing a target probe in Earth's orbit, proving the feasibility of the idea.[13]

Another solution that has been expounded upon is the possibility of using satellites - or even missiles - to 'knock' space debris out of space. Nevertheless, the two major concerns that arise are technological and cost concerns, as well as fears of potential 'missed' shots by a satellite.

Currently, several obstacles lie in the ways of countries which wish to remove space junk. One of which is the great cost incurred for such operations to achieve a minor short-term benefit.[14] Furthermore, most countries feel that they should not be a major contributor for these projects when these projects would eventually, ideally, benefit all countries in the world. These countries feel that the task of clearing space debris is a burden that cannot be undertaken alone, and that the fault lies with all participants. The lack of access to technology and data also hamper potential action in the field. Furthermore, current research funding is insufficient as the significance of the problem is not fully recognised by many stakeholders. Tackling the issue of space junk requires a multifaceted approach, involving reducing the production of space debris as well as removal of it. Reducing the amount of space junk released into space has its own set of problems, including the high technology investment needed to produce more sustainable mission designs. Nevertheless, countries generally view it as a more viable option as compared to the aforementioned direct approach.

[13] Amos, Jonathan. "UK Satellite Nets 'Junk in Space,'" September 19, 2018, sec. Science & Environment. https://www.bbc.com/news/science-environment-45565815
[14] "The Trouble with Space Junk." The Economist, May 10, 2015. https://www.economist.com/the-economist-explains/2015/05/10/the-trouble-with-space-junk

On top of the current sharing of processes to avoid collision and the collection, sharing and dissemination of data on space objects, states and organizations should also discuss measures to reduce the creation and proliferation of space junk in space, particularly for future space launches. What must also be considered is the possibility of removingspace junk through missions.

The lack of management of space debris hinders the progress of space missions, and without consensus on measures taken to be taken, it will continue to do so, endangering the functionality of several satellites and the lives of the astronauts on vital scientific missions like the International Space Station. Solving the problem of space debris fulfils one of the UN-COPUOS' aims of further streamlining extraterrestrial development and making it easier for the most efficient use of space technology to bolster exploration of space.

Commercialization of Space

There is also a significant issue associated with the commercialization of space, particularly within the domains of space tourism and asteroid mining. Helmed by Richard Branson, Virgin Galactic has announced its intention to launch suborbital flights for approximately $250,000 per seat, with the first tourist test spaceship successfully reaching altitudes of 82 km in 2018. Bradford Space, a space systems group building non-toxic propulsion, space station facilities, deep space missions and attitude control systems, recently acquired a smaller company named Deep Space Industries (DSI). DSI, now Bradford Space, was a company that researched asteroid mining and technologies that would allow the cost of access to high earth orbits and deep space to be lowered.[15] This would facilitate the mining of resources from asteroids, which would be a multi-trillion dollar industry. Asteroids could hold trillions of dollars of rare materials such as gold, formed from other heavy elements during the supernovae and accrued during the birth of the colar system.[16] There are three classes of companies seeking to commercialize space. The first class of companies include companies like SpaceX and Blue Origin which seek to create launch vehicles to space that are then contracted to the US government or other governments. These would be extremely profitable due to the complexity of the work involved. The second class of such companies include companies like Bradford Space, other private space companies and even governments who have intentions to commence mining operations within outer space on asteroids. The third class of companies are companies who seek to provide space-related services for consumers, such as suborbital spaceflight tourism company, Virgin Galactic.[17]

[15] "Deep Space Industries Acquired by Bradford Space." SpaceNews.com, January 2, 2019. https://spacenews.com/deep-space-industries-acquired-by-bradford-space/
[16] "The Massive Prize Luring Miners to the Stars." Accessed July 24, 2019. https://www.bloomberg.com/graphics/2018-asteroid-mining/
[17] "Top 3 Biggest Private Space Companies · Earthpedia · Earth.Com." Earth.Com(blog). Accessed July 24, 2019. https://www.earth.com/earthpedia-articles/top-3-biggest-private-space-companies/

The first class of these companies includes companies such as SpaceX and Blue Origin which are currently conducting tests on launch rockets as a part of achieving this aim. They have received positive media attention as they are seen as being more efficient than NASA. The latter has been associated with governmental bureaucracy and has suffered from reduced government spending. These companies aim to sell their products, potentially to the government or perhaps other companies/governments, although that may have to be approved by the United States Congress through the Foreign Military Sales scheme and will have to abide to sanctions and bans, such as the ban on space-related cooperation with China. Usually, rockets are shed and allowed to enter free-fall or orbit after launch. Rockets allowed to enter freefall can pose potential threat to lives if the trajectory is even mildly off course, as some parts from a rocket can fall near to 2000 km from the launch site. The privatization of the space industry remains a pertinent point of contention, along with the extent of cooperation between private corporations and governmental space agencies.

The second class of these companies is companies which are seeking to develop mining capabilities. This subclass is primarily dominated by the likes of Bradford Space. These corporations seek to land equipment on asteroids near to Earth to mine for resources such as gold and other heavy elements. On Earth, heavy metals are in low supply. On asteroids, heavy metals like gold and platinum are abundant and can be mined using drilling equipment. This can net trillions of dollars' worth of resources and can significantly alter mineral markets. Nevertheless, due to the highly expensive extraction of these resources, most of these missions are still in development. For instance, NASA's OSIRIS-REx mission aimed to establish a mining operation on the asteroid Bennu by 2018, paving the way for future resource extraction missions for both national and private space agencies.[18] The legality of these activities is much disputed, given the legal basis of the Outer Space Treaty that prohibits the unilateral claiming of extraterrestrial land, as well as the conflict between governmental and private interests in the extraction and usage of space resources. Although the great interest in asteroid mining has since faded, debate on the allocation of asteroid resources between states and the feasibility of engaging private companies continues.

The third and final class of companies is companies seeking to develop consumeristic applications for space. These companies are primarily tourism-focused, and so far the biggest company in this regard is Virgin Galactic. Virgin Galactic is currently focusing on providing suborbital flights to space, followed by further development into full orbital flights.

[18] Brown, Katherine. "NASA's Newly Arrived OSIRIS-REx Spacecraft Discovers Water on Bennu." Text. NASA, December 10, 2018. http://www.nasa.gov/press-release/nasa-s-newly-arrived-osiris-rex-spacecraft-already-discovers-water-on-asteroid

Such flights are usually prohibitively expensive for most of the world, and are only accessible to the richest people in the world. There is dispute about whether these companies should be allowed to operate consumer operations within space, due to the lower safety standards usually practised by companies. Furthermore, a point of discussion is the interaction between these private entities and state governments.

As such, delegates should aspire towards a framework that discusses the allocation and exploitation of asteroid resources amongst sovereign states, and whether companies should be allowed to continue their private ventures. If cooperation between governments and the private sector is agreed upon, delegates should also strive to consider the terms upon which the private sector is allowed to play a part in the grand scale, as well as the depth of their involvement in space.

Multilateral Cooperation and Accessibility

As the International Space Station approaches its end of service, there are several new threats to multilateral cooperation in space. The United States Congress has put a ban on cooperation with China due to the threat of Chinese espionage.[19] While the United States is currently dependent on Russia for launch capabilities, it is set to abandon that upon the launch of American alternatives, be it public or private. Furthermore, the European Space Agency (ESA) has expressed reduced interest in cooperating with international space agencies after its successful landing of a probe on the Shoemaker comet. There is also the potential to involve developing countries, like Brazil and Nigeria, in space programs, that would represent the participation of the entire world in space programs. In Africa today for example, no country has the launch capability to send probes to other planets. The same applies for anywhere in South America other than French Guiana, which is not independent. Cooperation is vital to the development of peaceful space programs in these countries as well as the reduction of conflict in space. Stakeholders, however, have to lay out the terms of such cooperation and whether it suits their interests. Stakeholders can also discuss whether such cooperation occurs on the bilateral scale or the multilateral scale.

[19] Stuckey, Alex. "Why Chinese Astronauts Are Banned from the International Space Station, NASA Activities." Houston Chronicle, February 22, 2018
https://www.chron.com/news/nation-world/space/article/Ever-wonder-why-you-ve-never-seen-a-Chinese-12631096.php

Another key aspect of the discussion is the importance of public-private partnerships (PPPs) in the field of space exploration. With the US National Aeronautics and Space Administration (NASA) partnering with private agencies such as Blue Origin and SpaceX in such partnerships, both sectors have obtained benefits from the agreement. While the private sector is able to further their personal programmes, such as in the improvement of rocket technology, the public sector is able to save on costs that could be directed towards other fields of research.[20,21] However, collaborating with the private sector brings about several concerns. The first is the issue of safety, as certain firms may lack regulation and safety standards in operating complex machinery and space technology. Another point for discussion is the terms on which a PPP operates, as both parties must strive to obtain a win-win situation, but oftentimes the benefits will be unevenly split amongst the two, without clear boundaries and guidelines.

As such, delegates should debate on the possibilities of PPPs being established, as well as terms for possible collaboration between the two sectors, as this will be crucial in determining the role of firms and states in the field of space exploration in the future. Something that should be considered is the capability possessed by countries in relation to launch and operation, as different countries possess different such capabilities. Countries should discuss which level of capability is to be the final target for all countries to arrive at. Most countries do generally agree that it is not an obligation for all countries to possess lunar landing technology due to its complexity and lack of practical applications. There are a few considerations - while some stakeholders views satellite-operations capability as the lowest technological common deominator, due to its direct economic impact, others would like to see that the possession of space techonlogy is made even more egalitarian. The extent to which this capability can be provided and attained is at the discretion of delegates and in the final solutions they agree on.

[20] "T "What SpaceX Can Teach Us about (Successful) Public-Private Partnerships."
Accessed July 24, 2019.
https://www.linkedin.com/pulse/what-spacex-can-teach-us-successful-public-private-gabriel-petrus
[21] "SpaceX Asks the U.S. To Fund a Public-Private Partnership for Deep Space Exploration." Futurism.
Accessed July 24, 2019.
https://futurism.com/spacex-asks-the-u-s-to-fund-a-public-private-partnership-for-deep-space-exploration

PAST INITIATIVES

Outer Space Treaty[22]

This treaty outlines the foundation on which many space laws are built upon. It lays out the basic principles and goal of human space exploration as well as determines appropriate usage of space that countries have to follow. It bans states from placing weapons of mass destruction in space, allows usage of the Moon and such celestial bodies for peaceful purposes only, and states that the exploration of outer space is free for all states, and is to be done for the benefit of all countries. It also prevents any government from claiming a celestial resource by any means, and states that a state has full jurisdiction of objects it launches into space, and is liable for the damages it causes. Activities conducted by non-governmental organisations also have to be authorized and supervised by the appropriate state.

Rescue Agreement

The Rescue Agreement is an Agreement dictating the obligations of nations to support and provide assistance, by allowing for all possible measures, to astronauts from other nations who have landed, by ambiguous reasons or otherwise. It further allows for astronauts who land in territory not owned by any state to be rescued by any state actors with potential capability to render assistance to those astronauts.

The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries

This declaration outlines the principles on which countries should cooperate with each other on the usage of space as well as the dissemination of space technology and information, with the overall goal of furthering human space exploration in a peaceful manner. It states that international cooperation should aim to facilitate the exchange of information, technology and expertise between countries on a mutually agreeable basis, and that all states should contribute to improving international cooperation, and give more heed to the benefits and interests of developing countries.

Space Debris Mitigation Guidelines

These guidelines propose possible measures and guidelines to minimise space debris generation through the limiting of debris released during normal space operations,

[22] The Outer Space Treaty." Accessed July 23, 2019
http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.htm

Moon Treaty

This agreement gives the international community jurisdiction of all celestial bodies, making sure all activities in space falls under international law and stresses that the usage of celestial bodies should be for the overall benefit of all states. It bans all exploration and usage of celestial bodies without the approval of other states, and requires that all samples obtained for research from outer space to be made available to other states for research. This agreement, however, has only been ratified by 16 states.[23]

Registration Convention

This convention requires states and international intergovernmental organisations to establish their own registries and provide information on their space objects for inclusion in the United Nations Register. UNOOSA then publicly disseminates the information provided.

Liability Convention

This convention holds a launching state liable for damage caused by its space objects on the surface of the Earth or to aircraft, and liable for damage due to its faults in space. Under the liability convention, claims related to damage and injury caused by a space object have to be brought up on a state-to-state level.[24] Objects launched by a joint coalition of nations fall under the responsibility of that whole joint coalition. However, this convention does not address adequately private corporations, instead leaving countries liable for the actions of corporations. This asymmetry of responsibility is a point that delegates may wish to address in further details.

The Luxembourg Asteroid Mining Plan

This plan is the first government initiative in Europe in the development of a legal and regulatory framework for the future ownership of minerals extracted from celestial bodies such as asteroids. This will perhaps form a framework for such developments in national regulatory bodies which will lead to accelerated asteroid mining development.

[23] "Moon Agreement." Accessed July 23, 2019
http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/intromoon-agreement.html
[24] "Liability Convention." Accessed July 23, 2019
http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introliability-convention.html

UNISPACE Conferences

Cognizant of the infinite potential of space technology for socioeconomic development, the United Nations has organized three unique global conferences known as the UNISPACE Conferences. The first UNISPACE Conference was held in 1968 with the aim of providing a platform for global dialogue on key issues relevant to space exploration and the utilisation of extraterrestrial resources. Together with subsequent conferences in 1982 and 1999, the platform developed frameworks for key issues that have yielded incredible scientific and socioeconomic values for mankind. Past conferences have served to discuss and review issues such as the maintenance of peace and order in outer space, the implementation of programs to increase opportunities for developing countries to develop their indigenous capabilities in the use of space technology applications, and engaging nations and international organizations to increase international cooperation in the peaceful usage of outer space.

LINK TO SUSTAINABLE DEVELOPMENT

As space becomes an increasingly important field for countries and humanity to develop, the industry now stands at the forefront of many political, economic and social concerns. For instance, the Global Navigation Satellite Systems stationed in space are integral to the functioning of our technology-dependent societies today. They assist in the navigation of our vehicles, and the surveyance of geography without impacting the land, and are critical to precision military technology. The ability of space technology to collect data of Earth is essential to our understanding of the changes in our world, such as climate change and air pollution. By monitoring the face of the Earth, it gives mankind an edge in disaster management, allowing us to better detect disasters and respond appropriately. This is one of the many space technologies that benefits humanity and the Earth, and their continued and safe operations are key.[25]

By setting up a framework to promote future commercial operations in space, and to settle ownership and liability claims, this would allow for the commercial use of space and claims of outer space material to be regulated by an international agreement, giving humanity access to the full benefits of the resources in outer space while mitigating potential conflicts of interest.

Minimising the production of space junk through sustainable space programs will create a safer outer space for both astronauts and spacecraft alike. Better satellite traffic management and further international cooperation would allow the limited orbital space to accommodate even more satellites, providing for more operational capacity. Coordinated and efficient use of space technology in monitoring, preventing and mitigating disasters will help to reduce economic and social problems faced in the aftermath of disasters that severely hinder the development of a nation.

All these, in the long run, help promote overall sustainability through the promotion of stability, multilateral cooperation and security. The promotion of overall sustainability also links back to the ultimate aims of the COPUOS, which is to ensure that any space development serves the interests of all humanity and not just a subset of humanity.

[25] "Disaster Management > Applications of GNSS > Global Navigation Satellite System > National Maritime PNT Office." Accessed July 23, 2019.
http://www.nmpnt.go.kr/html/en/dgpsys/dgpsys_020606.html

KEY STAKEHOLDERS

United States of America

The United States of America is perhaps the most advanced country with regard to extraterrestrial development. NASA is the world's leading federal organization in nearly all aspects of spaceflight. It is the organization monitoring all the pieces of debris currently orbiting the Earth. The United States is also currently experiencing a boom in private spaceflight companies, which is receiving increasing support, and has proven useful to NASA in lowering costs for research by means of public-private partnerships.

Russian Federation

The Russian Federation is perhaps the second most advanced country with regard to extraterrestrial development. It has the world's first and largest manned launch facility, the Baikonur Cosmodrome in Kazakhstan which it has leased until 2060. The Russian Federation has interests in developing programs catered towards enhancing scientific research and communication. Presently, it has an array of space systems and launch vehicles, which it plans to develop further.

China

The China National Space Administration (CNSA) is the agency behind China's space program. China has enjoyed a rapidly growing space development scene. It is the third country to send a human into orbit independently (Project 921, 2003) and is ambitious in continuing the launches of its Tiangong modules to set up a space station, as well as continuing efforts into lunar exploration.

France

France has a 57-year-old space program known as the CNES. While France's expertise has largely transferred to the European Agency, the CNES has focused on civil applications, security and defence through the Helios satellites, and performing experiments on the ISS relating to microgravity as well as studying formation flying in space.

Germany

The Federal Republic of Germany mainly contributes to the European Space Agency through the German Aerospace Center through the utilization of aerospace-related research and development. It mainly contributes through research on research aircraft and civil aircraft, with some important work being done on planetary probes that are vital to the scientific world.

United Kingdom

The United Kingdom runs a space program that operates a lot less on human space exploration, and maintaining an astronaut force has never been official policy. Instead, the United Kingdom chooses to focus on unmanned space research and commercialization, with crucial work in the development of spaceplanes and the construction of spaceports, which would greatly assist private corporations.

India

India's Space Research Organization (ISRO) has been vastly successful in its initiatives in space exploration, launching an orbiter at record low costs. However, its real success comes in satellite launching, with the ISRO having achieved its objective of launching 20 satellites in one mission. India is heavily involved in commercial initiatives due to the heavily commercial mission of the ISRO and is also heavily involved in research efforts.

Israel

It is one of the smallest countries with native satellite launch capabilities and has satellite operational capability as a key aim of its space program. Israel has one of the strongest private involvements in space research, with industrial firms being heavily involved in the development process. As such, it is likely to support the formation of public-private partnerships to further the development of its space technology.

Egypt

Egypt has launched three key satellites, which are primarily for the function of imaging and meteorological sensing, which is a great aide to the sustainable development of Egypt. This agrees with the objective of Egypt's space program, which is to provide imaging services for Egypt's sustainable development.

Australia

While Australia is not at present a significant player in the space industry, it has set up the Australian Space Research Institute to pursue efforts into space, and to encourage industry to specialize in space-related efforts. Australia's main priority appears to be encouraging such business, and as a mining nation, it can potentially be hugely affected by asteroid mining and other commercialization of space.

Algeria

Algeria established its Algerian Space Agency in 2002, which maintains the National Space Program of Algeria. Since 2002, it has placed space technology as one of its priorities, launching satellites for the purposes of disaster management and agricultural data monitoring. One of Algeria's main priorities appears to be launching satellites to aid in the development of its industries, and as such, it could potentially benefit from public-private partnerships.

Indonesia

Indonesia is a country which has been developing extremely quickly on the space development front. It has satellite operational capability and is currently developing its basic satellite launch capability. As a developing country, it has also strongly supported efforts for countries to cooperate in developments regarding space. Indonesia is a potential power player in space in the future.

South Africa

The South African space program is scientifically focused towards aiding its economic development and the development of its industries, especially agriculture. Its satellites aim to obtain images of South Africa which can help in weather analyses as well as provide insight on flooding, resource management and other environmental phenomena in the region. As a BRICS country, it is expected to further launch more space-related efforts in the future.

Brazil

Brazil has had a relatively controversial time in terms of space development. Initially, its space program was a military program, which prohibited aid from other countries due to fears of nuclear development. It has, however, become a civilian program and is discovering and engaging in civilian space programs and has satellite launch capability with extensive success.

SpaceX

SpaceX is probably the most successful and popular space corporation in the world today. It currently has huge resources devoted to the development of rocket launches. It has innovated new technologies like its reusable rocket, that has reduced space debris, and has since received several contracts from NASA.

Virgin Galactic

Virgin Galactic is a corporation developing commercial spaceflight capability and is currently developing suborbital spaceflight capability, with the prescribed aim of fully developing orbital spaceflight capability. It has been hampered by accidents but is anticipatory of a quick start of these services to ensure commercial viability.

QUESTIONS A RESOLUTION MUST ANSWER

1. How can space junk be better tracked and cleared? Furthermore, how can space agencies and corporations reduce the amount of space junk being emitted or caused by the use of inefficient equipment?

2. How can intergovernmental and public-private collaborations be encouraged to aid in ensuring efficiency and safety of space exploration operations?

3. How can the international community work together to improve space accessibility and technology, so as to extend the benefits to more countries and societies in the world? What actions can the UNCOPUOS take in enhancing cooperation mechanisms in using space technology for sustainable development?

4. What are the obstacles faced by some Member States when it comes to financing development of space technology, and monitoring of data? How can capacity-building mechanisms be put in place to address these obstacles, and accelerate the development of such scientific initiatives?

5. How can the commercialization of space be managed? How can companies be regulated (whether by means of legal policies, or by self-regulation) and monitored to prevent the overexploitation of space resources and ensure better safety?

6. How should countries move towards a framework for fair allocation and exploitation of space resources between sovereign states? Should companies be involved in this allocation, and on what calculus should this consideration be based upon? If so, to what extent should companies be involved?

7. What is the definition of 'outer space' and how is it implemented?