COPOUS

STUDY GUIDE

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THE WEAPONIZATION AND COLONIZATION OF OUTER SPACE

ROTMUN

MMXVIII

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ROTMUNKHI

Humza Nadeem Jami

Secretary General

Humza Nadeem Jami will be serving as the Secretary General for the Rotaract Model United Nations Conference 2018. Jami, as he likes to be known, is a graduate of the Lahore University of Management Sciences, where he was a senior member of the LUMUN Society's Secretariat and Travelling Model UN Team. Prior to this, he was a former Head Delegate at the Lyceum School's Debate Team, one of the powerhouses of the country.

As a member of the LUMUN Secretariat, Jami is famous for the most technologically innovative and immersive crisis experiences Pakistan has ever seen - having designed and chaired Harry Truman's National Security Council as part of the country's first ever Joint Crisis Cabinet (JCC) in 2016, and a Twitter integrated real time UN Security Council in 2017. As a part of the LUMUN Travelling Model UN Team, he reached the pinnacle of his career when he won a Diplomacy Award at the Harvard World Model UN Conference hosted in Panama City, Panama in March 2018 (as seen in the picture above).

Jami has been doing Model UN since January 2011, and cannot be more excited to welcome you to ROTMUN! He is an original graduate and a two time Best Delegate winner at the original Rotaract Model UN Conference that occurred between the years of 2010 and 2012, hosted by the Rotaract Public Speaking Forum.

His vision for the conference is simple: to bring the best and the absolute best of the country inside the halls of IBA City Campus for the most uniquely immersive delegate experience offered at any Model UN Conference in the country. He is inspired by the ROTMUNs of yore, where high levels of academic integrity and learning were the core of Model UN as an activity, which he finds an opportunity to revive this year. He will be flying in chairs from the best corners of the country to achieve this.

Jami feels Model UN has become an activity that has become very elitist, very exclusionary, and has lost its roots in intellectual political dialogue. All of that will return in due time at the 2018 edition of the Rotaract Model United Nations Conference under his leadership to foster Socratic dialogue using this activity.

Uwais Parekh

Under Secretary General

Uwais graduated from Cedar College in 2018 and is currently in the midst of figuring stuff out in his gap year. Usually found in bed with a bag of Doritos while he goes hours into the night being engrossed with Video Games

Uwais served as the Head of the Model UN wing of Cedar Union, Cedar's Public Speaking & Debating Society in his last year where he captained the Model UN Team to multiple landmarks at conferences such as LUMUN, MUNIK & HUMUN.

He has also been a long serving member of the Destiny Model United Nations Society, having served as the Vice President & the Academic Curator for their annual Conference, apart from that Uwais somehow managed to garner an Experience of more than an acceptable amount of Public Speaking & Debating Events; be they Model UNs, Parliamentary Debates or Moot Courts, at the obvious expense of his GPA

Being an Immense Believer in the change that is only plausible through discourse and engagement with Ideas. Uwais absolutely cannot wait to give it his all to ensure that aspiring policy makers have the suitable environment to participate in dialogue that helps them explore the diplomat present within themselves in the Country's best emulation of the Chambers of the United Nations

Maheen Naveed

Under Secretary General

Maheen is currently in her first year pursuing an MBBS degree at Ziauddin University but likes to spend her free time imagining all the possible, completely unrelated careers she can go into after she completes her MBBS. She is a graduate of the Lyceum School, where she was Head Delegate of the Debate Team and regards that time as one of her most cherished.

During her tenure as a member of the Lyceum's Debate Team, she has won awards at local and international conferences including LUMUN, ROTMUN, MUNIK and Harvard MUN; the former at which she was awarded a Best Delegate at UNSC and the latter at which she was awarded Honourable Mention twice.

She is looking forward to helping create a conference that is centred on the classic MUN values of energetic debate, impeccable policy making and above all, a return to the high standard of academic intellect and argumentation theory that is expected of delegates attending the hallowed halls of a ROTMUN conference.

She hopes that ROTMUN is the experience of a lifetime for it's delegates, and wishes you the best of luck in October!

Binyameen Noor

Committee Director

Currently pursuing his Undergraduate in Economics from the Institute of Business Administration (IBA), Binyameen Noor began his Foray into Model UNs back in 2013 and has never looked back since, from winning in the Security Council of Harvard MUN China back in his O Levels, and picking up a successive award at this year's Harvard MUN Boston where he captained the Lyceum Model UN Debate Team. Binyameen Noor also holds awards at reputable conferences throughout the country including two LUMUNs, one in which he won in the Security Council and awards at ROTMUN as well as MUNIK.

Half a decade later, Mr Binyameen finds himself serving as the Committee Director at the country's most challenging Model UN. He expects to see a decent and civil style of MUNing and despises backstabbing.

Binyameen plans on eventually serving the free market, but prior to exploiting the working class he can't wait to see aspiring diplomats within his committee exploit the vast outreaches of space.

Sadia Aaminah

Committee Director

Sadia Aaminah is the former Head Girl of the Indus Academy as well as a member of the Lyceum Debate Team. She has managed to bag back to back wins at LUMUN alongside winning in MUNIK and at ROTMUN itself.

She can usually be found cramming for Med School admission tests and yet always manages to binge watch a season or two of BoJack Horseman. Other than that she's been known to act in theatre plays such as RAAZ and Parday Kay peechay

Sadia also doesn't care how 'woke' you are if you aren't a team player. She despises backstabbing and especially under the table diplomacy, not as much as how she loathes pre prepared documentation. She's been known to slash pre- prepared draft resolutions in session, so beware. Other than that she absolutely cannot wait to prove how she claims to be the nicest Chair you will ever have the privilege to meet.

The Colonization and Weaponization of Outer Space

Introduction

The UN General Assembly established the Committee on the Peaceful Uses of Outer Space as a temporary body in 1958, following the launch of *Sputnik*. In 1959, under the GA resolution 1472 (XIV), it became a permanent committee of the United Nations with 24 Member States, and now boasts a membership of 84 countries. The United Nations Office for Outer Space Affairs (UNOOSA) serves as the Secretariat of this committee. The establishment of the committee was brought about as an international response to the Cold War space race between the USSR and the United States, and the collective fear of the international community that space might just be another field for the super-powers to play out their rivalries and to exploit.

Under UN resolution 1472, the mandate of the committee is as follows[1]:

1. "To review, as appropriate, the area of international cooperation, and to study practical and feasible means for giving effect to programmes in the peaceful uses of outer space which could appropriately be undertaken under United Nations auspice, including, inter alia:
    a. Assistance for the continuation on a permanent basis of the research on outer space carried within the framework of the International Geophysical Year;
    b. Organization of mutual exchange and dissemination of information on outer space research;
    c. Encouragement of national research programmes for the study of outer space, and the rendering of all possible assistance and help towards their realization;
2. To study the nature of legal problems which may arise from the exploration of outer space."

COPUOS includes two subcommittees on legal affairs and scientific affairs. Both sub-committees were created to keep abreast of the developments in space technology, as more countries join the race to maintain a presence in outer space. The Scientific and Technical Subcommittee deals with topics like the long-term sustainability of outer space activities, the use of space technology for socioeconomic development, disaster management support, global navigation satellite systems, near-Earth objects, space weather, space and climate change, nuclear power sources, remote sensing, and space debris.[2] The Legal Subcommittee deals with topics like the application and implementation of the five UN treaties on outer space, principles, and declarations, capacity building in national space legislation, definition and delimitation of outer space, space debris mitigation and related legal mechanisms, and improving international mechanisms that exist for cooperation in peaceful uses of outer space.

COPUOS upholds five main treaties involving the collective rescue of astronauts, international sovereignty of space and specifically the moon, responsibility of damages from spacecraft, and registration of artificial objects in space. The committee is active in maximising member involvement in its mission and it does this by organising Conferences on the Exploration and Peaceful Uses of Outer Space (UNISPACE Conferences), and projects like the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), the International Committee on Global Navigation Satellite Systems (ICG), and the Human Space Initiative.

Statement of the Problem

The weaponization of outer space refers to a process through which there is deployment of weapons in space which may eventually turn space into a battlefield where weapons can be used to either destroy targets in orbit or on the Earth's surface. Rapid weaponization of outer space may lead to an arms race between countries, especially USA and Russia who are already competing to have an upper hand. Colonisation of space refers to permanent human habitation outside Earth. It is a way of ensuring survival of the human race and the Earth's environment, using additional natural resources, and spreading life across the universe. It is a futuristic approach which may be possible but requires a great deal of engineering and finances.

The Existing and Future Potential of Weaponization in Space

Some military activities, such as surveillance, reconnaissance and intelligence gathering, are currently making use of the satellite systems in the exosphere. The utilization of these satellites for military proposes can be classified in two types: passive and active. The passive use of satellites means supporting military action, and it is divided in (i) communications; (ii) geodetic information; (iii) meteorology; (iv) navigation and positioning – that include weapon guidance; and (v) reconnaissance. The active use of satellites converts them into weapons and it is divided into (i) anti-satellite weapons systems and (ii) ballistic missile defense. Anti-satellite weapons (ASAT) have been launched into space with the intention to destroy or incapacitate satellites, effectively compromising the surveillance and reconnaissance ability of a country. Developed as strategic missile projects by the US and USSR military and used as anti ballistic missiles (ABM) in the 1980's, they have only been used in the past to take down defunct satellites or as a show of force. While the US, Russia and China maintain ASAT programs, Israel and India have also emerged as key players in the development of ASAT weapons. Moreover, the ongoing diffusion of underlying clusters of technologies – which include ballistic missiles and space launch vehicles (SLVs), advanced radar and seeker technologies, conventional and micro-satellites, solid-state or chemical lasers, as well as battle management networks to coordinate attacks – will further increase the number of states with a latent anti-satellite potential. It is entirely possible that the pace of technology diffusion will accelerate further in the coming decades.[3]

Types of ASAT weapons. Taken from http://www.css.ethz.ch/en/services/digital-library/articles/article.html/189524

In order to understand the pressing nature of weaponization, the committee needs to focus on three areas of interest. First, the largely irresolvable entanglement between civil and military activities in space, as well as the effectiveness of multilateral governance instruments in regulating these activities. Second, the current geostrategic and military trends that increase the likelihood of military confrontations and render space an ever more vulnerable domain, and third, review several ways in which states can mitigate their dependence on vulnerable space systems and provide an assessment of their potential effectiveness.

Not only are most space programs military in origin, they also tend to embody the very essence of dual-use technology, as their civil components are either direct corollaries of military services (as is the case with the US Global Positioning System, or GPS) or can be employed for military purposes with no, or only minimal, modifications (which is the case in many commercial communication and imaging applications). The solution to weaponization then are technical approaches designed to mitigate particularly destabilizing aspects of militarized competition through targeted confidence- and security-building measures, and eventually more robust arms control agreements.

Colonization of Outer Space - An Eventuality

Colonising Mars

The atmosphere of Mars is mostly carbon dioxide, the surface of the planet is too cold to sustain human life, and the planet's gravity is a mere 38% of Earth's. Plus, the atmosphere on Mars is equivalent to about 1% of the Earth's atmosphere at sea level.

Melting the polar ice caps, slowly creating an atmosphere, and then engineering the environment to have foliage, rivers, and standing bodies of water. This is just the tip of the iceberg regarding the measures that will have to be taken by mankind before there is a possibility of a colony even existing on Mars. Before this process initiates, there is a need to warm the planet from the present average surface temperature of -60° C to a value close to Earth's average temperature to +15° C, as well as to recreate a thick CO^2 atmosphere. This warming phase could take a 100 years. Following this, production of O^2 needs to take place in the atmosphere which would allow humans and other large mammals to breathe normally. This oxygenation phase is relatively difficult and would take 100,000 years or more, unless one postulates a technological breakthrough.

Colonising the Moon

Colonising the moon is an idea which has been floating around ever since Neil Armstrong set foot on it. Despite the fact that the moon has a completely dead atmosphere, the idea of colonising it continues mainly because of its close proximity to Earth. It would only take a few days to reach the Moon from earth, as compared to the 260 days taken to reach Mars. Additionally, light takes only 1.3 seconds to reach the Moon, allowing for near real-time communications and remote control of machines, which would be impossible on any other major astronomical body. To top it all, Humanity could theoretically establish a permanent human settlement without the issues we face on Mars, for a much lower price tag. The scientists at NASA estimate the figure to be only $10 billion.

Despite these advantages, there still are a few issues that need to be pondered upon before the idea of colonisation of the moon can be implemented.

1. On the moon, the day is very hot and the night is very cold. There is an almost 300 degrees Celsius, or 572 degrees Fahrenheit, temperature difference between the day and night temperatures on the moon. Such a large day-to-night temperature difference can make it really difficult to engineer the right living systems, such as habitats and cars for moving around and space suits for going outside.
2. The stark difference in gravitational forces: The gravitational forces of attraction on the moon are equal to 1.62 m/s^2. This sudden change in gravity will not only take a long period of time to get used to, but simultaneously will cause detrimental effects on the health of the humans living on the moon such as osteoporosis, high blood pressure, and loss of calcium. Overcoming these health issues will be vital before any sort of colonisation can take place on the moon

Economic Feasibility

For the time being, only two major entities have the non-economic resources to go to Mars or the Moon or any other planetary object: NASA and SpaceX.

However, in recent years, the budget given to NASA by the US government has significantly decreased, from being 4% of the GDP to only being a mere 0.3% of the GDP.

This reduction in funding mostly disables NASA in any of its future attempts in sending any mission to Mars. Regarding Space X, the possibility of sending personal or un-manned missions seems probable. At a recent press conference for SpaceX, Elon Musk introduced their first a passenger for a round-the-moon mission aboard SpaceX's BFR spaceship-rocket combo, Mr. Yasaku Maezawa. The CEO of SpaceX also authored an academic study on his plans for starting a Mars colony with a fully reusable Big Falcon Rocket system.

Despite SpaceX pioneering front on space colonization, the people who can afford to go to Mars and the people who actually want to go are not the same people at this point. Musk estimates the cost of getting 12 people to Mars to start a colony is about $10 billion per person.But the Big Falcon Rocket system, a reusable rocket system that can transport 100 people at a time can save cost. That, along with some important technical achievements, would help bring the cost down – ideally to as little as $200,000, or the price of a median home in the United States. Refuelling the ship in orbit around Earth before it heads off to its distant destination would, he explained, be one way of lowering expenses. However, accomplishing this in the near future seems bleak due to the lack of funds held by SpaceX, and the gradual reduction in the faith investors have in Elon Musk; people are just not willing to fund Elon Musk anymore. The amount stated above was *just* the price of going to Mars and landing. The price of staying overnight on Mars per night has still not been added up, but researchers say that it will significantly increase the amount due to the need of oxygen tanks, ecological life systems, and miscellaneous daily use items.

When it comes to going to the moon, the average cost of taking a trip around the Moon is being priced at 90 million dollars by SpaceX at the time being. However, this trip will not actually involve stepping on the surface of the moon. This raises the question: If just a trip around the moon costs 90 million dollars (which could only be afforded by two billionaires) how much would colonising the Moon cost? And could the average human being afford it? Or is the possibility of living on another planet only reserved to those who are economically privileged? Experts have stated reaching the moon would cost about $10 billion — estimates range from $7 billion and $13 billion — with an additional $28 billion to $52 billion being spent on the construction of base-related structures. Although not a hefty figure, this figure only includes the creation of a colony there; the individual costs per person of actually going to the moon and the daily expenditure to be incurred has yet to be revealed.

According to NASA experts, with the given budget private entities and public entities hold right now, either Mars can be colonised or the Moon can be colonised. Additionally, these are just two outer space options human have right now which have the chance of being economically feasible as some point in time in the future. Other planetary objects identified by Mars, which may be outside the Solar System, or even outside the asteroid belt, would lead to insurmountable amounts of money being spent.

Ethics of Space Colonization

Humans need a backup to Earth. In the scenario of a doomsday-like event, or overpopulation on Earth way past its capacity, or in the scenario that humans destroy Earth through nuclear warfare, a Plan B is required.

With the evident increase in natural disasters and diseases spreading across the Earth, concerns have been raised regarding humankind's well being on this planet. Given the rate at which global warming is taking place right now, and the various natural disasters (ranging from cyclones to flash floods to droughts) impacting our planet, the idea of colonising another planet does not look bad. We are living through the hottest years on record. Deadly heat waves have killed tens of thousands of human beings. The World Health Organization predicts that between 2030 and 2050 climate change will contribute to 250,000 excess deaths per year. In addition to the heat itself, risk factors include malaria and other diseases exacerbated by climate change.

Nevertheless, most people have a problem with the fact that humans have declared Mars as 'our' planet. We are ready to go there and set up our colonies, without paying attention to any life forms that may be present on that planet. Is it morally right to colonise a land and destroy any life forms over there in the process? If we find a planet inhabited by life, it is not difficult to believe that our biologies will not be compatible, resulting in either our death or the death of the alien life, be it bacterial, vegetation or even animal. Is this powerful enough to dissuade us?

Say we do come to the conclusion that colonizing Mars is beneficial to the human race, how is it going to be orchestrated in a social platform? How will it be decided who gets to be part of this colony? We could rank applications by suitability, prioritize diversity, leave it as a lottery draw, or simply allow the highest bidders to be the only participants. Each of these options raises its own issues, but they all are related to who is being left behind, who has to carry the cost of the expedition and who has to deal with the consequences.

Arguments have also been raised regarding the idea of deserting the Earth once we have squeezed it of every single one of its resources. Should humans try to reverse the damages they have done to Earth, and try working towards a better future on Earth itself rather than working on relocating entirely? Or should we continue our destructive habits and let Earth crumble under humanity?

Past Action

United States of America

Since the 1950s, the US has been emphasizing on the need for an international treaty for outer space. They ratified the Outer Space Treaty in 1967 which gave them and several other countries the opportunity to establish international laws regarding the uses of outer space. The Vision for 2020 document published by US Space Command in 1997 was the first clear indication of US intentions for space weaponization. In June 2002,

it withdrew from the Anti-Ballistic Missile Treaty, arguing that this would hinder testing and development of the proposed 'layered' missile defences. The US military depends on GPS, communications and reconnaissance satellites and any attack can prove to be detrimental. Trump, has recently declared that instead of just the US presence in outer space, there will be USA dominance clearing any doubts about their leadership in space.

Recently, the U.S. Stimson Center proposed the "Model Code of Conduct for the Prevention of Incidents and Dangerous Military Practices in Outer Space", which put forward security protection for outer space assets, confidence building and enhancing measures, the space debris management, and the rules of road in outer space.

Russian Federation

Russia has been in a constant arms race with the US, looking for opportunities to exceed the US and establish dominance in space. Increasing pressure to maintain its status as a global power and growing dependence on space assets in modern warfare led Russia to launch ambitious military initiatives in the 2000s in order to reorganise its space industry and to strengthen its foundation

China

After the US and Russia, China is now taking bigger steps to pursue its 'space dreams.' China believes the key to their military success and a stronger country with a beneficial and sustainable economy is the expansion of their space activities and successes. In 2016, China launched more rockets than Russia and just as many as the US and has also placed robotic landers on Mars and the moon. Universities and hedge funds are readily financing government and private company programs, encouraging them to begin new projects which is pressurizing and challenging NASA. Since 1985, China has launched 27 foreign-made satellites into space, hence acquiring a share of the international commercial launching market. China also initiated their first manned space flight program in 1992, and successfully developed a manned spacecraft and high reliability launching vehicle. Since then, in a decade, they have launched four unmanned experimental spacecraft and one manned experimental. Next year, Onspace is launching their latest rocket which is of 59-ton and in order to loft small satellites into orbit and Expace is marketing their Kuaizhou rocket. Space offers economic and commercial opportunities and China needs free access to space to grab these opportunities for their economic growth.

In June 2002, China and Russia along with some other states tabled in the UN Disarmament Commission, a working paper entitled "Possible Elements for a Future International Agreement on the Prevention of the Development of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects" (contained in CD/1679), which set out a preliminary conceptual framework for the future space legal instrument.

India

India wishes to and perhaps soon will be the fourth country to put humans in space. Officials from the Indian Space Research Organization (ISRO) have said that any policy changes regarding the human space flight mission will be accepted and it is necessary to revive public imagination and encourage the young generation to take an interest in space in particular and science in general. So far, India has only tested the Crew Escape System and the crew module re-entry (CARE). The CARE mission, undertaken in 2014, saw the separation of the crew module from the launch vehicle at a height of 126 kilometers and it made a re-entry into the Earth's atmosphere at a height of 80 kilometers. In July this year, the ISRO conducted a successful technology demonstration of the Crew Escape System, essentially an emergency escape system to rescue the astronauts from the launch vehicle if, for instance, there is a launch abort. If India does not develop their technological capacity for manned space flight, it will represent a significant drawback in their space capabilities. India wants to ensure that they have the technological capabilities to follow the latest trend of weaponizing outer space, and the increasing arms race and manned missions are one of the possible ways to go about it.

Past UN Actions

Outer Space Treaty of 1967

This treaty was instrumental in setting a basic framework international space law; in particular, concerning the exploration and uses of outer space, including the moon and other celestial bodies only for peaceful means. The treaty was signed by 105 nations including the United States of America, Russia and United Kingdom. It prohibits the placement of nuclear weapons or any other weapons which can lead to mass destruction and claims of sovereignty over the moon or any celestial bodies by any nation. Nations under this treaty were responsible for any activities or damage caused to any celestial bodies by any objects launched into space from their territory. Any activity taking place by any country was to be conducted openly and in accordance with the international law.

Transparency and Confidence-Building Measures in Outer Space Activities

Since 2005, the United Nations General Assembly has adopted further measures to ensure the prevention of an arms race in outer space, approving an annual resolution on "Transparency and Confidence-Building Measures in Outer Space Activities."

Delegates can look into other instruments such as:
The 11 non-legally binding United Nations instruments on outer space are contained in United Nations Treaties and Principles on Outer Space, related General Assembly resolutions and other documents (ST/SPACE/61) and are as follows:

1. Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (General Assembly resolution 1962 (XVIII))
2. Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68)
3. General Assembly resolution 55/122 on international cooperation on the peaceful uses of outer space
4. Safety Framework for Nuclear Power Source Applications in Outer Space (A/AC.105/934)

Questions a Resolution Must Answer (QARMA)

- How can the committee create a distinction between the militarization and weaponization of outer space and to what extent does militarization pose a threat of weaponization? What is the role of sovereign governments and private space exploration companies in adhering to this distinction?
- How effective has current legislation been in regulating militarization of space?
- What kind of actions can the COPUOS take in order to maintain the original sentiment of the 1967 Outer Space treaty while keeping up with the rapid development of outer space technology?
- What can be done to revise the current treaty regime to be able to address and regulate space activities in the emerging private sector?
- How should the terms 'space object', 'outer space' and 'launching state' be properly defined in future legislation? Should 'launching state' also include non-state actors such as private companies?
- How will space colonization be funded? What sort of considerations should be taken for developing countries?
- What are the most effective ways to prevent weaponization of space? Should current legislation be amended to expand its lost of banned weapons systems?

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