HIXSMUN 2024

1-3rd February 2024

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Disarmament & International Security Committee (DISEC)

Biohacking & Use of Genetics in Biological Warfare

Letter from the Secretariat

Dear Delegates,
We are delighted to extend a warm welcome to the inaugural edition of HIXSMUN, where we explore a theme deeply rooted in the universal essence of uncertainty and peril.

Throughout history, humanity has faced moments of great peril, often standing at the precipice of existential threats. From nuclear standoffs to ecological crises, the countdown to midnight on the metaphorical doomsday clock has served as a stark reminder of our shared vulnerability. Today, the threats may have evolved, encompassing global pandemics, artificial intelligence dilemmas, and climate emergencies, but the sense of urgency and the need for decisive action remain constant.

The theme for HIXSMUN, "A Minute to Midnight," pays homage to this iconic symbol of humanity's vulnerability. However, it also signifies hope and resilience, reminding us that we have the power to turn back the clock, to reset our course, and to confront the challenges that loom on the horizon.

At HIXSMUN, we invite delegates to embody this spirit of hope and resilience as they would navigate the crises of the past, confront those of the present, and anticipate those of the future. We challenge you to come together as global leaders, crisis solvers, and visionaries to move the doomsday clock away from midnight.

To facilitate this endeavor, HIXSMUN combines the best elements of MUNs from around the world, offering a unique and immersive experience. Delegates will have the opportunity to rewrite history, steer nations through moments of turmoil, and shape a future where humanity prevails.

Join us in this collective effort to reset the clock, to rewrite the narrative, and to redefine the potential of Model United Nations. We look forward to welcoming you on the 1st of February 2024, as we embark on a journey to rediscover the power of diplomacy and determination.

Sincerely,
The Seceretariat | HIXSMUN24

Letter From the Executive Board

Dear Delegates,
It gives us immense pleasure to formally welcome you all to the United Nations (UN) Disarmament and International Security Committee (DISEC) being stimulated at the HIXSMUN 2024.

The following pages intend to guide you with the nuances of the agenda as well as the committee. The guide touches upon all the different aspects that are relevant and will lead to fruitful debate in the committee. It will provide you with a bird's eye view of the gist of the issue. Delegates must be prepared to intelligently utilize their knowledge and apply it to their own country's policy. You will find that your state has a unique position on the topics that cannot be substituted by the opinions of another state. Therefore, please come prepared for the conference from the perspective of your country, the topic and the UN system for a truly rewarding experience.

The committee is expected to facilitate substantive, constructive, logical and analytical debate and discussions while we want you to learn and take back as much as you can. Key points to remember for being a good delegate is to research well, be informed regarding your agenda, invoke potential areas of the agenda and construct debate to come to the real-world problems, not merely attempting to persuade the executive board.Our aim in the committee would be to urge you, the delegates to put your best foot forward and take back an unforgettable experience. We encourage you to go beyond this background guide and delve into the extremities of the agenda to further enhance your knowledge of a burning global issue.

ALL THE BEST!

Sincerely,
The Executive Board
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Chapter A

Introduction to the United Nations

"In the end, it comes down to values ...We want the world our children inherit to be defined by the values enshrined in the UN Charter: peace, justice, respect, human rights, tolerance and solidarity."

The United Nations is an international organization founded in 1945. Currently made up of 193 Member States, the UN and its work are guided by the purposes and principles contained in its founding Charter.The UN has evolved over the years to keep pace with a rapidly changing world.But one thing has stayed the same: it remains the one place on Earth where all the world's nations can gather together, discuss common problems, and find shared solutions that benefit all of humanity.The UN's Membership has grown from the original 51 Member States in 1945 to the current 193 Member States.

All UN Member States are members of the General Assembly. States are admitted to membership by a decision of the General Assembly upon the recommendation of the Security Council.The UN Charter, in its Preamble, set an objective: "to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained". Ever since, the development of, and respect for international law has been a key part of the work of the Organization.

This work is carried out in many ways - by courts, tribunals, multilateral treaties - and by the Security Council, which can approve peacekeeping missions, impose sanctions, or authorize the use of force when there is a threat to international peace and security, if it deems this necessary. These powers are given to it by the UN Charter, which is considered an international treaty. As such, it is an instrument of international law, and UN Member States are bound by it.The UN Charter codifies the

major principles of international relations, from sovereign equality of States to the prohibition of the use of force in international relations.

Committee Mandate: DISEC

The United Nations (UN) Disarmament and International Security Committee (DISEC) was created as the first of the Main Committees in the General Assembly when the charter of the United Nations was signed in 1945. Thus, DISEC is often referred to as the First Committee. DISEC was formed to respond to the need for an international forum to discuss peace and security issues among members of the international community.

According to the UN Charter, the purpose of DISEC in the General Assembly is to deal with disarmament, global challenges and threats to peace that affect the international community and seeks out solutions to the challenges in the international security regime.and also to give "recommendations with regard to such principles to the Members or to the Security Council." t considers all disarmament and international security matters within the scope of the Charter or relating to the powers and functions of any other organ of the United Nations; the general principles of cooperation in the maintenance of international peace and security, as well as principles governing disarmament and the regulation of armaments; promotion of cooperative arrangements and measures aimed at strengthening stability through lower levels of armaments.

The Committee works in close cooperation with the United Nations Disarmament Commission and the Geneva-based Conference on Disarmament. It is the only Main Committee of the General Assembly entitled to verbatim records coverage.Although DISEC cannot directly advise the Security Council's decision-making process, the UN Charter explains that DISEC can suggest specific topics for Security Council consideration. Aside from its role in the General Assembly, DISEC is also an institution of the United Nations Office for Disarmament Affairs (UNODA), formally named in January 1998 after the Secretary-General's second special session on disarmament in 1982. The UNODA is concerned with disarmament at all levels—nuclear weapons, weapons of mass

destruction, and conventional weapons—and assists DISEC through its work conducted in the General Assembly for substantive norm-setting support to further its disarmament initiatives.

Chapter B

What is BioHacking

According to Forbes, biohacking is the practice of employing methods drawn from fields like biology, genetics, neuroscience and nutrition to enhance physical or mental performance, improve overall health and well-being, or achieve a specific health outcome. This is the definition we will be using for the sake of our conference. Biohacking is no longer a problem of the future, something our descendants will have to face. It is an emerging technology with significant implications on the scientific community, morality and warfare as we know it.

In November of 2018, He Jiankui and two other Chinese researchers announced that they had helped genetically modify new-born twins. This was unprecedented, and the new-born twins were the first instance of genetic modification in humans. By manipulating their immune cells, Jiankui was able to immunise them against HIV/AIDS. While immunising humans against deadly diseases may portray him as a samaritan, genetic modification of humans is illegal, and he subsequently went to jail. The anecdote about He Jiankui and his discoveries prompt the question: for what purpose and to what extent is ‘biohacking’ justified?

On one hand, biohacking has the potential to eradicate blood disorders, cancer, ocular disorders and neurodegenerative diseases. It can be used to reverse congenital disorders as well. Furthermore, billionaires often employ ‘extreme biohacking’, funnelling vast amounts of resources in their frivolous pursuit of immortality. While immortality may be science-fiction, anti-aging is not. Billionaires often rely on carefully regimented pill routines, expensive therapeutic equipment and biotechnology to reverse fractions of their age. The applications of these technologies raise several ethical and economic concerns:

- Are people with congenital disorders like Turner’s syndrome inherently inferior?

- Is the disproportionate access of biohacking technology justified?
- What are the military applications of biohacking?

Biological Warfare and Global Security

Rapid developments in biotechnology, genetics and genomics are undoubtedly creating a variety of environmental, ethical, political and social challenges for advanced societies. But they also have severe implications for international peace and security because they open up tremendous avenues for the creation of new biological weapons. The genetically engineered 'superbug'—highly lethal and resistant to environmental influence or any medical treatment—is only a small part of this story. Much more alarming, from an arms-control perspective, are the possibilities of developing completely novel weapons on the basis of knowledge provided by biomedical research—developments that are already taking place. Such weapons, designed for new types of conflicts and warfare scenarios, secret operations or sabotage activities, are not mere science fiction, but are increasingly becoming a reality that we have to face.

As this technology becomes more widespread and more capable, the greater the likelihood it could end up in the hands of dangerous actors. At the same time, others claim many fears about bioterrorism are overblown, citing the role tacit knowledge and institutions play in preventing or enabling actors to succeed at weaponizing biology. In 2015, when experts were asked who would be the most likely actor behind a biological weapon attack if one were to occur in the next 10 years, they offered a wide range of opinions on the risks posed by both state and nonstate actors. This lack of consensus underscores the persistent uncertainty about from where the majority of biorisk arises. That being said, powerful actors, such as nation states, have larger conceptual toolboxes than weak actors, making them more likely to know that biology could be weaponized. Regardless, we cannot ignore the risk of biotechnology falling into ill intentioned hands; this is becoming increasingly more risky, due to the rapid proliferation of biotechnology.

It is also important to discuss the use of biological warfare agents (BWAs) and how they have been used historically. Biological warfare is the deliberate use of disease-causing biological agents such as bacteria, virus, rickettsiae, and fungi, or their toxins, to kill or incapacitate humans, animals, or plants as an act of war. As spoken about before, recent leaps in biotechnology have increased the potential potency of BWAs significantly, and therefore, strict regulations on the use of BWAs had to be developed.

BWC

The Biological Weapons Convention of 1972, a convention that supplements the Geneva Convention, was the first multilateral disarmament treaty that banned an entire category of mass destruction weapons. It was an instructional moment, and other conventions like the Convention on Certain Conventional Weapons followed its precedent. It established a strong norm against the unregulated use of Biological Weapons.

That being said, the BWC does have some scope from error. While 183 member nations of the United Nations are parties to the convention, and 4 signatories, key nations like Israel as well as other African nations, have not acceded to the convention. Consequently, there have been reports of Israel using BWAs in Palestine. Additionally, in March of 2022, Russia had accused the United States of facilitating the development of biological weapons in Ukrainian labs.

Regardless of whether these accusations were of any merit, they highlight the severity of the problem. Furthermore, with the rapid growth of technology, the stakes have only increased.

Therefore, the committee must aim to discuss and remedy the following:

- Recent instances where BWAs have been used
- The impact of rapid proliferation of biotechnology on biowarfare
- The economic repercussions of biohacking
- The dystopian scenario of a gene-purity war/segregation based on genetic status

- Involvement of state/non-state/transnational actors and their use of biowarfare
- The ethical implications of biohacking and biowarfare
- Updating the BWC based on the recent advancements in technology

Role of Genetics in Biological Warfare

Genome sequencing has given rise to a new generation of genetically engineered bioweapons carrying the potential to change the nature of modern warfare and defense. Biological weapons are designed to spread disease among people, plants, and animals through the introduction of toxins and microorganisms such as viruses and bacteria. The method through which a biological weapon is deployed depends on the agent itself, its preparation, its durability, and the route of infection. Attackers may disperse these agents through aerosols or food and water supplies.

Although bioweapons have been used in war for many centuries, a recent surge in genetic understanding, as well as a rapid growth in computational power, has allowed genetic engineering to play a larger role in the development of new bioweapons. In the bioweapon industry, genetic engineering can be used to manipulate genes to create new pathogenic characteristics aimed at enhancing the efficacy of the weapon through increased survivability, infectivity, virulence, and drug resistance. While the positive societal implications of improved biotechnology are apparent, the "black biology" of bioweapon development may be "one of the gravest threats we will face".

Prior to recent advances in genetic engineering, bioweapons were exclusively natural pathogens. Agents must fulfill numerous prerequisites to be considered effective military bioweapons, and most naturally occurring pathogens are ill suited for this purpose. First, bioweapons must be produced in large quantities. A pathogen can be obtained from the natural environment if enough can be collected to allow purification and testing of its properties. Otherwise, pathogens could be produced in a microbiology laboratory or bank, a process which is limited by pathogen accessibility and the safety with which the pathogens can be handled in facilities. To replicate viruses and some bacteria, living cells are required. The growth of large quantities of an agent can be limited by equipment, space, and

the health risks associated with the handling of hazardous germs. In addition to large-scale production, effective bioweapons must act quickly, be environmentally robust, and their effects must be treatable for those who are implementing the bioweapon.

Recent Advances

As researchers continue to transition from the era of DNA sequencing into the era of DNA synthesis, it may soon become feasible to synthesize any virus whose DNA sequence is known. This was first demonstrated in 2001 when Dr. Eckard Wimmer re-created the poliovirus and again in 2005 when Dr. Jeffrey Taubenberger and Terrence Tumpey re-created the 1918 influenza virus. The progress of DNA synthesis technology will also allow for the creation of novel pathogens. According to biological warfare expert Dr. Steven Block, genetically engineered pathogens “could be made safer to handle, easier to distribute, capable of ethnic specificity, or be made to cause higher mortality rates”.

The growing accessibility of DNA synthesis capabilities, computational power, and information means that a growing number of people will have the capacity to produce bioweapons. Scientists have been able to transform the four letters of DNA—A (adenine), C (cytosine), G (guanine), and T (thymine)—into the ones and zeroes of binary code. This transformation makes genetic engineering a matter of electronic manipulation, which decreases the cost of the technique. A crude but effective terrorist weapon can be made using a small sample of any number of widely available pathogens, inexpensive equipment, and college-level chemistry and biology.

Techniques to Enhance Efficacy of Biological Weapons

Scientists and genetic engineers are considering several techniques to increase the efficacy of pathogens in warfare.

1. Binary Biological Weapons

This technique involves inserting plasmids, small bacterial DNA fragments, into the DNA of other bacteria in order to increase virulence or other pathogenic properties within the host bacteria.

2. Designer Genes

According to the European Bioinformatics Institute, as of December 2012, scientists had sequenced the genomes of 3139 viruses, 1016 plasmids, and 2167 bacteria, some of which are published on the internet and are therefore accessible to the public. With complete genomes available and the aforementioned advances in gene synthesis, scientists will soon be able to design pathogens by creating synthetic genes, synthetic viruses, and possibly entirely new organisms.

3. Gene Therapy

Gene therapy involves repairing or replacing a gene of an organism, permanently changing its genetic composition. By replacing existing genes with harmful genes, this technique can be used to manufacture bioweapons.

4. Stealth Viruses

Stealth viruses are viral infections that enter cells and remain dormant for an extended amount of time until triggered externally to cause disease. In the context of warfare, these viruses could be spread to a large population, and activation could either be delayed or used as a threat for blackmail.

5. Host-Swapping Diseases

Much like the naturally occurring West Nile and Ebola viruses, animal viruses could potentially be genetically modified and developed to infect humans as a potent biowarfare tactic.

6. Designer Diseases

Biotechnology may be used to manipulate cellular mechanisms to cause disease. For example, an agent could be designed to induce cells to multiply uncontrollably, as in cancer, or to initiate apoptosis, programmed cell death.

7. Personalised Bioweapons

In coming years it may be conceivable to design a pathogen that targets a specific person's genome. This agent may spread through populations showing minimal or no symptoms, yet it would be fatal to the intended target.

Biodefense

In addition to creating bioweapons, the emerging tools of genetic knowledge and biological technology may be used as a means of defence against these weapons.

1. Human Genome Literacy

As scientific research continues to reveal the functions of specific genes and how genetic components affect disease in humans, vaccines and drugs can be designed to combat particular pathogens based on analysis of their particular molecular effect on the human cell.

2. Immune System Enhancement

In addition to enabling more effective drug development, human genome literacy allows for a better understanding of the immune system. Thus, genetic engineering can be used to enhance human immune response to pathogens. As an example, Dr. Ken Alibek is conducting cellular research in pursuit of protection against the bioweapon anthrax.

3. Viral and Bacterial Genome Literacy

Decoding the genomes of viruses and bacteria will lead to molecular explanations behind virulence and drug resistance. With this information, bacteria can be engineered to produce bioregulators against pathogens. For example, Xoma Corporation has patented a bactericidal/permeability-increasing (BPI) protein, made from genes inserted into bacterial

DNA, which reverses the resistance characteristic of particular bacteria against some popular antibiotics.

4. Efficient Bio-Agent Detection and Identification Equipment

Because the capability of comparing genomes using DNA assays has already been acquired, such technology may be developed to identify pathogens using information from bacterial and viral genomes. Such a detector could be used to identify the composition of bioweapons based on their genomes, reducing present-day delays in resultant treatment and/or preventive measures.

5. New Vaccines

Current scientific research projects involve genetic manipulation of viruses to create vaccines that provide immunity against multiple diseases with a single treatment.

6. New Antibiotics and Antiviral Drugs

Currently, antibiotic drugs target DNA synthesis, protein synthesis, and cell-wall synthesis processes in bacterial cells. With an increased understanding of microbial genomes, other proteins essential to bacterial viability can be targeted to create new classes of antibiotics. Eventually, broad-spectrum, rather than protein-specific, anti-microbial drugs may be developed.

Future of Warfare

The revolution in molecular biology and biotechnology can be considered as a potential Revolution of Military Affairs. Technological advancement, incorporation of this new technology into military systems, military operational advancement, and organizational adaptation in a way that fundamentally alters the character and conduct of conflict are the four components that make up an RMA. For instance, the Gulf War has been classified as the beginning of the space information

warfare RMA. From the technological advances in biotechnology, biowarfare with genetically engineered pathogens may constitute a future such RMA.

In addition, the exponential increase in computational power combined with the accessibility of genetic information and biological tools to the general public and lack of governmental regulation raise concerns about the threat of biowarfare arising from outside the military. The US government has cited the efforts of terrorist networks, such as al Qaida, to recruit scientists capable of creating bioweapons as a national security concern and "has urged countries to be more open about their efforts to clamp down on the threat of bioweapons".

Despite these efforts, biological research that can potentially lead to bioweapon development is "far more international, far more spread out, and far more diverse than nuclear science researchers communicate much more rapidly with one another by means that no government can control.

Responses

1. Strengthening the Biological Weapons Convention (BWC): The BWC currently prohibits the development, production, and use of biological agents and toxins. However, it lacks an effective verification mechanism. The General Assembly can push for a legally binding protocol establishing a transparent verification system, including on-site inspections.
2. Enhancing Global Biosafety and Biosecurity: Dual-use biotechnologies, with peaceful and potentially weaponized applications, require vigilant oversight. The UN can facilitate international cooperation to improve biosafety and biosecurity standards, particularly in vulnerable countries. This includes strengthening national regulations, enhancing pathogen control, and implementing training programs for scientists and officials.
3. Addressing Emerging Threats: Genetic engineering advancements raise new bioweapon concerns. The General Assembly can convene expert commissions to assess these risks and

recommend regulatory frameworks for responsible research and development, focusing on ethical considerations and potential misuse.

4. Investing in Early Warning and Response Systems: Early detection of outbreaks, whether accidental or malicious, is crucial. The UN can support and coordinate global disease surveillance networks, including animal health monitoring, to identify and respond to potential biothreats swiftly.
5. Engaging in Strategic Communication and Public Awareness: Public understanding of biowarfare threats is vital for fostering global cooperation and preparedness. The UN can spearhead awareness campaigns, educational initiatives, and media outreach to demystify complex scientific concepts and empower citizens to demand action.
6. Security Council's Role: The Security Council holds primary responsibility for maintaining international peace and security. In instances of alleged bioweapon use, the Council can investigate, impose sanctions, and authorize interventions to disarm perpetrators. Moreover, strengthening the UN's Rapid Deployment Capacity provides a crucial tool for rapid response to bioweapon-related crises.

Chapter C

Researching

We advise delegates to have a sound understanding about their role-play as a country along with the knowledge about key facets of the agenda. The study guide covers specific areas of importance in this world and intends to provide an insight into the approach with which this committee should address them. It is hence, in no way not exhaustive and it's imperative that the delegates go beyond the guide and be equipped with a comprehensive idea of the issues as a whole.

It is advised to be equipped with a comprehensive set of problems and solutions pertaining to the agenda. Additionally, delegates must always be on the lookout for relevant international mechanisms, especially within the purview of the United Nations system, to be utilized to tackle the problem statement the agenda upholds. Research may also be directed in gaining an understanding of international best practices on the highlighted problems in terms of effective policies, legal deterrents and on-ground implementation strategies.

Approach as a delegate

A basic holistic ideation of the situation at hand is all you will need to further expand on during discussions. In committee, it is required that you know the mandate of the committee as well as the foreign policy of your allotted nation. The most important utility of the guide shall be in understanding how to approach the committee and the agenda and make best use of your research that make you stand out from the rest.

Remember, diplomacy is also about walking together with everyone and hence you should not only help others in the process of the committee but also guide everyone to a desirable outcome that you visualize the committee to be directed to according to your Foreign Policy. You are expected to be in tandem with each other diplomatically that shall also include strong contradiction and counter-attack if there is an attack or a question on your sovereignty. Your country is your Best Friend for the three days of the MUN and hence the respect and integrity of your country is in your hands to be protected with utmost care and responsibility.

Approach to this Committee

MUN conferences generally revolve around explicitly highlighting a delegates' prowess in terms of knowledge and substantive inputs. However, what we in this committee would be looking forward to is the ability of a delegate to be a diplomat and have its subsequent effect in committee. The agenda in hand provides enough scope for delegates to select, chose and push their own personal interest in light of the national interest of the country they're representing.

What we are looking forward to is the ability of delegates to be dynamic in committee, be well in terms with the latest developments in contemporary world politics and use the mandate of the General Assembly to address specific aspect of ensuring International Peace with regard to the agenda. It is definitely not about the amount of facts a speech would be loaded with, but rather about the systematic portrayal of facts pertaining to the agenda, in sync with the foreign policy.

Chapter D

Relevant Sources for Further Research

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