

OAKRIDGE MUN 2023



OPPCW

BACKGROUND GUIDE

Agenda: Exploring potential new threats and challenges posed by advances in technology and science that could be exploited for the development and deployment of chemical weapons and further discussing preventive measures and responses.

LETTER FROM EXECUTIVE BOARD

Greetings Delegates!

It is an honor to be serving as a part of the Executive Board of the Organization for the Prohibition of Chemical Weapons (OPCW) at OAK MUN 2023. We hope to be a part of an enriching academic simulation and engage in a constructive discussion on “Exploring potential new threats and challenges posed by advances in technology and science that could be exploited for the development and deployment of chemical weapons and further discussing preventive measures and responses.”

The background guide shall only be an instrument of assistance to the delegates instead of being the sole basis for your research. The given list of topics is not exhaustive, and it is not intended to be. The list is simply indicative of pressing issues and topics of concern, which must be addressed and will give you a bird’s eye view of the gist of the issue. The delegates are at full liberty to bring up any other relevant point for discussion. We understand that MUN conferences can be an overwhelming experience for first timers, but it must be noted that our aspirations from the delegates are not how experienced or articulate they are. Rather, we want to see how he/she/they can respect disparities and differences of opinion, work around these while extending their own foreign policy so that it includes more comprehensive solutions without compromising their own stand, and initiate consensus building.

We sincerely hope that the Organisation for the Prohibition of Chemical Weapons (OPCW) at OAK MUN 2023 will help you gain experience to become better professionals and persons in the future.

Note that the perusal of this guide’s content will be insufficient if you wish to enjoy a healthy and competitive debate.

All the very Best!

Siddharth Bandam - Chairperson

Akash Koti - Vice Chairperson

BASIC SUGGESTIONS BEFORE YOU START RESEARCHING

A few aspects that delegates should keep in mind while preparing:

Procedure: The purpose of putting procedural rules in any committee is to ensure a more organized and efficient debate. The committee will follow the UNA-USA Rules of Procedure. The Executive Board shall be fairly strict with the Rules of Procedure.

Foreign Policy: Following the foreign policy of one's country is the most important aspect of a Model UN Conference. This is what essentially differentiates a Model UN from other debating formats. To violate one's foreign policy without adequate reason is one of the worst mistakes a delegate can make.

Role of the Executive Board: The Executive Board is appointed to facilitate debate. The committee shall decide the direction and flow of the debate. The delegates are the ones who constitute the committee and hence must be uninhibited while presenting their opinions/stance on any issue. However, the Executive Board may put forward questions and/or ask for clarifications at all points of time to further debate and test participants.

Nature of Sources/Evidence: This Background Guide is meant solely for research purposes and must not be cited as evidence to substantiate statements made during the conference. Evidence or proof for substantiating statements made during the formal debate is acceptable from the following sources-

1. United Nations: Documents and findings by the United Nations or any related UN body is held as credible proof to support a claim or argument.

2. Multilateral Organizations: Documents from international organizations like NATO, NAFTA, SAARC, BRICS, EU, ASEAN, OPEC, the International Criminal Court, etc may also be presented as a credible source of information.

3. Government Reports: These reports can be used in a similar way as the State Operated News Agencies reports and can, in all circumstances, be denied by another country. However, a nuance is that a report that is being denied by a certain country can still be accepted by the Executive Board as a credible piece of information.

4. News Sources:

(i) United Nations News: Any article published on this website can be quoted by the delegate during deliberations in the committee.

(ii) State-operated News Agencies: These reports can be used in the support of or against the State that owns the News Agency. These reports, if credible or substantial enough, can be used in support of or against any country as such but in that situation, may be denied by any other country in the council. Some examples are – RIA Novosti⁸ (Russian Federation), Xinhua News Agency¹¹(People’s Republic of China), etc.

Note - Under no circumstances will sources like Wikipedia, or newspapers like the Guardian, Times of India, etc. be accepted. However, notwithstanding the criteria for acceptance of sources and evidence, delegates are still free to quote/cite from any source as they deem fit as a part of their statements.

ORGANIZATION ON PROHIBITION OF CHEMICAL WEAPONS (OPCW)

The Organisation for the Prohibition of Chemical Weapons (OPCW) is an indispensable international entity that plays a central role in preventing the use and proliferation of chemical weapons. Established in 1997 under the Chemical Weapons Convention (CWC), the OPCW is headquartered in The Hague, Netherlands, and operates with a primary mission: to champion and enforce the global ban on the development, stockpiling, and deployment of chemical weapons and their precursors.

At the heart of the OPCW's operations are a series of critical functions. These include conducting inspections, verifying adherence to the CWC, and facilitating the safe and irreversible destruction of chemical weapons stockpiles across the globe. This extensive effort is instrumental in safeguarding against the catastrophic consequences of chemical warfare, promoting the peaceful applications of chemistry, and offering valuable assistance to nations in establishing secure and responsible chemical industries.

What sets the OPCW apart is its remarkable membership of 193 countries, making it one of the most universally accepted disarmament treaties in the world. Through its diligent work, the OPCW has overseen significant reductions in chemical weapon arsenals, thereby making substantial contributions to global peace and security.

The organization's mission is not driven by opinion but by its mandate to uphold the Chemical Weapons Convention, foster international cooperation, and prevent the proliferation of chemical weapons.

Link to access the CWC:

[Chemical Weapons Convention | OPCW](#)

ABOUT THE AGENDA

Introduction:

Advancements in technology and science have always been a double-edged sword, offering new opportunities for progress while simultaneously creating vulnerabilities that can be exploited by those with malicious intent. One area of growing concern is the potential for these advancements to be harnessed for the development and deployment of chemical weapons. In this context, it is essential to examine the emerging threats and challenges posed by technology and science and consider preventive measures and responses to address them effectively. Some of the threats include:

Emerging Chemical Agents: Advances in chemistry and biotechnology have the potential to lead to the creation of previously unknown chemical agents with harmful properties. These agents may not fall under the purview of existing international treaties and agreements, which could complicate efforts to detect and regulate them. As such, the development of innovative chemical compounds and their potential misuse raise concerns about the need for constant vigilance and adaptability in international regulatory frameworks.

Synthetic Biology: Synthetic biology techniques empower scientists to design and engineer microorganisms that can produce a wide range of substances, including toxic chemicals. This capability opens up the possibility of creating biological systems for the production of chemical weapons. Synthetic biology's dual-use nature, with applications in medicine and industry, further complicates efforts to monitor and control its potential misuse for hostile purposes.

Dual-Use Technologies: Dual-use technologies refer to innovations that have both civilian and military applications. These technologies, such as 3D printing and nanotechnology, possess the versatility to be employed in the production of chemical weapons. The challenge lies in distinguishing between legitimate, peaceful applications and those with malicious intent. Striking the right balance between encouraging technological progress and preventing misuse is a key consideration.

Autonomous Systems: Advances in robotics and artificial intelligence (AI) are enabling the development of autonomous chemical delivery systems. These systems have the potential to increase the scope for remote and anonymous chemical attacks. AI-driven technologies could potentially be used to orchestrate chemical attacks without direct human intervention, presenting new challenges for detection, attribution, and response.

Cyber-Physical Attacks: The increasing interconnectivity of critical infrastructure, including chemical plants, makes them vulnerable to cyberattacks. Cyber-physical attacks targeting such facilities could lead to the release of toxic chemicals, causing significant harm. Identifying and mitigating cyber vulnerabilities in digital control systems is crucial to preventing potential chemical disasters resulting from malicious cyber activities.

It is expected that the delegates deliberate on issues as such from their country's perspective and come up with comprehensive solutions to answer the same.

Emerging Technologies and Techniques:

In the context of chemical weapons, emerging technologies and techniques refer to the cutting-edge developments in various scientific and technological fields that have the potential to be exploited for the creation, enhancement, or deployment of chemical agents. Understanding these developments is crucial for staying ahead of potential threats and challenges in the realm of chemical weapons. Here's a breakdown of key aspects:

- **Nanotechnology:** Nanotechnology involves manipulating matter at the nanoscale, often with materials that have unique properties at this level. In the context of chemical weapons, nanotechnology can be employed to create more effective delivery mechanisms, enhance the lethality of chemical agents, or develop novel materials with harmful properties.
- **Synthetic Biology:** Advances in synthetic biology allow for the design and modification of biological organisms, including bacteria and viruses, to produce chemical compounds. This can be exploited to create genetically engineered organisms capable of producing toxic chemicals, potentially bypassing traditional chemical weapon detection methods.
- **Artificial Intelligence (AI):** AI and machine learning can be utilized to model chemical reactions and predict the properties of new compounds. This can aid in the design of chemical agents with specific characteristics, making them more effective as weapons.
- **Materials Science:** Innovations in materials science can lead to the development of novel materials that can be used in chemical weapons, such as improved protective gear for those handling chemical agents or materials that enhance the stability and dispersal of toxic chemicals.
- **Advanced Delivery Systems:** Research into advanced delivery systems, such as aerosols, microencapsulation, or nanoscale carriers, can enhance the efficiency and effectiveness of chemical weapon deployment.

- **Stealth and Concealment Technologies:** Advancements in stealth and concealment technologies can make it more difficult to detect and respond to chemical weapon threats.
- **Remote Sensing and Monitoring:** While these technologies can be used for monitoring and detection, they can also be exploited by malicious actors to gather intelligence on potential targets or develop strategies for chemical weapon deployment.
- **Computational Chemistry:** Computational chemistry tools can assist in the design and optimization of chemical agents, accelerating the development process.

The discussion under this subtopic should include an analysis of how these emerging technologies and techniques could be leveraged for nefarious purposes and the potential risks they pose. It's essential to foster awareness among relevant stakeholders, including governments, scientific communities, and regulatory bodies, to ensure proactive measures are taken to monitor and counteract these emerging threats. This may involve international cooperation, regulatory adjustments, and investment in research and development to stay ahead of potential adversaries in the realm of chemical weapons.

Biological Convergence :

Biological convergence refers to the intersection of biological sciences and chemical sciences, which can result in novel threats and challenges. This subtopic explores the potential risks associated with the blending of biological and chemical elements in the development of weapons. Here's a more detailed explanation:

- **Hybrid Weapons:** Discuss the concept of hybrid weapons that combine biological and chemical elements. These weapons may utilize both chemical agents and genetically modified organisms (GMOs) to create more potent and versatile threats. For example, a biological agent could be engineered to produce a chemical toxin or vice versa.
- **Synthetic Biology and Genetic Engineering:** Examine how advances in synthetic biology and genetic engineering allow for the design and modification of biological organisms, including bacteria and viruses. These techniques can be exploited to create organisms capable of producing or delivering chemical agents, blurring the lines between biological and chemical threats.
- **Dual-Use Research:** Highlight the dual-use nature of research in these fields, emphasizing that scientific advancements intended for beneficial purposes (e.g., medical research) can also be repurposed for harmful applications. The responsible conduct of research and ethical considerations become paramount.
- **Delivery Mechanisms:** Discuss how biological organisms can serve as delivery mechanisms for chemical agents. For instance, a genetically engineered virus might carry a chemical payload or produce toxic chemicals upon infection.
- **Detection Challenges:** Explore the challenges in detecting hybrid biological-chemical threats. Traditional detection methods for chemical agents and biological pathogens may not be effective against these hybrid weapons, requiring the development of new diagnostic tools and surveillance strategies.

- **Regulatory Gaps:** Address potential regulatory gaps in international agreements and conventions. Existing arms control agreements may not adequately cover the development and deployment of hybrid weapons, necessitating updates and amendments.
- **Biological Security:** Consider the importance of securing biological research facilities and regulating access to potentially dangerous genetic information. Preventing the unauthorized or malicious use of biological knowledge is crucial.
- **Ethical and Moral Implications:** Examine the ethical and moral dilemmas associated with the convergence of biological and chemical threats. Deliberate efforts to design and deploy such weapons raise profound ethical questions about the responsible use of science and technology.
- **International Cooperation:** Stress the need for international cooperation in addressing the potential risks of biological convergence. Collaboration among nations, scientific communities, and regulatory bodies is essential for monitoring, regulating, and responding to these emerging threats.
- **Emergency Response and Preparedness:** Discuss strategies for emergency response and preparedness in the event of a biological-chemical attack. First responders and healthcare systems must be equipped to handle the unique challenges posed by such hybrid threats.

Biological convergence presents a complex and evolving set of challenges, requiring a multidisciplinary and collaborative approach to mitigate risks and develop effective countermeasures. Addressing these challenges involves not only technical solutions but also ethical, legal, and policy considerations to ensure responsible research and innovation in the fields of biology and chemistry.

Regulatory and Legal Frameworks:

The regulatory and legal frameworks surrounding chemical weapons are essential for preventing their development, proliferation, and use. This subtopic delves into the existing international agreements and the need for adaptation to address new threats and challenges. Here are key aspects to consider:

- **Chemical Weapons Convention (CWC):** Provide an overview of the CWC, an international treaty aimed at eliminating the production and use of chemical weapons and their precursors. Highlight its key provisions, including the prohibition of chemical weapons and the verification mechanisms for member states.
- **Adequacy of the CWC:** Evaluate the adequacy of the CWC in addressing emerging threats related to chemical weapons. Discuss whether the treaty's provisions are sufficient to encompass advancements in science and technology that could lead to new forms of chemical weapons.
- **Gaps in Coverage:** Identify potential gaps in the CWC's coverage. For example, consider whether the treaty adequately addresses hybrid weapons that combine biological and chemical elements or unconventional delivery mechanisms.
- **Amendments and Updates:** Discuss the possibility of amending or updating the CWC to address evolving threats. Explore the challenges and opportunities associated with revising international agreements to keep pace with scientific and technological advancements.
- **Strengthening Verification:** Explore strategies for enhancing the verification mechanisms of the CWC. This may include improving the monitoring of chemical production facilities and strengthening mechanisms for reporting and investigating suspected violations.
- **Universalization:** Discuss efforts to promote the universalization of the CWC, encouraging all countries to become signatories and adhere to its provisions. Consider how to engage non-signatory states and address concerns that may impede accession.

- **Regional Agreements:** Highlight regional agreements and initiatives related to chemical weapons control. Some regions may have additional protocols or agreements that complement the CWC, and cooperation among neighboring states can enhance regional security.
- **Sanctions and Enforcement:** Examine the enforcement mechanisms and consequences for violating the CWC or related agreements. Sanctions and penalties can serve as deterrents against non-compliance.
- **Ethical Considerations:** Discuss the ethical considerations surrounding the use of chemical weapons and the importance of upholding the principles of international humanitarian law and human rights.
- **Transparency and Information Sharing:** Emphasize the significance of transparency and information sharing among member states. Encourage open communication to build trust and facilitate cooperation in preventing chemical weapon threats.
- **Public Awareness:** Highlight the role of public awareness and advocacy in supporting and strengthening international chemical weapons agreements. Educating the public about the risks and consequences of chemical weapons can garner support for compliance and enforcement efforts.
- **Non-State Actors:** Address the challenges posed by non-state actors in the context of chemical weapons and the need for measures to prevent their acquisition and use.

Effective regulatory and legal frameworks are essential for maintaining global security and preventing the misuse of science and technology for destructive purposes. As the landscape of chemical weapons threats evolves, it is crucial for nations to work together to adapt and strengthen international agreements to address emerging challenges.

Links for further Research:

- [1540 Committee](#)
- <https://www.opcw.org/about-us/opcw-basics>
- <https://www.opcw.org/about-us/opcw-basics>
- <https://www.csis.org/analysis/csis-brief-rigid-structures-evolving-threat-preventing-proliferation-and-use-chemical>

Questions A Resolution Must Answer (QARMA)

1. What are the specific technological and scientific advancements that could be exploited for the development and deployment of chemical weapons?
2. What measures can be implemented to enhance oversight and regulation of synthetic biology research and biotechnology to prevent their misuse for chemical weapons production?
3. What international norms and regulations should be developed to govern the use of autonomous systems in chemical-related activities?
4. What cybersecurity measures should be implemented to safeguard critical infrastructure, particularly chemical plants, against cyber-physical attacks?
5. How can the international community adapt existing regulatory frameworks to address emerging chemical agents not covered by current treaties?