

Committee: DISEC 1

Topic: The question of Stockpiles of Chemical and Biological Weapons

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Summary

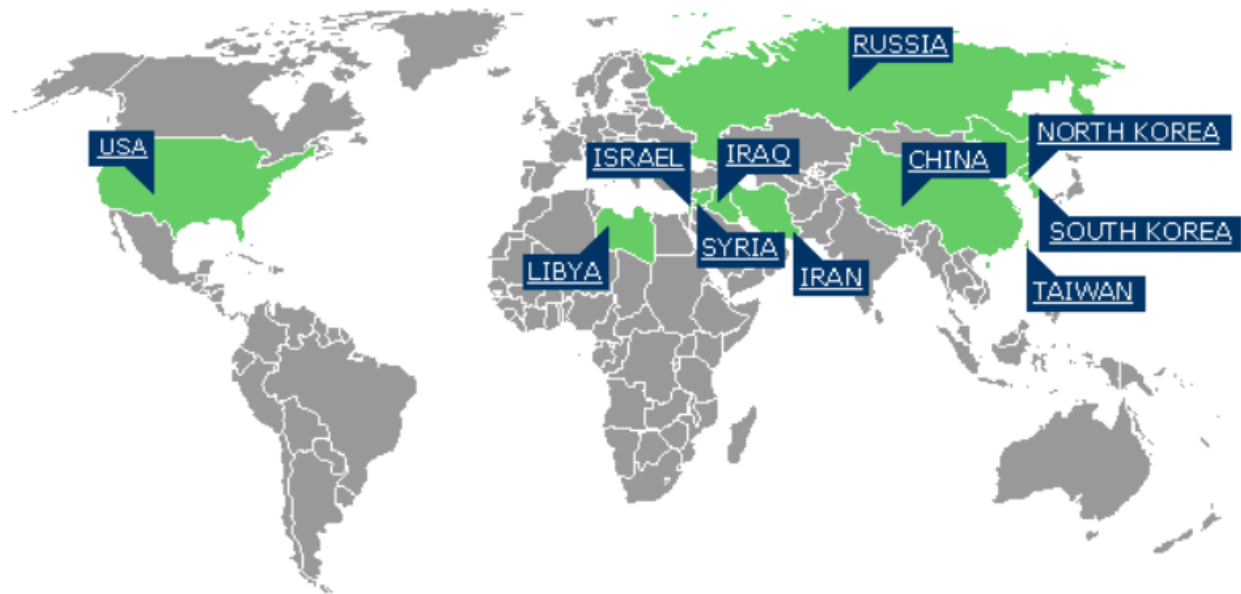
Throughout history, several countries have developed and accumulated chemical and biological weapons, which cause mass casualties by using poisonous chemicals or pathogens, respectively. This was especially true during the Cold War and World Wars. World stockpiles have drastically decreased as a result of major disarmament initiatives, including the Chemical Weapons Convention (CWC) of 1997 and the Biological Weapons Convention (BWC) of 1975. However, issues such as dual-use research, the possibility of non-state actors using it, and guaranteeing compliance and verification of the governments in possession of these weapons continue to be major worries for international security. To lessen these threats, international cooperation and vigilance must continue.

Definition of Key Terms

- **Dual-Use Research:** Advances in biotechnology and chemistry that can be misused for weapon development, complicating regulatory and monitoring efforts.
- **Pathogens:** a microorganism that causes disease to its host.
- **Vector:** the medium that transmits the pathogen.
- **Stringent control:** a stress response found in bacteria and plants due to starvation or limitations.
- **Synthetic:** artificially made by humans.

Background Information

Figure 1: Global Stockpiles of Weapons



What are chemical weapons?

Chemical weapons use toxic chemical substances to inflict harm or death. They can be dispersed in various forms, including gas, liquid, or solid, and delivered via bombs, artillery shells, or sprays.

Types of chemical agents:

1. Nerve agents: highly toxic compounds such as sarin, VX, and soman which disrupt the nervous system.
2. Blister agents: substances like mustard gas that cause severe blisters on the skin and mucous membranes.
3. Blood agents: chemicals like hydrogen cyanide that interfere with the body's ability to use oxygen.
4. Choking agents: agents such as chlorine and phosgene that cause respiratory distress and damage to lung tissue.

What are biological weapons?

Biological weapons use pathogens or toxins to cause diseases and death in humans, animals, or plants. They can be dispersed via spray, food, water, or vectors like insects.

Types of biological agents:

1. Bacteria: pathogens such as *Bacillus anthracis* (anthrax) and *Yersinia pestis* (plague).
2. Viruses: highly infectious agents like the variola virus (smallpox) and the Ebola virus.
3. Toxins: poisonous substances produced by organisms, such as botulinum toxin and ricin.

Historical context:

During World War I, there was extensive development and use of chemical weapons, with chlorine, phosgene, and mustard gas being employed by both sides, resulting in over a million casualties. Whereas biological weapons had a heavier development during World War II, where both Axis and Allied powers conducted research on biological weapons, although large-scale use of both chemical and biological weapons was limited by the Geneva protocol; the most notable uses being the attacks by Japan in China using biological weapons.

After that, during the Cold War, both the United States and the Soviet Union carried out research on, developed and stockpiled large quantities of chemical and biological weapons but neglected the use of them. When the Cold War ended, the World started to enhance the disarmament and non-proliferation of these types of weapons with the BWC and the CWC. As of 2023, 183 countries have joined the BWC and 193 countries are parties to the CWC and there has been a significant reduction of stockpiles all around the World. However, compliance and verification challenges remain significant issues, as shown in Figure 1, as chemical and biological weapon stockpiles are known to still exist even in some countries that follow both the CWC and BWC.

Major Countries and Organizations Involved

Countries:

United States of America (USA) - It has been historically one of the largest stockpilers of chemical and biological weapons and is actively involved in disarmament efforts; significant progress in destroying its chemical weapons stockpiles under the CWC.

Russia - Another major historical stockpiler, particularly during the Cold War. It has made substantial efforts to comply with the CWC, though concerns about full compliance persist.

United Kingdom (UK) - It was an early adopter of the CWC and BWC and has been involved in both chemical and biological weapons research, now active in disarmament and non-proliferation efforts.

France - Another major player in both chemical and biological weapons research in the past, and a strong proponent of the CWC and BWC.

China - The country signed and ratified both the CWC and BWC in spite of having concerns about transparency and full compliance, particularly in the context of dual-research.

North Korea - It is not a party to the CWC or BWC and is suspected of possessing chemical and biological weapon capabilities.

Organisations:

Organisation for the Prohibition of Chemical Weapons (OPCW) - It was established in 1997 to implement the CWC and conducts inspections, oversees destruction of chemical weapon stockpiles, and facilitates international cooperation on the matter.

World Health Organization (WHO) - It is involved in the biological weapons control due to the public health aspects and provides guidance on responding to and mitigating effects of biological attacks.

United Nations (UN) - Plays a central role in promoting global disarmament and non-proliferation and supports the BWC and various resolutions aimed at preventing the proliferation of chemical and biological weapons.

International Committee of the Red Cross (ICRC) - Advocates for the humanitarian consequences of chemical and biological weapons and promotes adherence to international humanitarian law and the disarmament of these weapons.

National Academies of Sciences, Engineering, and Medicine (NASEM) - Provides expert advice on the science and technology aspects related to chemical and biological weapons and engages in studies and recommendations on preventing the misuse of scientific research.

Timeline of Events

1915 - first large-scale use of chemical weapons by Germany in World War I.

1925 - Geneva Protocol, prohibits the use of chemical and biological weapons, though not their development or stockpiling.

1966 - UN General Assembly resolution 2162

1969 - UN General Assembly resolution 2603

1975 - Biological Weapons Convention (BWC), Prohibits the development, production, acquisition, and stockpiling of biological and toxin weapons.

1997 - Chemical Weapons Convention (CWC), Prohibits the development, production, acquisition, stockpiling, retention, and use of chemical weapons.

1997 - establishment of the Organisation for the Prohibition of Chemical Weapons

Relevant UN Treaties and Events

Geneva protocol: preceding these conventions, the Geneva Protocol prohibited the use of chemical and biological weapons in war. However, it did not address the development or stockpiling of these weapons.

UN General Assembly Resolution 2162 (1966) and Resolution 2603 (1969): highlighted the necessity for general and complete disarmament, including the prohibition of chemical and biological weapons.

Biological Weapons Convention (BWC): the BWC, formally known as the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, was the first multilateral disarmament treaty to ban an entire category of weapons of mass destruction (WMDs). It opened for signature on April 10, 1972, and entered into force on March 26, 1975. The BWC prohibits the development, production, acquisition, transfer, stockpiling, and use of biological and toxin weapons. The convention has nearly universal membership, with 185 states parties as of now. Key provisions include commitments to destroy existing stockpiles and to not transfer or assist others in acquiring biological weapons.

Chemical Weapons Convention (CWC): the CWC, or the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction, opened for signature in 1993 and came into force on April 29, 1997. The CWC outlaws the production, stockpiling, and use of chemical weapons and their precursors. States parties are required to destroy their existing chemical weapons stockpiles and production facilities. The convention is enforced by the Organisation for the Prohibition of Chemical Weapons (OPCW), which conducts inspections to ensure compliance. The OPCW has verified the destruction of over 98% of the World's declared chemical weapons stockpiles.

Possible Solutions

Enhance Detection and Response Capabilities:

Invest in early detection systems and rapid response mechanisms to identify and mitigate chemical and biological threats promptly. This includes developing better diagnostic tools and surveillance networks. Strengthen the capacities of nations, particularly those with limited resources, to detect, prevent, and respond to chemical and biological incidents through training and technology transfer. Investment in early detection systems and rapid response mechanisms is feasible with current technology and has broad international support as nations have a vested interest in preventing chemical and biological attacks, leading to cooperative efforts in surveillance and diagnostics.

Strengthen International Treaties and Compliance Mechanisms:

Develop and implement a robust verification mechanism for the BWC, similar to the OPCW for the CWC. This could include routine inspections and monitoring of facilities, strengthening the enforcement mechanisms of both the CWC and BWC, ensuring that violations are met with swift and decisive actions, including sanctions and international condemnation. Enhancing verification and compliance protocols for the CWC and developing similar mechanisms for the BWC are practical steps. Given the existing framework of the OPCW and widespread support for the BWC, improving these systems is likely achievable.

Global Partnerships and Information Sharing:

Foster greater cooperation between international organisations, governments, and the private sector to share information, best practices, and resources in preventing the proliferation of chemical and biological weapons. Engage with private companies, particularly those in the pharmaceutical and biotechnology sectors, to ensure that dual-use research and materials are not diverted for weaponization. International collaboration and partnerships are already in place, and expanding these efforts is a natural progression. Information sharing and cooperative frameworks can be strengthened relatively easily with political will.

Universal Adoption and Implementation:

Encourage all countries to join and comply with the CWC and BWC. Efforts should focus on countries like North Korea, which have not yet ratified these treaties. Ensure that all Member States adopt comprehensive national legislation to enforce treaty obligations effectively and to criminalise violations. Promoting universal adherence to the CWC and BWC involves diplomatic efforts and incentives, which are already part of international policy, many countries are on board, and the international community can exert pressure on holdouts.

Control Dual-Use Research:

Establish international guidelines and oversight mechanisms for research and technologies that could be used for both civilian and military purposes. This includes stringent controls on synthetic biology, genetic engineering, and other advanced biotechnologies. Promote transparency in scientific research through international collaboration and information sharing, reducing the risk of misuse. Regulating dual-use technologies is challenging due to the nature of scientific research, but establishing guidelines and

oversight is within reach. With growing awareness of the risks, international bodies and scientific communities are likely to support such measures.

Bibliography

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[Resolution 2162 \(1966\)](#)

[Resolution 2603 \(1969\)](#)

[Figure 1](#)