



Strengthening the Biological Weapons Convention: Preventing the Use and Proliferation of BW

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Introduction

Biological warfare uses pathogenic agents, usually bacteria or viruses, to infect and kill or disable whole populations. There are major debates over how well they work as weapons, but the risks are enormous. The creation of biological weaponry focuses on the delivery of highly pathogenic microorganisms to an enemy people, sickening, maiming, or killing. In recent decades the threat from BW has become more serious because technical barriers to the creation of effective biological weapons yielded before scientific advances. Additionally, as more effective means of distributing biological weapons have emerged, and as more governments and maybe even on-governmental actors (NSAs) have acquired the ability to make them the threat has increased.

The biggest barriers to the use of BW are not technical hurdles to acquiring them, but international norms and key treaties, where governments agree it is not humanly acceptable, nor is it in their country's interest to use them. Above all is the *Biological Weapons Convention* (BWC, also known as the Convention or Treaty) of 1972. Neither of these barriers are absolute, though, and their future is increasingly in doubt. With virtually every other international arms control measure collapsing under the weight of governments determined to pursue unique self-interests, it is not clear how long any of these agreements can survive.

The international community faces a tricky task to preserve and strengthen existing normative principles against use of biological weapons, and back them up with treaties strengthened to be effective and endure the test of time. For many governments, the BWC poses a difficult trade

off; they want to avoid a BW arms race, but they do not want to sacrifice the sovereignty required to make the BWC more effective.

The BWC suffers from its reputation as the major arms control that is easiest to violate secretly. The Soviet Union expanded its BW program massively under the treaty, throughout the 1970s and '80s, the most systematic arms control treaty violation known. For this very reason, most Member State delegations are determined to salvage the agreement through amendments, to turn good intentions into the strongest possible barrier against proliferation and use. But a few prominent governments are skeptical. Delegates to First Committee must balance pressure to strengthen the global regime against biological weapons with national priorities to be exceptional. The outcome for the Convention is far from guaranteed.

Ancient World to the 1925 Protocol

Recent research suggests that the use of biological weapons—spreading disease to weaken enemy people—began as early as the second millennium BCE. In 1325 BCE the Hittites, the ancient people of what today is Turkey and Syria, may have used sheep infected with *Francisella tularensis* (Tularemia, or rabbit fever, an infectious disease that attacks the skin, eyes, lymph nodes and lungs) to attack enemy cities. The exposed cities were soon demolished as the disease swept through their population like wildfire, leaving what lucky few survivors there were too weak to fend off the enemy invasion. Documents discovered around 300 BCE from Roman, Persian and Greek literature display attempts to sicken the enemy by



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contaminating water sources with dead animals; this technique saw extensive use as late as the American Civil War and the 20th century. Other armies used more direct tactics in infecting enemy armies by dipping arrowheads in a mix of fecal matter and cadaver blood, which is now believed to have been infected with *Clostridium perfringens* and *Clostridium tetani* (tetanus). Perhaps more devious was when in 1346 CE whilst placing the city of Caffa (now Feodosia, Ukraine), the Mongols hurled the bodies of those infected with the Plague (*Yersinia pestis*) over its walls. The following outbreak helped to weaken the city prior to its invasion.¹



Figure 1: Contemporary illustration of Smallpox's deadly effects on Mesoamerican populations after the Spanish conquest

In the New World, European conquest killed vast number of Native Americans, mostly from epidemics of Smallpox. Making a weapon out of this proved harder. In New England, noticing their particular susceptibility to the disease, Colonel Henry Bouquet infamously wrote to General Jeffery Amherst proposing that he "inoculate the Indians by means of blankets" during the French and Indian War in 1763. However, it is doubtful whether the blankets had a significant effect, as Smallpox's primary mode of transmission is through respiratory infection. Smallpox also may have been weaponized during the American Revolutionary War, when the English sent infected people to Native American camps in Quebec. The resulting epidemic affected nearly 50% of the available soldiers, thus forcing their retreat from Canada.²

The use of weaponizable pathogens would remain unregulated, and fair game to all parties until 1928 when the Geneva Protocol of 1925 was ratified and brought into force. The Protocol prohibits all use of biological weapons, except for defensive research.³

There are several major weaknesses in the Protocol. Above all, it was understood to prohibit only *first use* of biotical agents. It did

¹ "Scientist Says Hittites Began Bioterrorism." *Phys.org*. November 26, 2007. <https://phys.org/news/2007-11-scientist-hittites-began-bioterrorism.html> ; Khamsi, Roxanne. "Were 'cursed' Rams the First Biological Weapons?" *New Scientist*. November 26, 2007. <https://www.newscientist.com/article/dn12960-were-cursed-rams-the-first-biological-weapons/> ; Hooker, Edmond, MD, DrPH. "Biological Warfare Facts & History of Biological Agents." *EMedicineHealth*. https://www.emedicinehealth.com/biological_warfare/article_em.htm ; Riedel, Stefan, "Biological Warfare and Bioterrorism: A Historical Review." *Proceedings (Baylor University. Medical Center)*. October 2004. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1200679/> ; Barras, V., and G. Greub. "History of Biological Warfare and Bioterrorism." *Clinical Microbiology and Infection*, vol. 20, no. 6 (June

2014): pp. 497-502. [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(14\)64174-4/pdf](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(14)64174-4/pdf) ² Henry Bouquet, Col. to General Jeffrey Amherst. June 29, 1763, at https://www.umass.edu/legal/derrico/amherst/34_40_305_fn.jpeg ; Soniak, Matt. "Biological Warfare in the American Revolution?" *Mental Floss*. May 04, 2011. <https://mentalfloss.com/article/27660/biological-warfare-american-revolution> ; Flight, Colette. "History - World Wars: Silent Weapon: Smallpox and Biological Warfare." *BBC*. February 17, 2011. ³ League of Nations. *The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare*. Geneva, Switzerland: League of Nations, 1925.



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not ban *retaliation*, or second strikes. For this reason, virtually all major powers stockpiled biological weapons, principally for retaliation, although they also retained the ability to launch first strikes. Second, the Protocol had no verification instruments. As a result, the only way for governments to tell what other countries were doing with their biological warfare capabilities was through each country's own reports. And third, technological advances undermined the Protocol's language, which banned "bacteriological methods of warfare." Viruses had not yet been accepted as a cause of disease, and would not be observed until 1931, and innovation in biological agents since then have come at a steady pace.

Despite its weaknesses, the Protocol remains in force to this day. It is the foundational international agreement of the global regime against biological weapons and their use.

Evidence of the weaknesses in the Protocol were shown soon after the Second World War. Many countries manufactured and stockpiled biological agents. Anthrax was especially popular, because it is very deadly, easily manufactured and stored. But there were no deliberate attacks with these weapons. Whether this is was because of doubts about their effectiveness, or a tacit understanding that use was inhumane, has never been resolved.

The situation was different in China. Nanjing, China was invaded by the Japanese Army on 13 December 1937. Within a month the city was host to some of the worst atrocities of the Second Sino-Japanese War, and the Second World War. Nanjing soon became the petri dish of Dr. Shiro Ishii, director of the IJA's

biological warfare research and testing program. Under his watch, he oversaw the largest implementation of bioweapons in history.⁴ In China, Dr. Ishii was responsible for Unit 731, a medical testing facility that created biological agents used to kill an estimated 200,000 to 580,000 Chinese with manufactured epidemics. Most infamous was a bombing campaign with *Yersinia pestis* (Plague) causing the deaths of at least 30,000 by 1944. The IJA, under command of Shiro Ishii, also took to tainting local water sources by air-dropping tubes containing cholera, typhoid, dysentery, and other waterborne diseases. Japan still has not apologized for these atrocities.⁵

Adherence to the 1925 Protocol has been more universal since 1945. Unlike conventional weapons, which have been used massively since then, and unlike chemical weapons, which have been used sporadically but repeatedly by governments, biological weapons have not been used by Member States since 1945. Adherence to the 1972 Biological Weapons Convention prohibiting manufacturing, stockpiling or use of biological weapons has been uneven, with major violations by the Soviet Union in the 1970s and 80s. But the Soviet Union only manufactured and stockpiled; there are no credible reports that it used biological weapons.

Biological weapons have been used many times since then, but almost entirely by individuals and non-state actors (NSAs). In the best-known example, in 1984, an religious group, the Rajneeshs, released salmonella into salad bars in Oregon. They were trying to throw a local election by forcing voters to stay home sick. The attack caused 751 confirmed cases of the disease, 45 of which required hospitalization

⁴ "Nanjing Massacre." *Encyclopædia Britannica*, <https://www.britannica.com/event/Nanjing-Massacre>

⁵ William H. Cunliffe, ed., *Select Documents on Japanese War Crimes and Japanese Biological Warfare, 1934-2006*. Washington, D.C.: National Archives and Records Administration, 2007.

<https://www.archives.gov/files/iwg/japanese-war-crimes/select-documents.pdf> ; and Stockton, Richard. "6 Horrifying Human "Experiments" That WWII Japan Got Away With." All That's Interesting. November 02, 2018. <https://allthatsinteresting.com/unit-731/4>



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(the Rajneeshis still lost the election). In the weeks after the September 11th terrorist attacks on the United States, several letters with anthrax spores were mailed to the United Senate. The attack resulted in 22 cases and 5 deaths. The anthrax attack is thought to have been the work

of a US Army BW researcher who subsequently committed suicide.⁶

The Pathogens

Category A
➤ Anthrax (<i>Bacillus anthracis</i>)
➤ Botulism (<i>Clostridium botulinum</i> toxin)
➤ Plague (<i>Yersinia pestis</i>)
➤ Smallpox (<i>variola major</i>)
➤ Tularemia (<i>Francisella tularensis</i>)
➤ Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])
Category B
➤ Brucellosis (<i>Brucella species</i>)
➤ Epsilon toxin of Clostridium perfringens
➤ Food safety threats (e.g., <i>Salmonella species</i> , <i>Escherichia coli</i> O157:H7, <i>Shigella</i>)
➤ Glanders (<i>Burkholderia mallei</i>)
➤ Melioidosis (<i>Burkholderia pseudomallei</i>)
➤ Psittacosis (<i>Chlamydia psittaci</i>)
➤ Q fever (<i>Coxiella burnetii</i>)
➤ Ricin toxin from <i>Ricinus communis</i> (castor beans)
➤ Staphylococcal enterotoxin B
➤ Typhus fever (<i>Rickettsia prowazekii</i>)
➤ Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
➤ Water safety threats (e.g., <i>Vibrio cholerae</i> , <i>Cryptosporidium parvum</i>)
Category C
➤ Emerging infectious diseases such as Nipah virus and hantavirus

Figure 2: CDC Bioterrorism Agents

The US Centers for Disease Control (CDC) classifies particularly threatening diseases under Categories A, B, and C in the *CDC Bioterrorism Matrix*. Category A pathogens are feared for their pathogenicity, virulence, and infectivity to their hosts. They are most suitable for mass production, long-term storage and weaponization. Among the most dangerous are Anthrax, Botulism, Plague, Smallpox,

Tularemia, and Viral hemorrhagic fevers (Figure 2).⁷

⁶ Barras and Greub. "History of Biological Warfare and Bioterrorism", op.cit., [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(14\)64174-4/pdf](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(14)64174-4/pdf)

⁷ Centers for Disease Control. *CDC Bioterrorism Agents*. Atlanta, n.d.



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Figure 3: Two boys, a victim of smallpox with a boy vaccinated for the disease

Smallpox: The mostly widely discussed biological warfare agent may be Smallpox. Although it is not a major natural threat due to advances in inoculation, the possibility of deadly and untreatable new strains a major source of concern. The disease is believed to have killed some 300 to 500 million people during the 20th Century alone. Caused by the Variola virus, the disease is characterized by large, waxy nodules which develop on a patient's skin and raging fevers. Vaccines have existed for smallpox since the 1700s. With extensive international cooperation, the World Health Organization (WHO) eradicated Smallpox through the 14-year long Smallpox Eradication Program (SEP).

Small stocks of the disease remain in two places, as sanctioned by the WHO, at the CDC headquarters in Atlanta, and the State Research Center for Virology and Biotechnology VECTOR in Koltsovo, Russia. Whether to destroy or keep these samples has been the subject of heated debate in the international community. Both countries refuse, saying the stocks are needed to create vaccines in the event of the disease being weaponized. While

officially in two places, it is feared that lost stockpiles could find their way into the hands of a dangerous party, if they haven't already.⁸

Anthrax: Envelopes with small quantities—teaspoon size—of white powder found their way



Figure 4: Anthrax cultures growing in sheep's blood agar

into U.S. Senate mailboxes in the Autumn of 2001, containing deadly bacteria known as Anthrax (*Bacillus anthracis*). Spread through the direct inhalation of the pathogen, the powder made its way into the victims' blood and lymph, where it grew exponentially. As they grew, they began to release lethal toxin and edema toxin, which severely damage the heart and kidneys.²⁰ Anthrax is the most likely bioweapon to be used. Unlike Smallpox, its spores are commonly found in nature, it is readily manufactured and weaponized. However, Anthrax is not transmissible from person to person, rendering it an unlikely choice for mass terrorism.⁹

⁸ Preston, Richard. *The Demon in the Freezer*. New York City: Random House, 2002.

⁹ Emspak, Jesse. "How Anthrax Kills: Toxins Damage Liver and Heart." *LiveScience*. August 28, 2013. <https://www.livescience.com/39251-anthrax->

[kills-toxins-liver-heart.html](#) ; "How People Are Infected | Anthrax | CDC." *Centers for Disease Control and Prevention*.

<https://www.cdc.gov/anthrax/basics/how-people-are-infected.html> ; "The Threat | Anthrax | CDC."



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Ebola: Hemorrhagic fevers such as *Ebola* and *Marburg* are particularly fearsome for their extraordinarily high mortality rates ranging from 50 to 88 percent respectively. These diseases cause hemorrhaging (uncontrolled bleeding) from mucous membrane (such as the mouth and nose) which eventually leads to hypovolemic shock, causing multisystem organ failure. Such diseases are rare, but epidemics in Central and West Africa have increased in the past decade. Ebola and Marburg filoviruses specifically pose a threat due to their alarming symptoms, and their high mortality rates. However, Ebola is spread through exposure to the body's mucous membranes, making it difficult to be weaponized. However, the possibility remains.¹⁰

Plague: Utter terror swept across Europe between the years 1347 and 1351 when the Plague (*Yersinia pestis*) spread through the population, leaving in its wake an estimated 25 million deaths. *Yersinia pestis* presents itself in three different forms: pneumonic in which the disease presents itself through infection of the lower respiratory tract causing pneumonia (this is the most fatal form of Plague), septicemic in which a systemic infection leads to necrosis of the superior and inferior phalanges and internal bleeding causing hypovolemic shock, and bubonic Plague in which the lymph nodes become inflamed. Plague's modes of transmission are primarily through flea bites,

contact with bodily fluids, and aerosolized droplets, making it a particularly potent agent of chaos. Plague has been weaponized before, but it is readily treated today. It remains a remote, but feasible candidate for weaponization again.¹¹

Lethal toxins: released by *Clostridium botulinum* bacteria, these toxins can kill within 24 hours of the first appearance of symptoms, which can appear between 12-72 hours of contraction.³¹ Botulinum toxicity induces a state of flaccid paralysis, causing cardiac and respiratory failure. Botulism is rare, and typically its endospores are not able to compete with the normal intestinal microbiota. Unfortunately, infants are susceptible to Botulism since their microbiota are not sufficiently developed before age one.³² According to studies from the U.S. military conducted in 2004 suggest that, if weaponized, Botulism could kill 10% of all exposed within a 1/3 mile of its release. Dr. Shiro Ishii was the first to weaponize Botulism against the Chinese population at Unit 731. Later attempts to weaponize the disease were made by the United States and Russia, however, the complexity caused them to abandon the idea. It is presumed unlikely that fringe extremist groups would have the means to develop a botulinum toxin weapon.³³

Tularemia is, like Anthrax, Plague and Ebola, a zoonotic disease (spread between animals and

Centers for Disease Control and Prevention.

<https://www.cdc.gov/anthrax/bioterrorism/threat.html>

¹⁰ "Treatment | Ebola (Ebola Virus Disease) | CDC."

Centers for Disease Control and Prevention.

<https://www.cdc.gov/vhf/ebola/treatment/index.html> ;

"Marburg Haemorrhagic Fever." *World Health Organization*. <https://afro.who.int/health-topics/marburg-haemorrhagic-fever> ;

Ross, Philip. "How Ebola Kills: What The Deadly Virus Does To The Human Body." *International Business Times*. October 17, 2014. <https://www.ibtimes.com/how-ebola-kills-what-deadly-virus-does-human-body-1706965> ;

Dorminey, Bruce. "Ebola As ISIS Bio-Weapon?" *Forbes*. October 07, 2014.

<https://www.forbes.com/sites/brucedorminey/2014/10/05/ebola-as-isis-bio-weapon/#68aa88457319>

¹¹ "Black Death." *Encyclopædia Britannica*. January 17, 2019. <https://www.britannica.com/event/Black-Death> ; "Symptoms | Plague | CDC." Centers for Disease Control and Prevention.

<https://www.cdc.gov/plague/symptoms/index.html> ; Black Death Symptoms • Black Death Facts." Black Death Facts. <https://blackdeathfacts.com/symptoms/> ; "Ecology and Transmission | Plague | CDC." *Centers for Disease Control and Prevention*.

<https://www.cdc.gov/plague/transmission/index.html>



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people), caused by the *Francisella tularensis* bacterium. Colloquially referred to as “rabbit fever,” Tularemia is primarily spread through squirrels and rabbits, mainly affecting rural areas. Rabbit fever presents itself in multiple different forms: ulceroglandular (the formation of an ulcer and the inflammation of the lymph nodes in the arms or groin), glandular (similar to ulceroglandular, but without the ulcer), oculoglandular (transmitted by contact through the eyes, leads to eye inflammation and inflammation of the lymph nodes behind the ears), oropharyngeal (throat inflammation, mouth ulcers, and tonsillitis), pneumonic (the most serious form, which involves chest congestion, coughing, and difficulty breathing), and typhoidal (a combination of any of the aforementioned forms of Tularemia). Due to its low infectious dose of only 10-50 organisms, aerosolized Tularemia has a high potential to become weaponized; the aerosolization of the diseased would make it easy to inhale, leading to pneumonic Tularemia whose mortality rate is up to 30%. However, it would require a significant effort in order to manufacture such a weapon, making it difficult for non-state actors to synthesize.¹²

The Biological Weapons Convention

After being opened for signing in 1972, in 1975 the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons*

and on their Destruction (BWC) came into force. It remains the most significant barrier on the development of biological weapons. Under the Biological Weapons Convention, all States Parties are granted equal rights and obligations. This makes it very different from the Nuclear Non-Proliferation Treaty (NPT), which has separate responsibilities and conditions for states with or without nuclear weapons.

The BWC includes:

- A complete ban of production, development, stockpiling, and all other means of acquiring technology whose express purpose is to deliver biological agents or toxins for hostile purposes.
- The obligation of all states parties to destroy or divert to peaceful purposes any existing stockpiles of all items enumerated in Article I of the BWC.
- A ban on transferring any forbidden technologies to any party.
- States are granted permission to “take any necessary measures to prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery specified in Article I of the Convention, within the territory of such State, under its jurisdiction or under its control anywhere” under Article V.
- The commitment of member states to assist nations fallen prey to the implementation of forbidden weapons.¹³

¹² "Statistics | Tularemia | CDC." *Centers for Disease Control and Prevention*.

<https://www.cdc.gov/tularemia/statistics/index.html> ; "Signs & Symptoms | Tularemia | CDC." *Centers for Disease Control and Prevention*.

<https://www.cdc.gov/tularemia/signssymptoms/index.html> ;

"CDC Tularemia | Key Facts About Tularemia." *Centers for Disease Control and Prevention*.

<https://emergency.cdc.gov/agent/tularemia/facts.asp>

¹³ United Nations. *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*. London, Moscow, Washington D.C., 1972. 1-4.

https://www.un.org/en/genocideprevention/document/s/atrocities-crimes/Doc.37_conv_biological_weapons.pdf



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Article XII of the BWC mandates that every five years states converge to review the treaty in order to strengthen and enforce its implementation. Since its implementation, eight review committees have come together to reform the BWC, the next scheduled to occur in 2021.¹⁴

The BWC has seen large support from the international community, obtaining 184 signatures and 168 ratifications since 1975. Exceptions include: Bhutan, Cuba, Dominica, India, Mauritius, Saudi Arabia, Somalia, South Sudan, Syria, and Tonga.⁴⁷ The most common demand of outlying states is the failure of their neighbors or major powers to eliminate their nuclear weapons first, which some states see as a precondition for other forms of disarmament. A few, such as Syria, also fear the BWC could be amended in ways that erode their national sovereignty, possibly allowing hostile foreigners access to their sensitive military programs.

Most recently, in December of 2018 (A/RES/73/87), the United Nations General Assembly agreed to reaffirm the commitment of all UN Member States to the BWC. It urged participating nations to submit summaries of their implementation of the BWC biannually, and noted problems in acquiring funding. The resolution requests further support from the United Nations Secretary-General in providing necessary services needed in the implementation of the convention. A/RES/73/87 seeks to renew the mandate of the implementation support unit, a unit which assists with administrative duties and confidence building measures between nations.⁴⁰

Violations of the BWC

Since its introduction, the BWC has seen repeated violations from members states and ratifying nations. Each violation increases mistrust between the ratifying nations, and continued violations could leave to the dissolution of the convention as more nations wish to proliferate retaliatory weapons. Failure to enforce the BWC could see the reintroduction of BW in everyday warfare.⁴¹ The largest suspected biological weapons program today is widely assumed to belong to North Korea, which also is a party to the Convention. There are no reliable details about the North Korean program.

In 1980, the United States accused the Soviet Union of violating the BWC that previous year in 1979, when it was discovered that the city of Sverdlovsk witnessed an Anthrax outbreak due to the release of Anthrax spores from a secret military facility. This was denied by Moscow until 1992, when the Russian Federation admitted their breach of the convention. Afterwards, Russia began a campaign to declassify secret military laboratories and transforming them into civilian purposes.⁴¹

During the Gulf War in 1991, Saddam Hussein publicly announced Iraq's possession of biological weapons, which he regarded as "an integral element" of his arsenal. He personally authorized the implementation of BW against the nations of Israel, Saudi Arabia, and the military forces of the United States. However, the extent of Iraq's weapons program is, to some degree, unfounded based on Saddam's public claims.⁴² By mid-1995 Iraq claimed that they had destroyed their weapons in 1991, however a UN Security Council appointed special commission (UNSCOM) found that Iraq's ability to develop and maintain an arsenal

¹⁴¹⁴ Rissanen, Jenni. "The Biological Weapons Convention." Nuclear Threat Initiative - Ten Years of Building a Safer World. March 01, 2003.

<https://www.nti.org/analysis/articles/biological-weapons-convention/>



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extended past 1991. UNSCOM also found staggering stores of *B. anthracis* bacteria, triple the amount Iraq claimed to have possessed. The

Iraqi program appears to have been largely destroyed by the year 1998.⁴³



Figure 4: States Parties to the Biological Weapons Convention

Problems Facing the 1972 Biological Weapons Convention

While the BWC mandates a Review Conference every five years. This allows States Parties an opportunity to question each other’s adherence and recommend changes to the agreement. A Review Conference can propose amendments, but implementing them requires a separate

process. Progress has stagnated recently. The last Review Conference, in 2016, saw little agreement on anything beyond housekeeping details. It even failed to set terms of reference—an agenda—for the 2021 Conference.

Membership: Not all member states in the United Nations have signed the BWC, and some of those which have are suspected of still possessing significant biological weapons



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programs, but probably not weaponized, deliverable biological devices. North Korea is widely suspected to be maintaining a large biological weapons program. But there also is skepticism of such allegations. Fear of Iraq's biological weapons was a major reason for the American-lead invasion of Iraq in 2003, a fear subsequently to shown to be baseless.

Verification: The biggest problem for the BWC is verification. The 1972 Convention is based on good faith implementation by States Parties. There is no external monitoring, safeguarding key facilities—laboratories, factories or military bases—no oversight of any kind. That is left entirely to national intelligence in the States Parties themselves. Compliance is based not on oversight but the international legal principle of *reciprocity* and the threat of withdrawal from the Convention.

Many States Parties would like to see a formal verification system created. At the 1991 Review Conference, a commission of government-appointed experts was authorized to begin deliberations on creation of a verification system. This led to formal negotiations for a mandatory verification protocol (an annex or amendment) to the BWC. The talks lasted from 1995 and 2001. Despite the complexity of BW verification—potentially requiring inspections and safeguarding procedures at breweries, biological and medical laboratories and pharmaceutical factories everywhere—there was steady progress. The process all but stopped in 2001, when US President George W. Bush withdrew his country from the process, citing conflicting national interests. Essentially, the United States was concerned about exposing its secret laboratories. The US fear was that challenge inspections—thought essential to deal

with suspected secret BW programs—could be used against unrelated American secret facilities, such as production of stealth airplanes.

There remains considerable interest in renewing the verification process. Models include the International Atomic Energy Agency (IAEA, based in Vienna, Austria), which supervises compliance with Nuclear Non-Proliferation Treaty, and the Organization for the Prohibition of Chemical Weapons (OPCW based in The Hague, Netherlands) with supervises inspection of chemical industries and investigates allegations relating to the Chemical Weapons Convention (CWC). Major issues to be overcome include national sovereignty, since many countries are uncomfortable with foreign inspectors. Industry also needs to be reassured that inspection will not compromise copyrights and patents. Finally, there is the expense of a large organization with hundreds, maybe thousands of staff. These challenges must be overcome in order to ensure safety from biological warfare.¹⁵

Technical advances: Further advancements in science and technology have made genetically engineered viruses and bacteria a very realistic threat. Bill Gates, co-creator of the tech giant Microsoft and a prominent philanthropist, warns that vaccines take over a decade to develop and license, in the case of an airborne outbreak it would be necessary to cut this time to 90 days.¹⁶ Currently, there is little that the BWC does to address new technologies.

Non-State Actors: An additional problem for the BWC comes not from its member states or even from states outside its reach, but from Non-State Actors (NSAs). In 1972 there was little chance for terrorist groups and individuals to

¹⁵ Jenkins, Bonnie. "The Biological Weapons Convention at a Crossroad." *Brookings*. September 6, 2017. <https://www.brookings.edu/blog/order-from-chaos/2017/09/06/the-biological-weapons-convention-at-a-crossroad/>

¹⁶ Farmer, Ben. "Bioterrorism Could Kill More People than Nuclear War, Bill Gates to Warn World Leaders." *The Telegraph*. February 17, 2017. <https://www.telegraph.co.uk/news/2017/02/17/biological-terrorism-could-kill-people-nuclear-attacks-bill/>



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master the technology of biological warfare. That assumption looks increasingly dated. Following completion of the BWC, the vast majority biological warfare allegations have been from extremist groups and individuals who released a pathogen. Even if a major verification system is created, it would focus on States Parties. Such measures would, indirectly, make it harder for NSAs, also. While States Parties can take action to make progress harder for NSAs, solution to the terrorist threat largely lie outside the BWC.

Country and Bloc Positions

African Union member states generally support strengthening the BWC. Allegations that the apartheid government of South Africa used biological weapons in its fight to maintain white supremacy in the 1980s affect views throughout the continent. But some African states also are wary of verification procedures that would compromise national control. They also expect technological offsets, especially support for their pharmaceutical industries, such as exceptions from international patents and copyrights, so they can mass produce and export drugs as they chose.

China: is committed to strengthening the rule of international law and strongly supports the BWC. As the victim of the last major sue of biological weapons, it is sensitive on the issue and expects progress. China has not been outspoken on strengthening the BWC. A major problem for China is the assumption that the BWC needs better verification procedures. China normally is suspicious of anything that

would infringe its national sovereignty. But China generally accepts disarmament measures that treat it as a complete equal to all other countries. China has accepted intrusive verification under the Chemical Weapons Convention (CWC), and might be willing to cooperate similarly to eliminate the threat of biological weapons.

European Union: The 27 Member States of the EU are unanimous in their support for the BWC. The EU also strong support negotiations to strengthen the convention with mandatory verification procedures. In January of 2019, the European Union reaffirmed its support for the treaty after having ratified it in 2003. The European Union further lent support for experts' conferences between 2019-2020 in addition to supporting the upcoming ninth BWC Review Conference in 2021.¹⁷ The European Union hopes that improved treaty verification will include a new international organization, designed specifically for BWC verification, which they expect to be based in Europe, probably in The Hague (Netherlands), already home to the similar Organization for the Prohibition of Chemical Weapons (OPCW). In exchange, the EU is willing to finance much of the new body's work.

Latin American countries generally support the EU position, but expect a verification body to be based in their region, although they are less enthusiastic about paying for it.

Non-Aligned Movement: For the 120 Member States of the UN's largest voting bloc, the BWC is generally supported. No NAM Member States demand a return to national sovereign rights to develop or use biological weapons. But there is

¹⁷ *The Council of the European Union. In Support of the Biological and Toxin Weapons Convention in the Framework of the EU Strategy against Proliferation of Weapons of Mass Destruction.* High Representative of the Union for Foreign Affairs and Security Policy. In Support of the Biological and

Toxin Weapons Convention in the Framework of the EU Strategy against Proliferation of Weapons of Mass Destruction. 97th ed. Vol. 2019. CFSP. Brussels, BE: F. MOGHERINI, 2019. 1-9.



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great unhappiness with related issues. Above all, many NAM members insist that countries with other forms of weapons of mass destruction, especially nuclear weapons, eliminate their stockpiles of those. They insist on linkage between their support for strengthening the BWC and immediate progress toward nuclear disarmament. Many Arab League states demand that Israel's nuclear program be declared and eliminated first. India expects Russia and the United States to greatly reduce their nuclear arsenals. NAM members also demand more access to offsetting technology. In exchange for support of global disarmament measures, they generally expect easier access to related civilian technology, especially in this case for their pharmaceutical industries.

The United States as the dominant force behind creation of the BWC in 1972. Since the election of President Donald Trump in 2016, however, the United States has become deeply skeptical of all international agreements, especially arms control and disarmament. It is likely to use any deliberative process as an opportunity to pressure other Member States, while refusing to accept new burdens itself.

Proposals for Action

Biological weapons and the Biological Weapons Convention are important issues for the international community. There are many choices before the General Assembly as it wrestles with them. Some prominent possibilities include:

Reaffirm the BWC as it stands: With all arms control and disarmament treaties under growing threat of abrogation by major States Parties, the General Assembly can play a vital role by encouraging its Member States to stick with it. Not all Member States will support this, least of all those considering abrogation or withdrawal. But there may be ways the General Assembly can sweeten the deal.

Strengthen the BWC by mandating a renewed process to negotiate a binding verification mechanism. The resolution would call for negotiations, and set their term of reference: how long the talks go on, who is included, decision-making on the mission (consensus or majority voting). It might go into details about the kind of supervisory organization to be established, and issues like challenge inspections.

Focus on specific countries or non-state actors (NSAs) suspected of hosting BW programs, including requests that they cease operations and stockpiling, surrender their weapons to other governments or a neutral third party, what happens to their weapons, and request consequences for failure to cooperate. The UN General Assembly normally agrees only on requests to sovereign governments, establishing principles for action; it cannot demand action. The latter is up the UN Security Council alone.

Postpone action to after the Ninth BWC Review Conference in 2021. Rather than face difficult choices, many governments would prefer to postpone action. Waiting until the Review Conference is an established way to do that. The General Assembly can recommend the Review Conference, add specific issues to it deliberation, and report back to the General Assembly on further recommendations for action.

Authorize a study of the issue by the UN Secretary-General. This is a standard technique when the General Assembly is divided on what to do. Turning to the Secretary-General for a study is way of searching for a basis for future compromise. It also can be used to delay and postpone action. Governments are likely to be especially supportive it means they can avoid difficult choices. Others will be furious about the lost opportunity and delay. The Secretary-General study can be done by experts appointed by the Secretary-General, by Government



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experts appointed by the Member States, or
Government officials such as their delegates to
the UN.

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