

Focus: On Biological Weapons

Focus is written primarily for secondary school students.

By the time you read this article, over 70 countries, including Canada, will just have spent three weeks looking at ways to improve a disarmament treaty known as the Biological and Toxin Weapons Convention. Because their use in modern times has been so rare and unspectacular, biological weapons are usually overshadowed in the news by their cousins in the mass destruction business — nuclear and chemical weapons. Like nuclear and chemical weapons, biological weapons are capable of causing death and suffering on a huge scale. Fortunately, unlike nuclear and chemical weapons, they are under an international ban.

What are biological weapons?

Biological weapons — which are sometimes called “bacteriological” or “germ” weapons — are made up of two parts: a biological warfare agent and a delivery system.

Biological warfare agents are living organisms — such as viruses, fungi and bacteria — that cause disease or death in humans, animals or plants. In the case of humans, biological warfare agents can enter the body through the digestive system (by being eaten or drunk), the respiratory system (by being inhaled) or the skin (through bites or injections). They multiply in the person, animal or plant attacked and can often spread to others. Typhus, cholera, anthrax and yellow fever are examples of biological warfare agents.

The delivery system is the means of carrying the biological warfare agent to its target. The delivery system can be a city's water supply or a building's ventilation system, contaminated by a terrorist. It can be an infected insect, such as a mosquito, a louse or a mite. Most likely it will be a shell or a spray that delivers biological warfare agents in the form of clouds of tiny particles. The particles are then carried by the wind and inhaled by victims. Aircraft, bombs, artillery shells and missiles can be designed for this type of delivery.

The effects of biological weapons vary depending on the agents used and the targets attacked. For example, anthrax can cause high fever, breathing difficulties, collapse and often death within 18 to 24 hours. On the other hand, brucellosis causes headaches, weight loss and a fever that lasts from several weeks to several months.

A biological weapons attack could cause hundreds of thousands of deaths, which is why biological weapons are considered one of the “weapons of mass destruction” (the others are nuclear, chemical and radiological weapons). The World Health Organization has estimated that if anthrax were sprayed over a city with a population of 5 million, 100,000 people would die and a further 150,000 would be incapacitated. Another report, by the University of Sussex, says that some biological weapons could kill as many people as high-yield nuclear weapons could.

Biological weapons are different from chemical weapons, which consist of chemical (as opposed to living) substances. Chemical weapons cannot multiply themselves. They work strictly through their direct, poisonous effects on humans, animals and plants.

Toxins are another class of poisons that can be used for weapons purposes. Although they are chemical compounds and cannot reproduce themselves, toxins are usually grouped with biological weapons because in their naturally-occurring form they are produced by animals, plants or micro-organisms. Toxins can also be made and manipulated in the laboratory. Botulism toxin, shellfish poison and snake venom are examples of toxins.

Biological weapons' use

Primitive forms of biological weapons (BW) were used in ancient times. The Greeks and Romans are reported to have poisoned drinking wells with human and animal corpses. In modern times, even though Britain, Germany, Japan, the USA and the USSR all started BW research programs in the 1930s or 1940s, the use of BW has been rare. It is believed that the Japanese used BW against Chinese cities between

1940 and 1944, killing some 700 victims. There is also evidence that at least 3,000 prisoners of war died in BW experiments carried out by the Japanese during World War II. More recently, the USA accused the USSR of using toxin weapons in Kampuchea, Laos and Afghanistan, and the USSR accused the USA of using BW in Cuba. Both parties have denied the allegations.

BW use has been rare for a number of reasons. BW are hard to stockpile because many biological warfare agents deteriorate when stored for long periods. BW also tend to be unreliable when used. Few germs can survive contact with air pollutants, sunlight and humidity different from what they are used to. As a result, many BW lose their strength by the time they reach their targets. The effectiveness of BW also depends on the wind speed and direction, which can't be controlled by the attacker. Given that many BW are highly infectious, the attacker risks damaging not only the target population but also its own, or that of neutrals and allies. The attacker could try to immunize its military and civilians, but this could alert the enemy to the prospect of BW use and make it hard to achieve surprise. Even if BW reach the target population, their effects take time to develop and spread. In a fast-moving battle, they might not make much difference to the outcome.

The rarity of BW use is probably also due in part to the widespread belief that such weapons are immoral. Biological warfare would be a deliberate reversal of the disease prevention and health care measures all countries have painstakingly worked towards in the 20th century. Also, as described below, BW are illegal.

Biological weapons treaties

The Geneva Protocol of 1925 bans the use in war of poisonous gases and of biological methods of warfare. It does not ban the development, production or stockpiling of these weapons. Neither does it say what countries should do if the treaty is violated and BW are used in war. Over 125 countries have ratified the Geneva Protocol. Many of these countries reserve the right to use BW if BW are used against them.