# AUMUN'26 STUDY GUIDE

UNDER SECRETARY GENERAL: BEGÜM DEMİRÖRS

ACADEMIC ASSISTANT: CAN OSMAN DAĞLI

UNEP


**UNEP ( United Nations Environment Programme)**

**Under Secretary-General: Begüm Demirörs**
**Academic Assistant: Can Osman Dağlı**

**Agenda Item:**
**Evaluating Environmental and Ecological Degradation Caused by Military Weaponry, Armed Conflict and Military Strategies**

**Table of Contents:**

## 1) Letter From Secretariat

Letter from Secretary-General

Honourable participants,

First order of business, I would like to welcome you all with open arms and utmost gratitude for attending our conference. I truly hope you can find a little solace and comfort with your peers here, as our conference and team truly care about you and we will be trying our best to accommodate you.

I would also like to remind you that we intend to keep everyone involved in a place of safety, and comfort. As we all witnessed the last events in our country, I can promise that those who act out of order will be taken care of and thrown out of the conference immediately.

As the Secretary-General, I offer you a variety of global problems to work on and create solutions accordingly, as it is what boils down to with every Model United Nations conference around the globe. I truly hope this will be a place where you can learn and grow both intellectually and personally. You are in a place where you will be heard, valued, and supported.

What I offered is only possible with an academic team like this, so those who I have in my team should know that I offered their positions accordingly, and knowingly. I expected the best, which they gave in return. I am truly grateful for everyone in my team, and I know for a fact that also our delegates will feel the same way I do.

Those who will be attending a conference for the first time, I hope our conference will get you hooked on MUN conferences and make you expand your horizon as much as you can in order to become a better version of yourselves in every possible area that we can offer. Attending a conference where everyone is your peer might be a little overwhelming but rest assured, me and my academic team, will be here to ensure your careers as MUNers will begin smoothly, and in any occasion that might make you uncomfortable in or outside of our formal sessions, I truly have the greatest organization team that ever existed, so you can rely on them as much as you can rely on me.

I also would like to extend my special thanks to my executive team, Ekin Su Öztürk and Emir Güneş, who gave their incredible efforts to ensure our organization team is spotless, in and out of our conference. Also, Mert Sürücü, for sticking with me throughout this almost five year old journey of MUNing, with an unbelievable amount of ups and downs, and yet we are still here.

I truly can not wait to see you all in AUMUN'26.

Truly yours,
Bedirhan CURA
Secretary General

## 2) Letter From Under Secretary General

Distinguished Delegates,

My name is Begüm Demirörs, and I am honored to serve as your Under Secretary General for the UNEP Committee at AuMUN'26. I am currently a first-year student at Antalya Bilim University, studying Political Science and International Relations. It is a pleasure to welcome you all.

In this session, UNEP will address the agenda item "Evaluating Environmental and Ecological Degradation Caused by Military Weaponry, Armed Conflict and Military Strategies." This topic emphasizes the profound environmental consequences of warfare, including ecosystem destruction, pollution, and long-term ecological damage. Delegates are expected to approach the issue with comprehensive research, critical thinking, and a strong awareness of both environmental and geopolitical dimensions.

This agenda requires analytical thinking, policy-driven solutions, and an understanding of complex global challenges at the intersection of conflict and sustainability. I encourage active participation, diplomacy, and collaboration throughout the committee.

Please feel free to reach out with any questions. I look forward to a productive and engaging session with all of you.

Kindest regards,
Under-Secretary General of UNEP
Begüm Demirörs

## 3) Letter From Academic Assistant

Esteemed participants of this committee,

I am Can Osman DAĞLI, and I would like to welcome you all to the United Nations Environment Programme (UNEP). I am also the academic assistant for this exceptional committee.

First of all, I would like to express my gratitude to all of you for participating in the committee. I believe we will have a great time as the best committee of this unique conference.

I would also like to thank the honourable Under Secretary General Begüm Demirörs, who led me in preparing this committee. He has always been there to support me.

I would also like to express my endless gratitude to the dear executive team for giving me the opportunity to form this committee.

I believe it will be an unforgettable committee for you. I hope you all read and study the study guide we have prepared. If you do, I believe you will enjoy the committee immensely.

If you have any questions, please do not hesitate to contact us. Your questions are very important to us.

Sincerely

Can Osman Dağı

Email: dagli.can.34@gmail.com

+90 535 204 46 12

## 4) Introduction to the Committee of UNEP (United Nations Environment Programme)

The United Nations Environment Programme (UNEP) was established in the 1972. And ıt is United Nations leading global authority on the environment, driving transformational change on the triple planetary crisis of:

the crisis of climate change

the crisis of nature

land and biodiversity loss

the crisis of pollution and waste

Since its establishment, UNEP has served as a neutral convener of Member States, civil society, the private sector and UN agencies to address humanity's most pressing environmental challenges. From protecting species to restoring the ozone layer, UNEP facilitated international agreements have made global environmental action possible throughout the years. Nowadays, UNEP hosts theUnited Nations Environment Assembly, the world's highest-level decision-making body on the environment, with a universal membership of all UN Member States.

Through robust science, global coordination and powerful advocacy, UNEP continues to support all UN Member States  to achieve the Sustainable Development Goals (SDGs) and forge a future where people and planet live in harmony.

As environmental challenges reach unprecedented levels, UNEP works tirelessly across the globe to tackle the triple planetary crisis of climate change, nature and biodiversity loss, pollution and waste. As the world's leading environmental authority for 54 years, UNEP addresses some of the most urgent challenges facing the planet and humankind through its powerful advocacy, setting the global environmental agenda, providing leadership and delivering scientific solutions.

## 5) Introduction of the Agenda Item; Evaluating Environmental and Ecological Degradation Caused by Military Weaponry, Armed Conflict and Military Strategies:

### 5.1) Remnants of Warfare and Military Equipment

Armed conflicts leave behind a lot of physical damage that continues to hurt ecosystems long after the fighting is over. These remnants consist of unexploded ordnance (UXO), landmines, abandoned military vehicles, damaged infrastructure, and chemical residues from weapons and fuel. These kinds of materials are always dangerous to land and water environments, especially when they break down over time and release harmful chemicals into soil and water systems. Heavy metals like lead, mercury, and cadmium from guns and machinery can seep into groundwater, polluting freshwater sources and getting into the food chain through bioaccumulation.

In marine and coastal environments, sunken military vessels and discarded equipment contribute to pollution in the "blue economy." Oil leaks from shipwrecks, corrosion of metal structures, and the release of hazardous cargo create long-term ecological damage. These pollutants can disrupt marine biodiversity, damage coral reefs, and reduce fish populations, directly affecting fisheries and coastal livelihoods. Additionally, remnants of warfare often render land unusable, limiting agricultural productivity and increasing pressure on already scarce water resources.

Because cleanup activities are expensive, technically challenging, and hazardous, the existence of these residues also impedes post-conflict rehabilitation efforts. The ability to eliminate or neutralise such risks is lacking in many developing nations. Consequently, contamination lasts for decades, making environmental degradation and water insecurity worse. International collaboration, funding for demining and

remediation technology, and more robust legal frameworks to guarantee accountability and environmental restoration are all necessary to address the legacy of military relics.

### 5.2) Anthropogenic Disasters

Anthropogenic disasters are environmental calamities resulting directly or indirectly from human actions, encompassing those associated with military activity and warfare. Armed conflict greatly increases the likelihood of such catastrophes by harming essential infrastructure, such as water treatment facilities, dams, pipelines, and industrial sites. When these systems fail, dangerous materials like untreated sewage, industrial chemicals, and oil may enter rivers, lakes, and oceans, causing significant harm to water quality

One of the most pressing concerns is the contamination of freshwater resources, which are essential for drinking, agriculture, and sanitation. In conflict zones, deliberate or incidental targeting of infrastructure can disrupt water distribution systems, leading to shortages and forcing populations to rely on unsafe water sources. This increases the spread of waterborne diseases and places additional stress on already fragile ecosystems. Similarly, damage to coastal facilities can lead to oil spills and chemical leaks that affect marine environments, harming fisheries and tourism sectors that are vital to the blue economy.

Long-term ecological effects are also a result of anthropogenic disasters. Deforestation, habitat devastation, and soil degradation brought on by military operations can change natural water cycles, making droughts and floods more likely. Furthermore, uncontrolled pollution and illicit resource exploitation are frequently caused by a lack of governance and regulatory enforcement during wars. The international community must prioritise safeguarding vital infrastructure during hostilities, support long-term rehabilitation initiatives, and bolster environmental monitoring and disaster response systems in order to reduce these risks.

### 5.3) Water Ecology

The ecology of water is especially susceptible to the effects of armed conflict and military operations. Pollution, habitat destruction, and changes in water flow can readily upset the delicate balances of physical, chemical, and biological elements that underpin both freshwater and marine ecosystems. Fuel, chemicals, heavy metals, and debris are just a few of the contaminants that military operations frequently inject into water systems, all of which can have disastrous consequences on aquatic life.

In freshwater ecosystems, such as rivers and lakes, contamination can lead to eutrophication, reduced oxygen levels, and the death of fish and other organisms. These changes not only threaten biodiversity but also undermine the availability of clean water for human use. Wetlands, which play a crucial role in water filtration and flood control, are particularly at risk during conflicts due to land degradation and infrastructure damage. Their loss further exacerbates water insecurity and increases vulnerability to natural disasters.

Marine environments encounter comparable difficulties. Naval combat, underwater blasts, and sonar usage can interfere with marine ecosystems and endanger animals like whales and dolphins. Contamination from oil spills and chemical runoff can harm coral reefs and seagrass ecosystems, which are vital for preserving biodiversity and sustaining fisheries. These effects directly influence the blue economy, which depends on thriving marine ecosystems for sustainable progress

Protecting water ecology in conflict and post-conflict settings requires integrated approaches that consider both environmental and human needs. This includes monitoring water quality, restoring damaged ecosystems, and implementing policies that prioritize sustainable water management. International cooperation and adherence to environmental protection norms are crucial to safeguarding these vital ecosystems.

**5.4) Nuclear Bomb Tests and Its Effects on the Environment**

Nuclear weapon testing stands as one of the most extreme types of environmental destruction resulting from military actions. Nuclear tests, both in the atmosphere and underwater, have significantly influenced ecosystems, especially regarding radiation contamination. Radioactive isotopes emitted from these tests may linger in the environment for decades or centuries, impacting soil, water, and living creatures

In freshwater and marine environments, radioactive fallout can contaminate water sources and accumulate in aquatic organisms. This bioaccumulation can move up the food chain, ultimately affecting human populations that rely on these resources for food and livelihood. Marine ecosystems are especially vulnerable to underwater nuclear tests, which can cause immediate physical destruction through shockwaves while also introducing long-term radioactive pollution. Coral reefs, fish populations, and other marine life can suffer irreversible damage, undermining the sustainability of the blue economy.

Because of the high radiation levels, nuclear testing locations on land frequently become uninhabitable. Water insecurity can be made worse by radioactive elements seeping into groundwater from contaminated soil. These tests have serious health consequences in addition to harming the ecosystem, such as elevated cancer risks and genetic abnormalities in impacted populations.

Efforts to address the legacy of nuclear testing have included international treaties and cleanup initiatives, but many affected areas still require extensive remediation. Preventing further environmental harm necessitates strict adherence to international agreements banning nuclear tests, as well as continued invest

## 6) Historical Background The Topic

### 6.1) Operation Barbarossa (1941)

Even though the leader of Germany thought the nonaggression pact of 1939 was a great success, he still had anti-bolshevism in his mind. Following the Soviet occupation of the Baltic states and of Bessarabia and northern Bukovina in June 1940, which put Soviet forces in proximity to the Romanian oil fields on which Germany depended, Hitler's long-standing interest in overthrowing the Soviet regime was heightened. He had a strong suspicion of Joseph Stalin's motives and started to believe that he could not afford to wait to deal with the Soviet Union until after he had finished subduing western Europe, as he had initially intended.

Hitler and his generals had planned to invade the USSR in mid-May 1941, but they were obliged to push back the Soviet campaign until late June due to the unanticipated need to invade Yugoslavia and Greece in April of the same year. The swiftness of Hitler's Balkan victories enabled him to keep to this revised timetable, but the five weeks' delay shortened the time for carrying out the invasion of the U.S.S.R. and was to prove more serious because in 1941 the Russian winter would arrive earlier than usual. Nonetheless, Hitler and the leaders of the Oberkommando des Heeres (OKH, or German Army High Command) -specifically, army commander in chief, Walther von Brauchitsch, and army general staff chief, Franz Halder believed that the Red Army could be beaten in two or three months and that by the end of October the Germans would have taken all of the European areas of Russia and Ukraine west of a line from Arkhangelsk (Archangel) to Astrakhan.

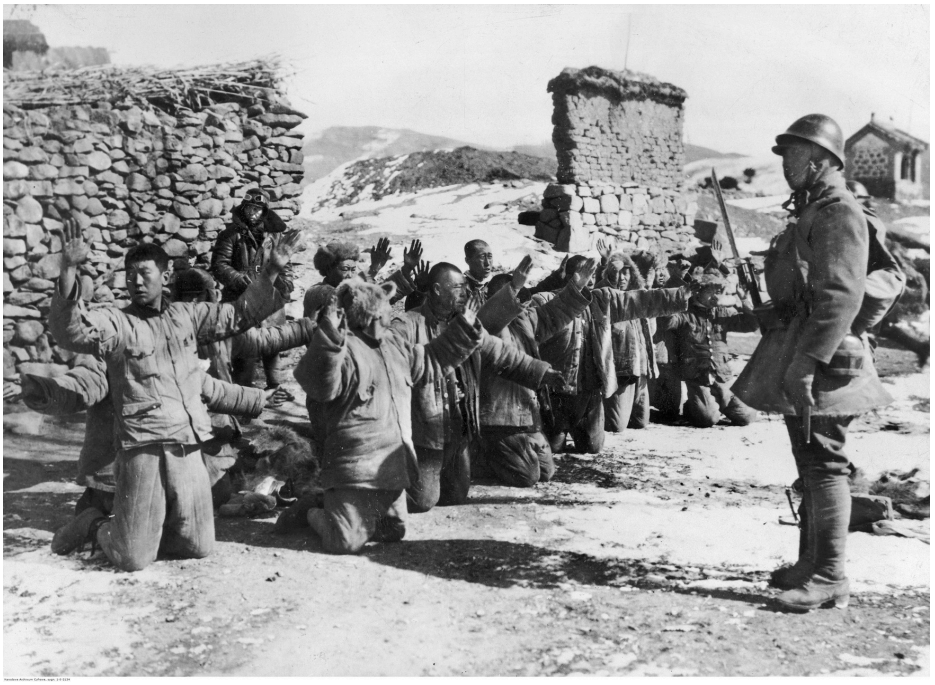
**6.2) UNIT 731**

Unit 731 was a Japanese research program during World War II that conducted horrific experiments such as infecting subjects with plague giving subject frostible and cutting people apart while alive and unsedated. Most of victims were Chinese and Korean. Officially called the “Epidemic Prevention and Water Purification Department of the Kwangtung Army”, victims died painful deaths, whether alone tied to an operating table or in their communities, where thousands wiped out by plague virus thrown into their wells in “Public Health Experiments”.

Japan did not always treat prisoners of war like this. Before World War II Japan has known for treating is Prisoners of War (POW) well and giving them adequate medical care. Japan did ot always support biological warfare (BW) either (it had signed the Geneva Convention of 1925 that banned the use of chemical and germ weapons). The change came with Ishii Shiro, who would become known as the “Mengele of the East”. He reasoned, if biological weapons were so feared as to be banned by the League of Nations, they must be a powerful tool. As he climbed the ranks, he lobbied the top brass. And in 1931, the army gave in creating a bacteriological warfare (BW) research program and making Ishii its head.

Japan invaded Manchuria and by 1932 had complete control. This gave Ishii the site abroad he needed. A 1936 order from Emperor Hirohito integrated Ishii’s program into the army and created a network of BW research units all over Asia. It is headquarters was built in the Pingfang district of Harbin, Manchuria. called Unit 731. The term is commonly used to refer to whole program as an alternative to the ironic official title “Epidemic Prevention and Water Purification Department”.

Research was mainly focused on developing biological weapons. Researches also used Unit 731 prisoners to study effects of diseases, frostbite, starvation and more in order to develop vaccines and medical treatments to support the Japanese Soldiers. While some employees were drafted, most doctors chose to go. Most victims were chinese, but other nationalities included Russians (Soviet Union),  Koreans Americans, British French and Mongolians. And estimated 3.000 were killed inside the walls of the Pingfang laboratory and more than 500.000 in “Public Health Experiments”. The sites and their documents access were blocked with United State of America. The documents will be accessible many years later.



“Sometimes I look at my hans and I remember what I have done with these hands. What’s really scary is, I don’t have any nightmares of what I have done”

–Ken Yuasa (Japanese army doctor)

Although Unit 731 perpetrators used dehumanizing language to rationalize their actions, dehumanization does not make sense as the main mechanism play. Henry C. Therialut (philosopher and leading genocide scholar) uses the Armenian Genocide as a case study to argue that instead of dehumanizing victims, perpetrators “recognized humanity of their victims” and killed Armenians “precisely because” of their humanity. The more a torturer humanizes their victims the more pleasure. Perhaps Unit 731’s purpose was to create biological weapons to efficiently kill large numbers of people, however the researchers still conducted experiments with no scientific purpose, seemingly for the sake of curiosity or simply just for fun.

When discussing war crimes, dehumanization is often assumed as a factor. However, when examining Unit 731 more closely, it becomes clear that the victims use to researchers was because of their humanity and that dehumanization was not the primary mechanism that drove the researchers to commit atrocities. These perpetrators dehumanized their victims in their official terminology and everyday talk to rationalize their actions to themselves, but they did not truly believe that their victims were not human.

## 6.3) Trinity Test

The bomb development teams at Los Alamos had settled on two possible designs. The Hanford site would be able to deliver enough plutonium-239 for testing by early July, bot Los Alamos scientists had determined that the gun assembly model would not be compatible with plutonium as a fuel source. An alternative design had been proposed, one that would use concentric layer of high explosives to implode the fissionable material under enormous pressures into a denser mass that would immediately achieve criticality. It was believed that this "implosion" design would be the most efficient way to weaponize the meager amount of plutonium that had been produced thus far.

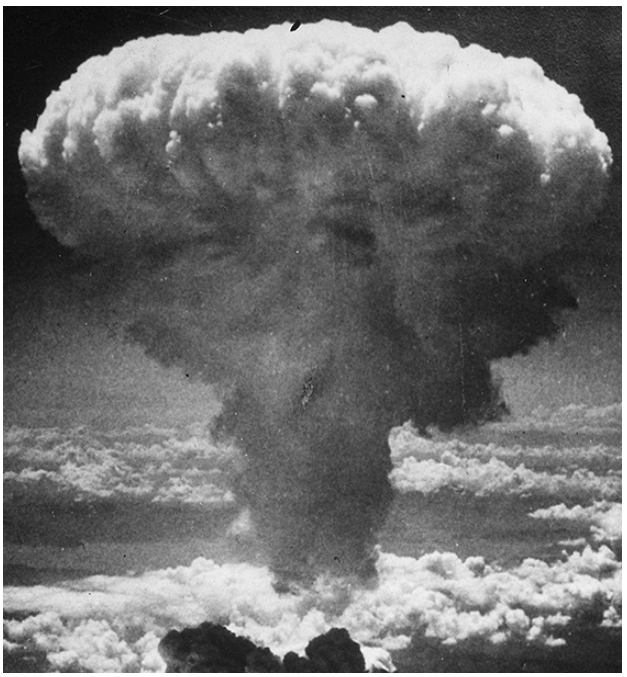
The first atomic bomb (a plutonium implosion device called “Gadget”) was raised to the top of a 30 meter steel tower that was designated “Zero”. The area at the base of the tower was marked as “Ground Zero”, a term that would pass into common parlance to describe the center of an event. Military officials and scientists occupied observation post at distances ranging from 9 to 15,5 kilometer. They had been instructed to lie down with their feet toward the tower and to protect their eyes from the blinding flash of the explosion.

“Gadget” was detonated at 5.29 AM on July 16 1945. The explosion caused a flash that illuminated the mountain peaks 16 kilometer away. Soon there followed a tremendous sustained roar accompanied by a tornado like burst of wind.Where the tower had stood. there was a great surging ball of fire, followed by a mushroom cloud that rose some 12,2 meters into the sky. The heat of the explosion had completely vaporized the tower; in its place was a saucer-shaped crater about 800 meters şn diameter and 8 meters deep. The floor of the crater was fused into a glassy jade-colored mineral subsequently dubbed trinitite. The bomb had generated an explosive power equivalent to approximately 21,000 tons of trinitoluene (TNT). The blast was visible from a distance of 50 miles (80 km), and it shattered windows 125 miles (200 km) away. Residents of Gallup, New Mexico, more than 180 miles (290 km) from Ground Zero, reported feeling the ground shake. In an attempt to head off questions about the world-changing event that had occurred at Trinity, the army issued a brief statement to the press: “A remotely located ammunition magazine containing a considerable amount of high explosives and pyrotechnics exploded, but there was no loss of life or limb to anyone.”

**6.4) The Bombing of Hiroshima**

On July 16, just hours after the successful completion of the Trinity test, the heavy cruiser USSS Indianapolis left port at San Francisco with the gun assembly mechanism, roughly half of the United States of America supply of uranium-235, and several Los Alamos Technicians. The remainder of the US uranium-235 stockpile was flown to Tinian on transport planes. Upon the arrival of the Indianapolis at Tininan on July 26, assembly began on the bomb, dubbed Little Boy. The components of a second bomb ,a plutonium device nicknamed Fat Man, were transported to Tininian by air. By August 2 1945, both bombs had arrived at Tinian and US commanders were waiting only for a break the weather to order the execution of Special Bombing Mission 13 an atomic attack on the Japanese home islands.

It took roughly 45 seconds for Little Boy to descend to  and latitude of 580 meters, at which point it exploded in the sky directly above Shima Hospital. Within a fraction of a second of the detonation, the temperature at ground level exceeded 7.000 °C and a powerful blast wave scoured the landscape. Out of a population of 343.000 inhabitants some 70.000 people were killed instantly, and the end of the year the death toll had surpassed 100.000. ⅔ of the city area was destroyed. “Nuclear Shadows” were all that remained of people who had been subjected to intense thermal radiation. A huge mushroom cloud rose to a height of more than 12 kilometers. Although less than 2 percent of the uranium-235 contained in Little Boy had achieved fission, the bomb was horrifying in its destructive power. The explosive yield was the equivalent of 15.000 tons of TNT. Sgt. Bob Caron, the Enola Gay’s tail gunner and the only member of the crew to directly observe the blast, described the scene as a “peep into hell”. A series of shockwaves rocked the Enola Gay as it departed the area, and at a distance of nearly 640 kilometers the mushroom cloud was still visible.

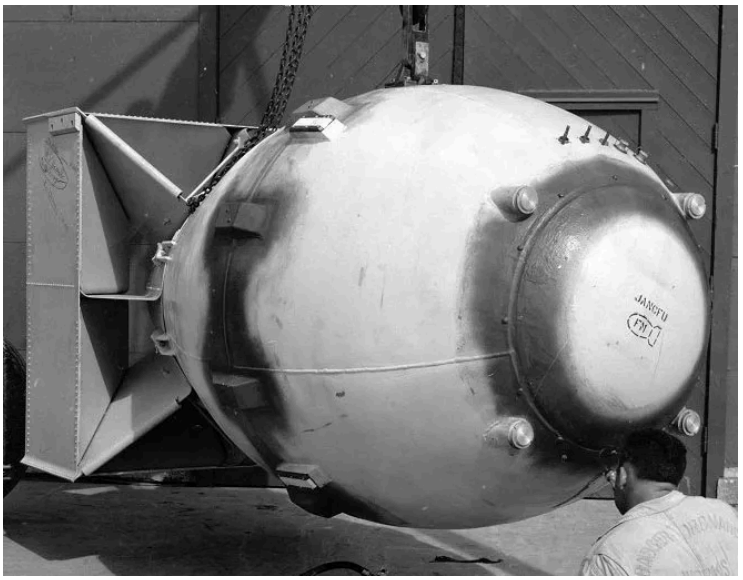


**6.5) The bombing of Nagasaki**

At 3.47 am the B-29 Bockscar took off from Tinian. Their payload was Fat Man, the plutonium-fueled implosion device similar to the bomb detonated at the Trinity test. Unlike Little Boy, Fat Man was fully assembled when it was loaded onto Bockscar, and shortly after takeoff Ashworth armed the device. As with the Hiroshima bombing, the strike plane was preceded by other B-29s performing weather reconnaissance, and light haze but relatively clear skies were reported over the primary target of Kokura.

Geographically, Nagasaki was not an ideal target. Whereas Hiroshima was flat and the bombardier's aimpoint was a visually distinctive feature near the city center, the urban area of Nagasaki was divided into two coastal valleys separated by a range of hills. The aimpoint would be a Mitsubishi arms plant near the city's harbor. This site was located between the two densely populated valleys, but the uneven terrain would reduce the destructive potential of a weapon that was significantly more powerful than the bomb that had been dropped on Hiroshima.

Shortly before 11:00 am local time, Bockscar arrived at Nagasaki only to find the city shrouded in thicker clouds than Kokura had been. By this point the aircraft was running so low on fuel that Sweeney notified the crew that they would only be able to make a single pass over the city. A gap in the clouds appeared far north of the intended aimpoint, and Beahan released the bomb. The bomb descended to an altitude of 500 meters and, at 11:02 am, exploded over the Urakami Valley, northwest of the city center. Fat Man detonated with the explosive force of 21,000 tons of TNT. An estimated 40,000 people were killed instantly, and at least 30,000 more would yield to their injuries and radiation poisoning by the end of the year. An exact accounting of the death toll would prove impossible, as many records were destroyed by the bomb. About 40% of the city's buildings were completely destroyed or severely damaged.



**6.6) Israel Palestine Conflict**

Although the Israel Palestine conflict has been ongoing since 1948, the establishment of the ısrael military blockade since 2007 and numerous flashpoints in fighting have exacerbated environmental issues in the region in recent years. Since the 7 October 2023 attacks by Hamas, the Israes Military offensive saw Palestine become the most violent place in the world. More than 70% of Gaza buildings, sewage pumps / wastewater treatment plants and agricultural land have been damaged or destroyed. Therefore, the war in Gaza has been described as an "environmental catastrophe".

As well as pollution from war-related activities, Israel has incentivised polluting industries to build plants near occupied Palestinian territories, exacerbating the problem. In addition, three quarters of water infrastructure has been damaged, and water is restricted by blockades. As result, untreated sewage has been discharged into rivers and seas, exacerbating the problem. At one point, at least 130.000 meter cube of wastewater was discharged into the Mediterranean Sea daily. Large amounts of raw or partially treated sewage are also being released into the Wadi Gaza Nature Reserve.

The war has left 37 million tonnes of debris over 14 times that produced in all global conflicts in the last 16 years. It is thought that it could take "about 14 years of work with 100 trucks" to clear the unexploded ordinance alone. The debris also includes 800.000 tonnes of asbestos and other harmful material. In addition, over 1000 tonnes of waste are being produced per day in Gaza with limited refuse collection, waste is piling up and hazardous substances are being improperly disposed of

In Gaza and the West Bank, key habitats include the Wadi Gaza Nature Reserve and Wadi Al-Quff Protected Area 2 ecologically important areas of particular scientific interest. Wadi Gaza is crucial for migratory birds and the plant communities constitute important habitats for many other species, whereas Wadi Al-Quff has high terrestrial vertebrate biodiversity. Many other ecologically important sites have been identified within Gaza and the West Bank.

An obvious cause of habitat degradation is from artillery fire, explosives and landmines used in armed warfare. The effects of these differ: use of explosives to destroy a dam can lead to a sudden substantial loss of species from flooding and siltation downstream or drought upstream, whereas landmines can pose a risk to individual fauna, particularly large mammals. It is likely that tens of thousands of bomb craters and landmines are scattered throughout Gaza. Similarly, military bases are associated with habitat degradation through land clearance, soil erosion and contamination during their construction and use. Similarly, movement of armoured vehicles, military personnel and displaced civilians can lead to similar outcomes. As a result, deforestation is the leading environmental impact of war. Various other activities may harm local habitats. For example, Israeli extraction of sand and groundwater has affected fragile ecosystems.

**6.7) Gulf War**

Tensions in the Persian Gulf began to build during the summer of 1990, with Iraq adopting an increasingly belligerent tone toward both Kuwait and members of its ruling Sabah dynasty. On July 17 Saddam launched a televised verbal attack on Kuwait and the United Arab Emirates for exceeding the oil export quotas that had been set for them byOPEC. A day later Kuwait was accused of stealing oil from the Al-Rumaylah oil field, which straddles the border between Iraq and Kuwait. As criticism mounted, talks between the two countries in Jeddah, Saudi Arabia, broke down on August 1. Hours later, early on August 2, Iraqi armoured divisions invaded Kuwait despite personal assurances from Saddam to Egyptian Pres. Hosni Mubarak that Iraq would avoid using force to press its claims against Kuwait.

Active resistance to the invasion lasted about 14 hours, during which time an estimated 4,200 Kuwaitis were killed in combat. Although remnants of Kuwait's 20,000-man army maintained a spirited defense over the next 36 hours, the Iraqi takeover of Kuwait city was completed with little difficulty. The fiercest opposition came at Dasman Palace, the royal residence of emir Sheikh Jabir al-Ahmad al-Jabir al-Sabah, which only yielded to the Iraqis after hours of bitter hand-to-hand fighting in which the emir's younger brother, Sheikh Fahad, was killed. At 11:11 am on August 3 Kuwait Radio fell silent with these words: "Arabs, brothers, beloved brothers, Muslims. Hurry to our aid." Sheikh Jābir, his cabinet, and senior members of the Ṣabāḥ family fled to Saudi Arabia to establish a government-in-exile. Crown princeSa'd al-'Abd Allah al-Salim a- Sabah quickly emerged as the dominant personality within this group, and finance minister Sheikh Ali al-Khalifah al-Ṣabāḥ took control of most of Kuwait's overseas assets, which amounted to some $100 billion. As many as 350,000 Kuwaiti refugees also fled south into Saudi Arabia.

In early 1991 more than 800 oil wells were blown up, of these more than 600 caught fire and burned with flames and about 50 wells gushed oil onto the ground. During the period up to October 1991 all the wells were capped. The maximum amount of oil and gas in the oil fires was about 355,000 tons and 35 million m3 respectively per day. The soot emissions for the burning oil and gas has been estimated to about 20,000 tons per day and the total SO2 emission about 24,000 tons per day. The CO2 emission from the burning oil and gas in Kuwait has been estimated to about 130 to 140 million tons corresponding to 2-3% of the global annual anthropogenic contribution from the use of fossil and recent fuels and only 0.1% of the total global CO2 emission. Levels of particles in the air a few kilometers from the burning oil fields was in the order of about 10 5 per cm3. this corresponds to 10% of the global contribution from anthropogenic burning of recent and fossil fuels. Most of the soot particles accumulated at altitudes between 1000 and 3000 meters and very little contamination reached higher than 5000 meters. As a result the soot did not spread over large areas but fell out with rain and dew mostly over the Arabian Peninsula. The high volume of particles in the air had a very pronounced effect on the climate in Kuwait and in the neighboring countries. Temperatures were up to 10 degrees C lower than under normal years. Soot and oil covered extensive areas in Kuwait, Northern Saudi Arabia and the Gulf. the vegetation as well as wildlife was exposed to this fallout.

### 6.8) Russo-Ukrainian War

The Russo-Ukrainian War is a conflict that began with Russia's invasion of Ukraine in February 2014 and escalated into a full-scale war starting on 24 February 2022. Ukraine, having gained independence from the Soviet Union in 1991, sought closer ties with Western nations, leading to political turmoil, particularly when pro-Russian President Viktor Yanukovych was ousted in 2014. Following his removal, Russia annexed Crimea, a region of strategic importance due to its location and historical ties to Russia, which was met with international condemnation and sanctions. The initial conflict in 2014 also involved fighting against Russian-backed separatists in Eastern Ukraine, resulting in significant casualties and a complex humanitarian crisis. Despite a ceasefire agreement in 2015, skirmishes continued, with Russia supporting the separatists and claiming that Ukraine was persecuting Russian-speaking citizens in the region.

The 2022 invasion marked a significant escalation, leading to extensive military engagements and widespread displacement of civilians, with millions fleeing to neighboring countries. The international community has largely condemned Russia's actions, with many countries supplying military aid to Ukraine and imposing further sanctions on Russia. As of April 2022, while negotiations have been ongoing, the conflict remains unresolved and continues to impact the geopolitical landscape in Eastern Europe.

### 6.8.1) Air Quality

Between 2018 and 2022, Ukraine’s annual average concentrations of the air pollutants sulphur dioxide (SO2), nitric oxide (NO), carbon monoxide (CO) and total suspended matter met national air quality standards criteria, while nitrogen dioxide (NO2) and formaldehyde (CH2O) levels were above them. In 2019, 42,900 premature deaths and 953,500 disability-adjusted life years (DALY) in Ukraine were related to air pollution, which corresponds to about 10% of all cases of morbidity and mortality. Since 2022, the war led to the emergence of atypical air pollution patterns associated with military operations.

### 6.8.2) Forests

Although forests only cover about one fifth of its territory, Ukraine ranks among the top European countries in terms of forest area. Approximately 1.7 million hectares of Ukrainian forests are affected by war, accounting for approximately 15% of the country's total forest cover.

Since the outbreak of military activities in February 2022, the pressures on forest resources expanded due to intense deforestation and habitat destruction, and the threat of explosive remnants and wildfires. Over the past decades, climate change has increased the risk of large forest fires, especially in the last five years. Wildfires account for 45-65% of the Ukrainian forest cover losses every year.

## 6.9) Vietnam War (1954-1975)

The Vietnam War ended 51 years ago with the surrender of South Vietnam in 1975. In the conflict, the communist-ruled North Vietnam, supported by the USSR and China, fought against the military-ruled South Vietnam, supported by the USA. During the course of the war, the warring parties engaged in violent clashes. The US in particular deployed powerful war machinery during the war years and bombed the country extensively. More than 3 million people died in the war. Even many years after the end of the war, people are still falling victim to the consequences of the war, for example through the use of Agent Orange. Despite its technological superiority, this war led to the first military defeat in the history of the USA.

The participation of the United States in the Vietnam War was expressed primarily through large-scale aerial bombardments. The aim of the ongoing air raids (more than 900 per week) were strategic targets to prevent the communist government from invading South Vietnam. The mass of bombs dropped by the Americans over Vietnam ranges from 4.5 million to 7 million to 8 million , depending on how you look at it and how you count it. Regardless of which figure is correct, the bombing of Vietnam on this scale is unique in history.

The herbicides used by the USA were sprayed on the equivalent of 12 percent of Vietnam's total area. Projections of the area of defoliated forests and mangroves vary between 2 and 2.4 million hectares. In addition, there is the targeted spraying of arable land in Vietnam. The figures here are less precise and vary between 300,000 hectares and 400,000 hectares. A study from 2019, published in the Open Journal of Soil Science, speaks of an incredible area of around 10 million hectares.

It is almost impossible to describe what happens when 80 million liters of herbicides are sprayed over farmland and forests. The networks of animals and plants within sensitive ecosystems, such as the mangrove forests in Vietnam, are too numerous. Nevertheless, some studies have attempted to analyze the damage and classify it into different regions.

> Around 50,000 hectares of forest were sprayed four or more times. These 50,000 hectares can be considered completely destroyed with a tree mortality rate of 80-100%.
> 1.3 million hectares of forest (12 percent of the area of South Vietnam) have been sprayed with herbicides at least 1–3 times and can be considered partially destroyed with a tree mortality rate of 10-50%.

## 6.10) Second Sino-Japanese War (1937-1945)

For much of the early 20th century, Japan had exercised effective control of Manchuria initially through the terms of theTwenty one Demands(1915) and later through its support of Chinese warlordShang Zuolin. However, a serious conflict was developing, and the Chinese in Manchuria were especially restive under the privileges held by the Japanese. Chinese citizens formed the vast majority of the population, and the legal title of the region was held by China. Yet Japan controlled much of south Manchuria through its railways and its leasehold on the Liaodong Peninsula and in other ways that compromised Chinese sovereignty.

In 1935 the Japanese forced the withdrawal fromHebeiand Chahar (now part of Inner Mongolia) of any officials and armed forces that might prove unfriendly to Japan. These territories passed partly into Japanese control, and Suiyuan, Shanxi, and Shandong were threatened. Nationalist leaderChiang Kai-shek did not offer open opposition, preferring instead to pursue his campaign against Chinese communist forces. In December 1936, in what came to be known as theX2i an innocent Chiang was seized by forces under the command of his own generals and compelled to ally with the communists in a United Front against Japan.

From a strictly military point of view, however, Japan was so much better prepared than China that its armies achieved rapid initial success. Within the course of two years Japan obtained possession of most of the ports, the majority of the chief cities as far west as Hankou, and the larger part of the railways. Peiping and Tianjin were occupied in July 1937. After fierce fighting, the Chinese armies were driven out of the Shanghai area by the middle of November 1937. Nanjing the Nationalist capital, fell in mid-December 1937, and the liquidation of that city and its inhabitants became known as the Nanjing Massacre. As many as 300,000 Chinese civilians and surrendered troops were killed. Moreover, tens of thousands of women were raped on the orders of Japanese commander Matsui Iwane The capital was moved west to Hankow. The Japanese followed and took that city in October 1938. In the same month, the Chinese lost Canton (Guangzhou). The Japanese pressed northward and westward from Peiping along the railway lines into Shansi and Inner Mongolia. They dominated Shantung and took possession of the Peiping-Hankow, Tientsin-P’u-k’ou, and Lung-hai railways and of the rail lines in the lower part of the Yangtze valley. They had complete command of the sea. Always superior in the air, before many months they had all but destroyed the Chinese air force and bombed Chinese cities at will. The loss of life, particularly for the Chinese, was enormous.

## 6.11) Native American Warfare

Warfare was endemic among the Indian peoples of North America before European contact. War was most emphasized and most frequent in the Northeast, Southeast, and Great Plains culture areas. It was much less emphasized in the Great Basin, Plateau, and California culture areas and among many of the peoples of the Southwest culture area. In many places there were traditional alliances, and individual tribes often had traditional enemies with whom war was more or less constant.

War was so important in the cultures of many American Indian societies that success in war was the principal means of attaining personal esteem and status. As a result, war trophies and war honors had a special significance in many cultures. The best-known example is the taking and displaying of scalps. Most historians agree that scalping was widely practiced in pre-contact North America. Jacques Cartier reported the custom along the St. Lawrence River in 1535, and members of the Hernando de Soto expedition reported it in the Southeast at almost the same time. While each tribal group had its own particular customs, the curing and preserving of enemy scalps for display on certain ceremonial occasions was a widely practiced custom. In such ceremonies, the warrior was permitted to recite his war exploits, while other warriors or elders affirmed them. Among many peoples of eastern North America, it was the practice for men to wear their own hair in a special “scalplock,” with the rest of the head shaved.

The arrival of European fur traders and colonists began to modify Indian warfare patterns in the early seventeenth century, because European guns were deadlier than aboriginal bows and warclubs. Even in the early seventeenth century, muskets had a much longer effective killing range than did bows, so that a group armed with muskets could inflict heavy losses on an enemy armed with bows. Indians quickly recognized the advantages of the new weapons (and the superiority of steel knives, hatchets, and arrowpoints) and exerted themselves to obtain them. This was imperative, because warriors armed with traditional weapons were vulnerable not only to European soldiers but also to Indian enemies equipped with European weapons. Almost the only way to obtain these weapons was through the fur trade.

The fur trade, and in the Southeast the deerskin trade, had ramifications that extended ever more deeply into eastern North America, intensifying warfare and providing new economic motives for it. Some of the most spectacular and best-documented effects occurred in the wars of the Iroquois, especially with their traditional enemies, the Huron.

## 7) Military Weapons Impacts on Nature

### 7.1) Agent Orange

Agent orange was a herbicide mixture used by the United States military during the Vietnam War. Much of it contained a dangerous chemical contaminant called dioxin. Production of Agent Orange ended in the 1970s and is no longer in use. The dioxin contaminant however continues to have harmful impact today. As many United States Vietnam era veterans know, dioxin is a highly toxic and persistent organic pollutant linked to cancers, diabetes, birth defects and other disabilities. The Red Cross estimates that three million Vietnamese have been affected by dioxin, including at least 150,000 children born with serious birth defects. Millions of Americans and Vietnamese are still affected, directly and indirectly, by the wartime U.S. spraying of Agent Orange and other herbicides over southern and central Vietnam. Agent Orange was sprayed at up to 20 times the concentration the manufacturers recommended for killing plants. It defoliated millions of acres of forests and farmland. Large tracts of that land remain degraded and unproductive to this day. The chemical dioxin in Agent Orange can remain toxic in the soil for decades. Soil samples have now been analyzed from both the areas that were heavily sprayed and the former American military bases where Agent Orange and other chemicals were stored and handled. In almost all instances measured dioxin levels were below Government of Vietnam threshold standards. However some soils at three of the former military bases did have very high concentrations of dioxin. To prevent dioxin from entering the food chain and affecting both adults and children in surrounding areas, these chemical “hot spots” are now being cleaned up. After its use in the 1960s, Agent Orange was banned by the U.S. in 1971 and remaining stocks were taken from Vietnam and the U.S. to Johnston Atoll, a U.S. controlled island about 700 miles SE of Hawaii, where it was destroyed in 1978. There is no ‘Agent Orange’ in Vietnam or anywhere else today.

### 7.2) White Phosphorus

White phosphorus is a chemical substance dispersed in artillery shells, bombs, and rockets that ignites when exposed to oxygen. It can set homes, agricultural areas, and other civilian objects on fire. Under international humanitarian law, the use of airburst white phosphorus is unlawfully indiscriminate in populated areas and does not meet the legal requirement to take all feasible precautions to avoid civilian harm.

White phosphorus can be used for multiple purposes, including to obscure, mark, signal, or directly attack military personnel and materiel. Concerns over its use in populated areas are amplified by the technique shown in videos of air-bursting white phosphorus projectiles, which spread 116 burning felt wedges impregnated with the substance over an area between 125 and 250 meters in diameter, depending on the altitude and angle of the burst, indiscriminately exposing more civilians and civilian structures to potential harm than a localized ground burst.

### 7.3) Bunker Busters

Bunker buster bombs, designed to penetrate deep underground before detonating, cause intense localized damage, including massive craters, ground sterilization and localized radioactive or chemical contamination if targeting hardened facilities. While intended to destroy, they can eject large amounts of dust and if nuclear, generate fallout, though the impact is often more contained than surface bursts.

### 7.4) Graphite Bomb

Graphite bomb (Sof Bomb) is a non lethal weapon which is used for shutting down the power supply systems of the enemy. The working mechanism of the graphite bomb is relatively simple and is based on making suspensions of air/clouds of carbon filament chemically treated extremely fine over the electricity supply. In addition, the effective use of this unconventional electronic attack system is based on critical points identification and disruption philosophy. Carbon filaments used inside of graphite bombs ae very small and may give rise to dense clouds, with a long persistence. Moreover, the name of soft bomb it comes from that its basic destructive effects are centered only on the electricity supply facilities, with minimal risk of occurrence of some collateral damage and particularly over the human staff. In other news, the effect of the graphite bomb is only over the equipment and facilities of uninsulated power supply. Figure 1 shows the effects of graffiti bombs launched by the US Air Force, on 22 March 2003 on a 400 kV Transformer station in the Electrical Power in Nasiriyya, which caused the power shortage in the city for 30 days.

## 7.5) Naval Mines

### 7.5.1)Definition the Naval Mines

A naval mine is a self-contained explosive system placed in the water deemed to destroy submarines and surface vessels. Mines are also used to deny the enemy access to areas and to quarantine the enemy into specific locations. The use of sea mines dates back to the American Revolution when David Brushnell, while a student at the Yale, discovered gunpowder could be exploded while underwater. In 1777, a portion of the British fleet was stationed at the Delaware River off Philadelphia. Bushnell was authorized by General George Washington to attempt to destroy some of them by the use of the newly invented sea mine. The mine consisted of a charge of gunpowder in a keg, which was supported by a float on the surface. In the keg with gunpowder. Although the device failed to damage  any British ships, the invention sparked considerable excitement among the Continental Navy and even the British.

There are three different types of mines. Drifting mines are placed in the water and move with the current. Moored mines are free to move but are restricted within the limits permitted by a rope and anchor that is attached to the mine. Bottom mines are not expected to move at all. Mines also differ in the way they are designed to be laid. Early on, most mines were laid from surface vessels that were carried on special tracks. Beginning in World War I, submarines started laying mines, and in World War II, aircraft laid mines in great numbers. Mines can also be modified to be laid by PT boats (short for patrol torpedo boat). Mines also differ in how they detonate. Contact mines require contact by a vessel for them to explode. Influence mines are detonated by the presence of a ship-be it magnetic, acoustic or pressure. Controlled mines are detonated from shore stations and are designed to be either offensive or defensive.

Until World War II, mşnes were generally considered defensive in nature to prevent the enemy from accessing certain areas, but during the war, thousands were laid in enemy waters as an offensive weapon.

### 7.5.2) The Devastating Effects of Mine Detonation on Marine Mammals

While the use of mines in war has far-reaching consequences, so too does their deactivation. Discovered Naval mines are typically "neutralised" by targeted detonation. This has devastating effects on marine life, including mammals. The explosions unleash enormous shockwaves and loud noises that can injure or even kill these animals. This is not just a risk to creatures in direct contact; the detonation of a single mine for instance can damage or destroy the auditory organs of marine mammals even if they are many kilometers away from the explosion. hearing is an essential sense for mammals that rely on the ocean to survive. As a result of the hearing impairment or loss, the animals can become isolated, unable to communicate or find food. This can lead to starvation and standing.

Researchers have estimated that the recent detonations of 88 naval mines in the Netherland's maritime area in just one year caused between 1,000 and 5,000 whales to permanently lose their hearing. In Germany, 24 harbour porpoises were found dead on the coast of the federal state of Schleswig-Holstein after several mines from World War II were detonated during a clearance operation in the Baltic Sea. In 8 of the 24 animals, subsequent examinations revealed a clear link to the blast injuries, suggesting that the explosions may have been fatal to these porpoises. In addition, two other animals were found with signs of blunt force trauma and evidence of blast injury. The critically endangered harbour porpoise can also be found in the Black Sea.

### 7.5.3) Using Deflagration

Detonation is not the only option for neutralising mines. These explosives can also be rendered harmless by a slow and controlled burning process known as deflagration. Preliminary studies conducted by the US Army several decades ago revealed deflagration to be a more effective, safer and cheaper method for clearing land mines. Unfortunately, research into this technology for use in neutralising naval mines remains limited.

8) **Environmental Modification Convention (ENMOD)**

In July 1974, USA and USSR agreed to hold bilateral discussions on measures to overcome the danger of the use of environmental modification techniques for military purposes and three subsequent rounds of discussions in 1974 and 1975. In August 1975, USA and USSR tabled identical draft texts of a convention at the Conference of the Committee on Disarmament (CCD), where intensive negotiations resulted in a modified text and understandings regarding four articles of this Convention in 1976.

The Convention was approved by resolution 31/72 of the General Assembly of the United Nations on 10 December 1976, by 96 to 8 votes with 30 abstentions.

The Convention contains 10 articles and one Annex on the Consultative Committee of Experts. An integral part of the Convention is also the Understandings relating to articles I, II, III and VIII. These Understandings are not incorporated into the Convention but are part of the negotiating record and were included in the report transmitted by the Conference of the Committee on Disarmament to the United Nations General Assembly in September 1976 Report of the Conference of the Committee on Disarmament, Volume I, General Assembly Official records.

Article I

1. Each State Party to this Convention undertak s not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.

2. Each State Party to this Convention undertakes not to assist, encourage or induce any State, group of States or international organization to engage in activities contrary to the provisions of paragraph 1 of this article.

Article II

As used in article I, the term "environmental modification techniques" refers to any technique for changing - through the deliberate manipulation of natural processes - the dynamics, composition or structure of the earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

Article III

1. The provisions of this Convention shall not hinder the use of environmental modification techniques for peaceful purposes and shall be without prejudice to the generally recognized principles and applicable rules of international law concerning such use.

2. The States Parties to this Convention undertake to facilitate, and have the right to participate in, the fullest possible exchange of scientific and technological information on the use of environmental modification techniques for peaceful purposes. States Parties in a position to do so shall contribute, alone or together with other States or international organizations, to international economic and scientific co-operation in the preservation, improvement and peaceful utilization of the environment, with due consideration for the needs of the developing areas of the world.

Article VI

1. Any State Party to this Convention may propose amendments to the Convention. The text of any proposed amendment shall be submitted to the Depositary, who shall promptly circulate it to all States Parties.

2. An amendment shall enter into force for all States Parties to this Convention which have accepted it, upon the deposit with the Depositary of instruments of acceptance by a majority of States Parties. Thereafter it shall enter into force for any remaining State Party on the date of deposit of its instrument of acceptance.

Article VII

This Convention shall be of unlimited duration.

Article VIII

1. Five years after the entry into force of this Convention, a conference of the States Parties to the Convention shall be convened by the Depositary at Geneva, Switzerland. The conference shall review the operation of the Convention with a view to ensuring that its purposes and provisions are being realized, and shall in particular examine the effectiveness of the provisions of paragraph 1 of article I in eliminating the dangers of military or any other hostile use of environmental modification techniques.

2. At intervals of not less than five years thereafter, a majority of the States Parties to this Convention may obtain, by submitting a proposal to this effect to the Depositary, the convening of a conference with the same objectives.

3. If no conference has been convened pursuant to paragraph 2 of this article within ten years following the conclusion of a previous conference, the Depositary shall solicit the views of all States Parties to this Convention, concerning the convening of such a conference. If one third or ten of the States Parties, whichever number is less, respond affirmatively, the Depositary shall take immediate steps to convene the conference.

## 9) Questions to be Addressed

How can governments limit the use of weapons in conflicts, and how can compliance with these limits be ensured?

What kind of sanctions could be imposed on the side that initiates the action as a result of potential biological or ecological attacks, and how can the effective implementation of these sanctions be ensured?

What measures can governments take to ensure that wildlife is not harmed and habitats are protected in the event of potential conflicts, and how can this be ensured for all nations?

Can governments further strengthen existing agreements between themselves, or can they establish new and more efficient agreements?

Is it possible for governments to impose sanctions fairly nowadays due to past biological and ecological attacks? If so, under what conditions could this be achieved?

## 10) Bibliography


https://www.icrc.org/en/law-and-policy/explosive-remnants-war
https://www.unep.org/
https://www.ebsco.com/research-starters/military-history-and-science/native-american-warfare
https://www.britannica.com/event/Second-Sino-Japanese-War
https://www.ufu.de/en/the-vietnam-war-and-its-consequences-for-the-environment/
https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/war-worsens-climate-and-environmental-challenges-ukraine-2025-04-11_en
https://www.ebsco.com/research-starters/military-history-and-science/russo-ukrainian-war
https://pure.iiasa.ac.at/id/eprint/7427/
https://www.britannica.com/event/Persian-Gulf-War#ref348752
https://disarmament.unoda.org/en/our-work/weapons-mass-destruction/convention-prohibition-military-or-any-other-hostile-use-environmental-modification-techniques
https://www.researchgate.net/publication/303354528_THE_GRAPHITE_BOMB_AN_OVERVIEW_OF_ITS_BASIC_MILITARY_APPLICATIONS
https://www.hrw.org/news/2026/03/09/lebanon-israel-unlawfully-using-white-phosphorus
https://www.aspeninstitute.org/programs/agent-orange-in-vietnam-program/what-is-agent-orange/
https://treaties.un.org/doc/Treaties/1978/10/19781005%2000-39%20AM/Ch_XXVI_01p.pdf,
https://pmc.ncbi.nlm.nih.gov/articles/PMC12480190/
https://www.britannica.com/topic/Native-American/Native-Americans-and-colonization-the-16th-and-17th-centuries
https://www.britannica.com/event/atomic-bombings-of-Hiroshima-and-Nagasaki
https://www.history.navy.mil/browse-by-topic/exploration-and-innovation/naval-mine-warfare.html
https://www.greenpeace.org/static/planet4-romania-stateless/2024/06/7b5c64be-en_mines_risk_analysis_black_sea.pdf