

Forum: Disarmament & International Security Committee (GA1)

Issue: Tracking and tackling the illicit production and distribution of chemical weapons

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INTRODUCTION

Warfare can be characterized as a situation in which two or more nations are involved with the primary aim of eliminating each other. Under the umbrella term of “warfare”, one can distinguish the fact that armed conflict is the essence of how warfare develops and, along with strategy and tactics, it involves more advanced weapons in order to acquire an advantage against the opposite contextual belligerent. One particular type of weapons are chemical weapons, being the most recently invented, involving concepts such as artificial intelligence, nuclear power as well as mass destruction.

Throughout history, the types of weapons used ranged from wooden sticks, knives and swords to firearms and mass target weapons. These weapons were used as a defensive or offensive mechanism in a variety of conflicts starting from the ancient times up until the first World War in 1914. In the presence of aggressive expansionism from major powers in the early 1900’s, all weapons used incorporated attrition, meaning long-lasting use in order to counter the opponent. After the Industrial Revolution took over powerful economies such as the United States, Russia and Germany faced radical industrialization, during that time period chemical weapons came in the foreground as an offensive tool to essentially eradicate both opponents as well as innocent civilians in the face of conflict.

When it comes to chemical weapon production and distribution, current possession and production has been declared by the United States and DPRK but has been severely restricted but not entirely eliminated by the Chemical Weapons Convention and named Treaty of 2012. In this study guide, there will be an elaborate analysis on the production of chemical weapons on a worldwide scale focusing on an economic state & weapon storage proportionality. In accordance with international law standards, chemical weapon production and dispersion is illicit taking into consideration the vast attempts of the UN to limit the probability of chemical warfare in the aftermath of both World War II and the Cold War in the 1900s. One of the main steps towards tackling the aforementioned situation is an ability to track their production and further ensuring their elimination from the military scene.

DEFINITION OF KEY-TERMS

Arsines

A colorless and flammable extremely poisonous gas

Biological Weapons

“Biological weapons are either microorganisms like virus, bacteria or fungi, or toxic substances produced by living organisms that are produced and released deliberately to cause disease and death in humans, animals or plants.”¹ Biological weapons were used during the Second World War by Japanese soldiers who implanted cholera and typhus viruses into Chinese water wells.

Bromoacetates

A riot control agent, used to by police forces disband riots

Cargo ship

“Any kind of a ship or any other vessel that transports heavy goods and materials from one port to another is called a cargo ship.”²

Chemical agent

“The term chemical agent means any chemical compound as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally.”³

Chemical Weapons

“A Chemical Weapon is a chemical used to cause intentional death or harm through its toxic properties. Munitions, devices, and other equipment specifically designed to weaponize toxic chemicals also fall under the definition of chemical weapons.”⁴ Chemical weapons have been used in the two World Wars as weapons of mass destruction to eliminate entire populations such as tear gases and chlorine gas.

¹ "Biological Weapons." WHO | World Health Organization, 4 Dec. 2019, www.who.int/health-topics/biological-weapons#tab=tab_1.

² "What Are Cargo Ships?" Marine Insight, 9 Oct. 2019, www.marineinsight.com/types-of-ships/what-are-cargo-ships/.

³ "What Are Chemicals Agents?" Health and Safety Authority, www.hsa.ie/eng/your_industry/chemicals/legislation_enforcement/chemical_agents_and_carcinogens/chemical_agents/what_are_chemicals_agents/.

⁴ "What is a Chemical Weapon?" OPCW, www.opcw.org/our-work/what-chemical-weapon.

Disarmament

“Disarmament is defined as a reduction in or limitation of the number of weapons in the armed forces of a country.”⁵ Disarmament was experienced heavily by Germany when its army was reduced to less than 100,000 men upon the end of World War I.

Nerve Agent

A substance that disrupts the transmission of nerve impulses, thus causing asphyxiation or even cardiac arrests, as the body can't function properly. Especially common with chemical weapons

Nuclear Weapons

“A nuclear weapon is a device that uses a nuclear reaction to create an explosion. This explosion is much more powerful than that of conventional explosives (like TNT).”⁶ nuclear weapons were utilized by the US Army during World War II in the bombing of Hiroshima and Nagasaki.

Stockpile

“Stockpile is defined as a large number of weapons that are kept ready for future use.”⁷

Weapons of Mass Destruction (WMD)

“A weapon of mass destruction is a nuclear, radiological, chemical, biological, or other device that is intended to harm a large number of people.”⁸ The bombings of Hiroshima and Nagasaki were part of a US military plan to use WMD.

⁵ "Disarmament." Cambridge Dictionary | English Dictionary, Translations & Thesaurus, dictionary.cambridge.org/dictionary/english/disarmament.

⁶ "Nuclear Weapon." Centers for Disease Control and Prevention, 6 Feb. 2020, www.cdc.gov/nceh/multimedia/infographics/nuclear_weapon.html.

⁷ "Stockpile." Cambridge Dictionary | English Dictionary, Translations & Thesaurus, dictionary.cambridge.org/dictionary/english/stockpile.

⁸ "Weapons of Mass Destruction." Homeland Security, 30 Nov. 2021, www.dhs.gov/topics/weapons-mass-destruction.

BACKGROUND INFORMATION

Use of Chemical Weapons throughout history

Industrialization Era

The first reference to modern chemical warfare was made during the 19th century in response to the rapid industrialization governing Europe and the US at the time. Initially, cacodyl cyanide, a poisonous blood agent, was used in the Crimean War supplied by Great Britain to the Ottoman Empire⁹. This was also a determining factor in the Empire's victory at the time. The use of chlorine gas was also proposed during the American Civil War by the Unionists and the growing concern over chemical weapons was brought in the foreground during the 1899 Hague Conference. There, the international prohibition of the use of damaging gases received a wide majority vote while the US voted against. Even so, the conference can be seen as a hoax as it did not prohibit the use of chemical weapons in later conflicts.

World War I

World War I marked the first war in which both belligerents utilized a type of poisonous gas falling under bromoacetates. Especially coming from the Central Powers, Germany manipulated a variety of irritating chemicals to cause a major disadvantage towards the Western Front (France). During the Battle of Ypres in April 1915, the use of chlorine gas by the Germans led to the death of thousands of French and British troops, winning the battle for the Germans. Mustard gas and arsines were used by the Allies in an attempt to counter the German offensives in conjunction with anti-chemical gas masks and protective military uniforms. The aftermath of the war indicated the power chemical weapons had unique and unforeseen properties seeing the millions of casualties they provoked and their potential use in battles. In total, around 90,000 people died due to chemical weapons (around 3% of total deaths) but more than 500,000 soldiers died in the aftermath of the weapons' use due to cancer, blisters and infections.

Overall, World War I was significantly stigmatized by the use of mustard gas as it was one of the primary reasons why a movement to stop the chemical weapons started. Mustard gas caused 2-3%¹⁰ mortality rate but long-lasting hospitalizations and incapacitations of most people that came in contact with it. Mustard gas causes immense blisters and skin irritation to a point where the person that came in contact with it is

⁹ Miles, Wyndham D. "The Idea of Chemical Warfare in Modern Times." *Journal of the History of Ideas*, vol. 31, no. 2, 1970, pp. 297–304. JSTOR, <https://doi.org/10.2307/2708553>. Accessed 19 Jun. 2022.

¹⁰ "Gas in The Great War." University of Kansas Medical Center, www.kumc.edu/school-of-medicine/academics/departments/history-and-philosophy-of-medicine/archives/wwi/essays/medicine/gas-in-the-great-war.html.

unable to walk, talk, and show signs of pain in order to be taken care of. It was also the starting point for the drafting of the Geneva Protocols for banning them as will be analyzed below.

Figure 1¹¹: Image depicting the use of anti-chemical gas masks by the French troops in the Battle of Ypres (1916)



World War II

Even from the Interwar years where Italy, Spain and Great Britain utilized mustard gas to suppress populations in Africa and Asia, chemical weapons had a threatening presence in the military scene. With the spark of World War II, chemical weapons came again into the foreground, easy and cheap to produce, lethal and very effective offensive tools, chemicals weapons yet again became the most preferred weapon by both Germans and the Allies. Nazi Germany, during the perpetration of the Holocaust, used hydrogen cyanide to eliminate minorities and the Jewish population while Western Allies preferred the use of mustard gas as an offensive counter attacking weapon. Overall, the casualties recorded skyrocketed since WWI reaching an estimate of 1.3 million and around 100,000 fatalities showing how lethal chemical weapons are and the need to be controlled.

The US had a significant role in chemical weapon production at the time as by 1945, it acquired the most advanced chemical weapons in its inventory but never used it hinting at a potential future use in perhaps another conflict. Before the Cold War occurred, the US acquired most of the German nerve agents that were used to develop anti-nerve agent equipment for future use and to counter potential attacks. The anti-nerve agent tools were developed before 1950 and thus the inventory expanded on a larger rate. Along with these tools, the US started importing fentanyl and ketamine in order to build up storage for tranquilizing opponents. In addition, the US inventory expanded by the implantation of riot control agents which were agents that could temporarily terminate a riot by causing respiratory difficulties to its participants. The above were showcased in the US involvement in the Vietnam War, as will be analyzed below, and the fact that this inventory was held back from the public eye aided the US in having an initial advantage during the Cold War.

¹¹ Schulte, Paul. "When Chemical Weapons Killed 90,000." CNN, 9 Nov. 2018, edition.cnn.com/2018/11/08/opinions/schulte-chemical-weapons-world-war-i-x/index.html.

Post-war years

In the post-World War II era, chemical weapons became less popular amongst soldiers and weapon arsenals. The outbreak Cold War however, created a new wave of weapon production with both the US and USSR developing chemical weapons like binary, nerve agents and thermonuclear weapons in preparation for a potential attack against each other. The Cold War sparked a period of constant research on chemical weapons with particular emphasis in their nuclear character. Overall, this era saw great advancements in the field. With the exception of their mild usage in conflicts such as the Iran-Iraq war, the Persian Gulf War, the Vietnam War, and the Syrian Civil War in which European countries and the USA intervened, chemical weapons were simply feared by both citizens and soldiers due to their deadly effects.



Figure 2¹²: Image depicting the aftermath of a chemical attack in the Syrian Civil War (2017)

As it will be further analyzed below, chemical weapons became part of international law after the end of the Cold War in the 1990's. The United Nations decided to take action in order to prohibit the further production, stockpiling and distribution of such weapons. This action falls under the Chemical Weapon Convention of 1997. This convention was initially implemented as a fear-driven response by the UN seeing the casualties chemical weapons caused in the Vietnam War and in the Iran-Iraq War. Member-states of the UN started signing and ratifying the convention but, until now, DPRK, Egypt and South Sudan has neither signed nor ratified the convention and Russia has broken all regulations affiliated with the convention as will be further elaborated

¹² AsiaNews.it. "UN: Syrian Government Used Chemical Weapons in Khan Sheikhoun Attack." VATICANO Papa: Case E Luoghi Di Culto Bruciati in Myanmar, Si Rispetti Il Diritto Alla Vita, www.asianews.it/news-en/UN:-Syrian-government-used-chemical-weapons-in-Khan-Sheikhoun-attack-42167.html

below. Overall, this attempt was the defining one in minimizing the storage and usage of chemical weapons by setting reporting deadlines for all countries as well as goals and rules on how to properly dispose these weapons.

Chemical Weapons in the Vietnam War

As part of the Cold War and during the era of the Cold War, the Vietnam War occurred between communist and capitalist forces. This war can be characterized as one of the battlefields between the Soviet Union and the US as, ideologically speaking, each belligerent supported each side of the Cold War and each belligerent received military support from the US or the Soviet Union. Chemical weapons are a characteristic aspect of the war and more specifically Agent Orange and Napalm.

Agent Orange is a chemical herbicide that was used by the US to inflict a national crop malfunction and starvation. As part of US's herbicidal warfare program, this agent eliminated an estimated 70% of Vietnamese crops in addition to eradicating acres of land from trees to prohibit guerilla warfare by the opponents. Even though a war technique, Agent Orange proved to be not only lethal but also having long-lasting effects. Most of Vietnam US veterans have been exposed to the agent as well as Vietnam civilians and currently exhibit significant respiratory and circulation issues along with difficulty moving and standing. Agent Orange caused many casualties (around 400,000) while 90% of Vietnamese land was sprayed.¹³

Chemical Weapons in the Iran-Iraq War

From 1980 up until 1988, the Iran-Iraq War can be characterized as a major warfare occurring in the Middle East. This war was significantly stigmatized by the use of chemical weapons and more specifically by Iraq against Iran. The Iraqi army primarily utilized nerve agents such as Tabun, Sahir and most critically mustard gas to cause vomiting attacks as well as incapacitation of soldiers and civilians in nearby districts. Elaborating further, in August of 1983, chemical weapons and more specifically mustard gas were employed on the Piranshahr battlefield causing around 3,000 to 5,000 casualties as this marked the first-time chemical weapons were used in the conflict. In February of 1986, in the determining Operation Dawn 8, Tabun nerve agent was able to incapacitate more than 10,000 Iranian soldiers causing around 7,000 to 9,000 casualties showcasing how powerful chemical weapons are when discussing warfare.

¹³ "The U.S. Military and the Herbicide Program in Vietnam - Veterans and Agent Orange - NCBI Bookshelf." National Center for Biotechnology Information, www.ncbi.nlm.nih.gov/books/NBK236347/.

Overall, the Iranian army suffered more than 50,000 deaths and 70,000 casualties whilst also causing significant long-lasting health conditions to Irani civilians as well as Iraqi soldiers that had to utilize the chemical weapon equipment correctly. Lastly, after almost 350 bombings by the Iraqi army, the Iranian territory was severely marked, and the country was partially destroyed.

Production of Chemical Agents

Chemical weapons can be categorized by the agents they use. These agents are characterized as classic and vesicant, nerve, incapacitating and toxins. Their production varies based on the accessible equipment as well as on the producers, who decide how strong or deadly their creation will be. Along with how they can be potentially countered in the context of a battle as will be analyzed below.

Classic and vesicant agents can be characterized as the simplest form of chemical weapons to be manufactured as it does not need any special chemically related infrastructure. Examples include chlorine gas which was widely used throughout history as well as hydrogen cyanide (HCN). HCN, when being solid, is one of the easiest toxic substances to be formed as it is present while plastic decomposes. Thus, the above-mentioned agents can for these reasons also be mass produced in the form of mustard. However, even though they can be countered with gas masks as already seen in World War I, most likely such agents like chlorine gas severely harm populations with no experience in acting against them, in layman's terms civilians, supposed to be protected by the Geneva convention.

Nerve Agents need a more sophisticated approach towards how they will be chemically processed. Their manufacturing requests corrosion-resistant tools and equipment which are both extremely expensive and dangerous to acquire and utilize. These agents are extremely reactive in contact with oxygen making them widely harmful in combat. Examples of such agents were produced by the Soviet Union during the Cold War. The Soviet rich in fluorine grounds were perfect for the mass production of nerve agents. Due to their toxic nature and extent of contamination, counter-equipment has yet to be found listing them as one of the most destructive chemical weapons.

Another type of chemical weapon when it comes to its production are incapacitating agents in conjunction with toxins. These agents are produced through the exploitation of naturally occurring phosphates and uranium isotopes and their harmful nature comes from the intoxication of equipment and consumable resources. This means that the incapacitating agents are usually obtained easily but need complex editing and can be used to infect military equipment e.g. army jackets, clothing and shoes along with food. The synthesis of incapacitating agents and toxins require complex biotechnology, yet it is only possible to only produce very small concentrations per batch. The substances in those chemical weapons are especially unstable

within a warfare environment making them extremely difficult to control as well as partially dangerous to the producers themselves.



Figure 3¹⁴: Image depicting a mustard agent production facility no longer in use in Pueblo, US (2020)

Storage and Distribution of Chemical Agents

Storage and distribution of chemical weapons under their respective agents is one of the most prevalent issues when it comes to the said topic. As it will be analyzed in another section, production of chemical weapons has ultimately been prohibited by a series of international laws and thus, even though violations may occur, existing chemical weapons produced during the Cold War or during other wars of the 21st century need to be safely stored or, if possible, safely discarded.

Most chemical weapons of already mentioned agents are stored under low pressure and with the complete exclusion of oxygen and hydrating particles. These weapons are placed in bulk containers loaded into ammunition and kept in appropriate bunkers and facilities. In the United States specifically, there have been instances of chemical agents stored exploding and thus destroying their shielding leading to a series of exotherm chemical reactions that produced immense heat, harmful fumes, and lethal gases¹⁵. This highlighted the need for a more advanced way to store chemical weapons and essentially prohibit their damaging nature while they are being kept under special conditions.

As far as distribution of such weapons is concerned, it is pivotal to acknowledge that transnational distribution of chemical weapons was prohibited under the Geneva Protocol and

¹⁴ "DOD Approaches Goal of Destroying All Stockpiled Chemical Weapons." U.S. Department of Defense, 21 Sept. 2020, www.defense.gov/News/News-Stories/Article/Article/2354786/dod-approaches-goal-of-destroying-all-stockpiled-chemical-weapons/.

¹⁵ "BP America Refinery Explosion." 23 Mar. 2020, www.csb.gov/bp-america-refinery-explosion/.

also unreasonable as it offers quite of an advantage to one nation. When talking about distribution, it is implied that chemical weapons are being distributed within a nation and the nation's allies as it was the instance of the United States during the Cold War when the government transferred the chemical weapons from bunkers in Texas to Florida¹⁶ and to the French Harbor so as to be nearby potential Soviet Union fronts. In that characteristic instance, when the US sent the chemical ammunition to France, the mustard gas stored in the cargo ship was released unwittingly burning as a result the entire ship down, sinking it and contaminating all passengers and crew. Those who were able to make it suffered the consequences of the accident and died trying to reach the shore making the "John Harvey" incident¹⁷ one of the deadliest instances of chemical weapons outside conflict.

As exhibited above, storage and distribution of chemical weapons has ultimately proved their dangerous nature taking into consideration how easy it is for them to literally burn down entire warehouses. Another aspect of the weapons' distribution is how they are transported. The usual method is through transport (or cargo) ships. Transport ships are motivated by the need to improve the war effort of belligerents. Tracking the distribution of chemical weapons within a nation after the prohibition by the Geneva Protocol is a way to combat any potential mishaps when it comes to the dangers of chemical weapons. More advanced technology in regard to their safe storage is also needed to ensure that chemical weapons do not pose a threat as shown by a variety of instances.



Figure 4¹⁸: Image depicting storage units of chemical weapons in Iraq post the Iran-Iraq war (2018)

Environmental Hazards of Chemical Weapons

Numerous geologic variables influence the pace of a chemical agents release from their original casings, making risk of release into seawater a very likely scenario. The most environmentally persistent discharged chemical agents are sulfur mustard and arsenicals. Sulfur

¹⁶ "Transfer of Chemical Weapons during the Cold War." www.nationalacademies.org/news/1997/05/cold-war-chemical-tests-over-american-cities-were-far-below-dangerous-levels.

¹⁷ Conant, Jennet. "How a WWII Disaster—and Cover-up—Led to a Cancer Treatment Breakthrough." HISTORY, 12 Aug. 2020, www.history.com/news/wwii-disaster-bari-mustard-gas.

¹⁸ Sydnese, Leiv K. "How to Curb Production of Chemical Weapons." Nature News, Nature Publishing Group, 13 Apr. 2018, <https://www.nature.com/articles/d41586-018-04579-2>.

mustard, in particular, is prone to forming a solid or fluid-resembling mass with a polymer coating of breakdown products, which can last for decades on the ocean floor. Arsenicals gradually break down into arsenic, creating a vigorous contamination scale on the local environment. Although arsenic levels are frequently greater in dumpsites than in actual inhabited areas, investigations assessing sediment and appearance levels of parent chemical agents and breakdown products at dumpsites have generally identified limited concentrations of pertinent compounds. The presence of chemical agents or breakdown products in tissue of marine species has not been shown to be alarming, but there has been evidence of chronic toxicity. Although consumption of seafood is thought to pose just a minor risk to both marine life and humans, the toxicity levels of the oceans have been altered, thus implying that dumpsite ecosystems have undergone unobserved but significant alterations.

Apart from mentioned environmental hazard, chemical weapons have had intense effect on agriculture and livestock. Characteristic example is in the aftermath of the Malayan Emergency of 1948 in Malaysia where herbicides were thrown above Malayan crops in an attempt to limit agricultural resources that aided one belligerent over the other. Along with agricultural damage, livestock is a subject of attack by chemical weapons such as anthrax and glanders. Especially in World War I, these chemicals infected cavalry horses and livestock in Romania and Argentina by the Allies. On a later note, with the use of highly infectious gases, French operations in Switzerland post- World War II and Soviet operations in neighboring communist countries in the Cold War managed to inevitably but not purposefully sicken pigs, chicken, and horses in the area. The effect of the elimination of livestock was enhanced imports, meaning economic hardship, as well as local and short-term famines like in the Soviet Union, where 7 to 9 million casualties were recorded as well as in India where 2 million casualties were recorded.¹⁹

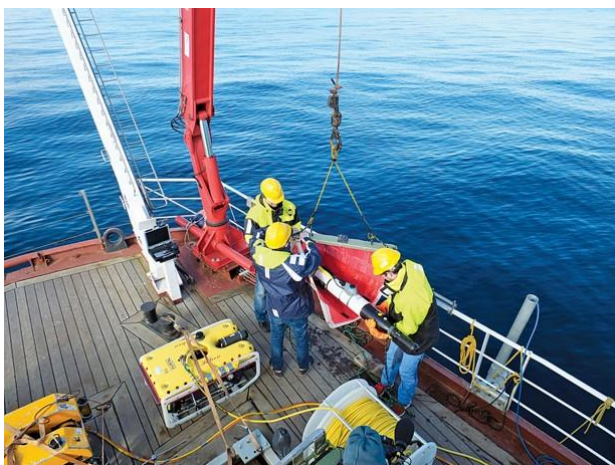


Figure 5²⁰: Image depicting researchers launching a chemical agent (arsenic and mustard gas) into the Baltic Sea (2020)

¹⁹ "The Famines of WWII." VOX, CEPR Policy Portal, voxeu.org/article/famines-wwii.

²⁰ "Chemical Weapons Dumped After World War II Are Polluting the Baltic Sea." Chemical & Engineering News, cen.acs.org/environment/pollution/Chemical-weapons-dumped-World-War/98/i37.

Risks to Global Safety and Security

As already exhibited above, despite the ongoing attempts to disarm countries from chemical weapons, there are still countries that own and produce chemical weapons. These countries are the ones that have not signed or ratified the Chemical Weapons Convention and do not abide by the international standards for the general storage of chemical weapons. By nations keeping chemical weapons such as arsenals, nerve agents, mustard gas and chlorine gas in their storage units, there is constantly a fear of attack as well as a fear that misuse may happen and severely damage workers along with nearby civilians, as already analyzed above.

By not abiding to international law when it comes to an issue of vast importance like chemical weapons, a country has the ability to attack another country while in conflict with these weapons. A characteristic and also recent example is the Russian insurgency in Ukraine. Mariupol civilians have reported seeing a “white smoke”²¹ coming to Mariupol and causing significant illness to whoever came in contact with the gas. Respiratory failure was the first symptom to be reported and then a huge movement started accusing Russia of using the stockpiled chemical weapons it has not gotten rid of against Mariupol to seize the area. Even though the example seems truthful and utmost possible, there has not been a confirmation by neither Russian officials or outsiders of what this white smoke could have been and thus no consensus can be reached. Either way, it is still an instance where chemical weapons could be used with no restriction from international standards or from a third country showcasing how dangerous they are to global safety and security.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

Libya

Libya can be characterized as a less economically developed country (LEDC) in North Africa and one of the few countries in Africa that surrounded its military expenditure in acquiring weapons of mass destruction. Even from the coup of 1969, Libya initiated a program to acquire nuclear and chemical weapons in order to potentially counter the Israeli nuclear program under the military leader Muammar Qadhafi. Due to the pressuring from the Non-Proliferation Treaty (1968) along with the International Atomic Agency, disarmament when it comes to WMD needed to be done in the entirety of the country. Specifically, the pressuring resulted in them signing the Chemical Weapons Convention in 2004. Resultingly, thousands of tons of mustard gas, sarin and munition were discarded. There was significant assistance from the United States and the United Kingdom in transporting the chemicals out of the country. The case study of Libya shows how

²¹ "Did Russia Really Use Chemical Weapons in Ukraine? Experts Are Sceptical." The Guardian, 13 Apr. 2022, www.theguardian.com/world/2022/apr/12/did-russia-really-use-chemical-weapons-mariupol-ukraine-expert-remain-sceptical.

even LEDCs produce and utilize chemical weapons to their advantage and how the disarmament occurs in the presence of foreign assistance to ensure safety for all personnel.

United States of America

It is no secret that the United States of America plays a pivotal role in the chemical weapon scenery throughout history until the present day. The US chemical weapons program began in 1917 with the formation of the US Army's Gas Service Section during World War I and concluded 73 years later in 1990 with the country's formal ratification of the Chemical Weapons Convention in the aftermath of the Cold War. Chemical weapons stockpile destruction began in 1985 and is still ongoing due to the significant amount of such weapons the US has stored. Apart from being especially present in the production of chemical weapons, the US has been involved in the disarmament of a plethora of countries including as stated Libya, Angola, and Syria with essential focus on the clauses of the CWC. Currently, there has been an overall 90% reduction on the stockpile of the American chemical weapon depot²² especially in Utah, Arkansas, and Oregon where the vast majority of chemical weapons are located.

Russia

Russia is suspected of possessing or having previously possessed weapons of mass destruction such as nuclear and chemical weapons. Currently, Russia possesses the most chemical weapons globally with slow steps towards disarmament that took a sharp halt in the aftermath of the Russian insurgency in Ukraine. The predecessor of Russia, the Soviet Union, during the Cold War, produced thousands of tons of chemical weapons during the nuclear power race with the United States. These weapons remained in stockpile for the entirety of the 1990s and disarmament was supposedly initiated in Russia's signing of the Chemical Weapons Convention (CWC). Afterwards, Russia destroyed only 1% of its chemical weapons thus fulfilling the convention's obligations and never met another deadline by the supervising committee again with the exception of the committee's declaration that Russia did not have any more chemical weapons in its stockpile²³. However, this was countered by the invasion of Mariupol where Ukrainians claim that Russia utilized chemical weapons to destroy the local population, as already mentioned above.

North Korea

North Korea started to formulate its chemical industry and chemical weapon (CW) program in 1954, promptly taking after the conclusion of the Korean War. Throughout the rest

²² "U.S. Meets Milestone in Chemical Weapons Stockpile Destruction." U.S. Department of Defense, 19 May 2022, www.defense.gov/News/News-Stories/Article/Article/3036463/us-meets-milestone-in-chemical-weapons-stockpile-destruction/.

²³ Knopf, Jeffrey W. "Russia Isn't Likely to Use Chemical Weapons in Ukraine – Unless Putin Grows Desperate." The Conversation, 12 Apr. 2022, theconversation.com/russia-isnt-likely-to-use-chemical-weapons-in-ukraine-unless-putin-grows-desperate-180534.

of the 20th century, Kim Il Sung declared that North Korea will be “chemicalized” in an attempt to recover the country from the Korean War and improve its industry and agriculture. By 1979, an assessment from the US government found that North Korea is ready to use poison gas if a conflict is provoked and that bacterial weapons have been provided in assistance with Soviet scientists. Since then, North Korea has refused the possession of any nuclear or chemical weapons even though this statement was falsified by investigations²⁴ showing possession of 2 to 5 thousand metric tons of chemical weapons, making it a danger to the global community and security. Apart from the fact that its use of military tools is unrestricted, North Korea has not signed the CWC thus there has not been any attempt in disarmament and restriction of chemical weapon use and potential misuse as well.

Albania

Albania was one of the first countries to ratify the CWC in 1993. It initially declared a minor stockpile of weapons of mass destruction that was obtained during the Cold War after being distributed by the Soviet Union. Upon the signing of the mentioned convention, Albania was the first country to fully disarm from chemical weapons with the assistance of the US and declare that all chemical weapons have been destroyed.

United Nations Office for Disarmament Affairs (UNODA)

The UNODA is an office of the UN Secretariat responsible for all disarmament affairs amongst its member states. It was created under Kofi Annan and its goal is to enhance disarmament when it comes to chemical, nuclear and biological weapons as well as landmines and small arms to prevent the outbreak of any local or even international conflict. One branch of the office is the weapons of mass destruction branch that aided in the formation of the Chemical Weapons Convention (CWC) in 1997 as well as the Organization for the Prohibition of Chemical Weapons (OPCW) upon the CWC ratification.

Organization for the Prohibition of Chemical Weapons (OPCW)

The Organization for the Prohibition of Chemical Weapons (OPCW) is an organization founded by the UNODA upon the signing of the Chemical Weapons Convention (CWC). Its headquarters are in The Hague, Netherlands and currently 198 nations are serving in the supervision of the use of chemical weapons worldwide aiming at their destruction. Its mission is “to ensure a credible, transparent regime to verify the destruction of chemical weapons; to prevent their re-emergence in any member State; to provide protection and assistance against chemical weapons; to encourage international cooperation in the peaceful uses of chemistry.”²⁵

²⁴ "North Korea Overview." The Nuclear Threat Initiative, 16 Nov. 2021, www.nti.org/analysis/articles/north-korea-overview/.

²⁵ "Mission." OPCW, www.opcw.org/about/mission.

United Nations Institute for Disarmament Research (UNIDIR)

The United Nations Institute for Disarmament Research is an autonomous disarmament and international security-oriented institution. Its primary role in the chemical weapon scene is to research on aforementioned topics and mediate potential conflicts that may arise when it comes to disarmament and arms control. One of the branches of disarmament the organization focuses on is chemical weapons elimination and has launched raising awareness projects to inform the wider population on nuclear and chemical security.

TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
1899 & 1907	The Hague Conference occurred where the Hague Conventions were signed
1980	Formation of the United Nations Institute for Disarmament Research (UNIDIR)
1954	North Korea launched its nuclear weapon program
22 April 1915 – 25 May 1915	Second Battle of Ypres occurred in the western Flanders
28 June 1918	Formation of US Army Gas Service Section
28 July 1914 – 11 November 1918	World War I
8 February 1928	Geneva Protocol put into force
1 September 1939 – 2 September 1945	World War II
5 March 1970	Non-Proliferation of Nuclear Weapons Treaty put into force
22 September 1980 – 20 August 1988	Iran-Iraq War
August 1983	Battle of the Piranshahr as part of the Iran-Iraq War
February 1986	Operation Dawn 8 as part of the Iran-Iraq War

2 August 1990 – 28 February 1991	Persian Gulf War
12 March 1947 – 26 December 1991	Cold War
29 April 1997	Chemical Weapons Convention was officially put into force & formation of OPCW
1 January 1998	Formation of the United States Office for Disarmament Affairs (UNODA)
28 April – 9 May 2003	First CWC Review Conference took place
28 April 2004	The UNSC Resolution 1540 was adopted
7-18 April 2008	Second CWC Review Conference took place
15 March 2011 ongoing	Syrian Civil War is occurring
8-19 April 2013	Third CWC Review Conference took place

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

1899 Hague Convention

As already mentioned, the use of chemical weapons was initially brought in the foreground during the 1899 Hague Conference that mentioned the prohibition of the use of poison in case of conflict. Due to its significant vagueness as well as the restricting measures it involved (cutting expenditure towards chemical research of any kind), many of its clauses were violated and at most ignored. The essence of chemical weapon regulation from this convention was for member states to 'abstain from the use of projectiles, the sole object of which is the diffusion of asphyxiating or deleterious gases'. This regulation was not followed with definitions of what "asphyxiating" and "deleterious" gases meant and that is why it is characterized as vague. Additionally, countries and especially the ones that had an authoritarian or monarchical regime at the time (e.g. German Empire, Spain, British Empire) were not taking legislations that had an international impact seriously as their own military and economic power overshadowed international conventions.

Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925)

An initial attempt at preventing the use of chemical weapons in the aftermath of World War I was the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare or Geneva Protocol for short. The Geneva Protocol was signed in Geneva, Switzerland and on 17th June 1925 under the League of Nations. Its primary aim was to prohibit any usage of chemical or biological aid in international warfare and supervise how already existing chemical weapons are controlled. The protocol was ratified by all belligerents of World War I but most of World War II belligerents (including the US, Russia, and Great Britain) have raised reservations causing their non-conformity in the Geneva Protocol. After World War II, the Geneva Protocol was ultimately incorporated under international customary law despite the fact that it contained one major limitation: there was no control on the production and storage of chemical weapons which is the primary focus of the issue, only on their usage.

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (29th April 1997)

The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, or, as known, Chemical Weapons Convention (CWC) can be characterized as a multilateral treaty that essentially prohibits the use of chemical weapons and orders for their complete elimination within a set of deadlines. This treaty pioneered in the chemical weapon scene as it was the first one to ultimately prohibit the production and distribution of chemical weapons of any kind and it entered into force on 29th April 1997. It was reported that approximately 98% of the chemicals that existed in the aftermath of the Cold War have been erased from the military scene proving the effectiveness of the treaty. The supervision to ensure that all articles are respected is done by OPCW as already explained above. Its very name covers the entirety of the chemical weapons category and its elaborate articles have had immense effect since the convention was the pretext for the halt in chemical weapon usage. One primary limitation however is that major military countries like Egypt and North Korea have not signed the treaty and are unwilling to causing increasing tensions when it comes to the convention's international implementation.

CWC Review Conferences (2003, 2008, 2013)

The three CWC Review Conferences occurred in 2003, 2008 and 2013. The first one which occurred from 28th of April up until 9th of May 2003 had an assessment character as the state parties evaluated how the convention affected military and internal and external affairs within countries. The conclusion was overall positive as more emphasis was put in disarmament, halt of production and distribution. The second conference occurred from 7th to 18th of April 2008, and it marked the involvement of 33 more state parties ratifying the convention. During the

conference, Albania was ultimately praised when it comes to the complete elimination of its chemical stockpile. The third and most recent conference occurred from 8th to 19th April 2013 and included a comprehensive review of the status of all state parties when it comes to the convention's goals as well as allowed non-governmental organizations (NGOs) to spread their word by inviting them to speak.

UN Security Council Resolution 1540 (2004)

The UN Security Council Resolution 1540 was adopted in 2004 and it declared that all State parties shall avoid assisting through any form non-State party perpetrators that aim at developing, acquiring, manufacturing, possessing, transporting, transferring, or using nuclear, chemical, or biological weapons and distributing them with emphasis on terrorism. This resolution requires all member States to reenforce appropriate legislations to make sure that the aim of it is sustained on a global level. This resolution was deemed successful as there has been no intervention to non-state parties' military affairs as far as chemical weapons are concerned.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Since all countries are following a set of rules put forth by the Chemical Weapons Convention, no individual country has taken any additional measures to ensure the eradication of chemical weapon production and distribution. Taking into consideration the international character of the issue, it is undoubtful that an individual Member State of the UN has taken measures that do not fall under the category of CWC.

POSSIBLE SOLUTIONS

The production and distribution of chemical weapons is a prevalent issue in the current military scene taking into consideration all aforementioned issues that come with it.

Signing and Ratification of CWC

Up until now, almost all countries have both signed and ratified the CWC and are in the process of discarding their chemical weapons while also halting any potential production and distribution. However, Egypt, North Korea and South Sudan have yet to sign the convention causing the increase of suspicion that they are acquiring or producing chemical weapons, which they plan on using. Taking into consideration the fact that this is a matter of disarmament, the UN should intervene in promoting the ratification of the. Apart from the three mentioned countries, Israel has also not ratified but signed the convention which means that Israel is not legally bound by the clauses of the convention. This means that, except for acknowledgement, Israel is able to produce chemical weapons as well as distribute them causing the immediate rise in fear in neighboring countries as well as the conflict Israel has with Palestine. With UN

intervention in any form, these countries may be convinced to either sign or ratify the CWC and thus ensuring the elimination of chemical weapon production and distribution globally.

Tracking System into OPCW

Currently, the OPCW receives annual reports when it comes to the stockpile of chemical weapons of every state party. By incorporating a more consistent and frequent method of reporting and regulating as well as stricter deadlines, the countries may be able to decrease their stockpile of chemical weapons at a faster rate than usual. This so-called method can be characterized as an active tracking system that will make sure all distribution of chemical weapons is prohibited and that no further production is done. As referendums in UN affiliated bodies are heavily encouraged to ensure the up-to-date character of the organization, this amendment can be achieved with a change in the OPCW statute that all member-states of the CWC convention are obliged to accept.

Collaboration with NGOs

As the majority of chemical weapons when disposed cause significant environmental hazards, the state parties that are involved in this dispersion may ask for the help of environmentally affiliated NGOs. This way, after production of such weapons is halted, there will be a third party involved in the elimination of the waste so as to make sure that all statistics are met and to make sure that the disposal does not cause any harm especially to marine life and humans that are responsible for storing it as well as transfer it. Faster and safer disarmament can thus be achieved.

Further international regulation

With the CWC already being implemented into international customary law, there are not any other major conventions that aid in the application of further regulation on the stockpiling and distribution of chemical weapons. CWC can be characterized as the basis of a major movement against the issue but needs critical support by additional conventions in order to ensure its up-to-date character. An additional convention may support the argument that occupation and storage of chemical weapons pose a vast danger in the sovereignty and safety of UN member states thus involving the countries that have not ratified the CWC. The mentioned convention along with other newly drafted ones need to be voted by the UN Security Council so as to ensure respect towards it and obligation to abide.

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