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FORMER YUGOSLAVIA

CLOUDS OF WAR

Chemical Weapons in the Former Yugoslavia

I. SUMMARY

Human Rights Watch has uncovered evidence that the Yugoslav National Army (JNA) had an extensive and sophisticated chemical weapons program prior to the breakup of Yugoslavia in 1991; that the army of the Federal Republic of Yugoslavia (Serbia and Montenegro) inherited much of this program; and that the army of the Republic of Bosnia and Hercegovina produced crude chemical munitions during the Bosnian war (1992-95). Human Rights Watch also has strong indications that the army of the Federal Republic of Yugoslavia continues to maintain an offensive chemical weapons capability.

This information is based on a year of research in the United States and republics of the former Yugoslavia, including interviews with persons who were involved in the JNA's chemical weapons program. Human Rights Watch has also obtained a JNA manual offering doctrinal guidelines on the use of certain chemical weapons, and western intelligence assessments, as well as several other documents which support our findings. Most of these documents have not been publicly available.

There has been little or no public discussion of the issue of chemical weapons production and use in the former Yugoslavia. By releasing this information Human Rights Watch seeks to initiate a debate on this issue in light of the continuing tensions and the threat of chemical weapons proliferation in the Balkans.

The U.S. government, which is fully aware of the existence of a chemical warfare agent production capability in the former Yugoslavia, has yet to make this information public. As the principal sponsor of the Dayton peace accords, the United States has a special responsibility to make public the information it has on the chemical weapons production capabilities that exist in the former Yugoslavia, and to place pressure on the Federal Republic of Yugoslavia to dismantle its chemical weapons production facilities. Greater transparency on the part of the international community, including and especially the United States, on the presence of chemical weapons in the former Yugoslavia would be a vital and effective first step to eliminating them. It is critical, also, that the U.S. ratify the Chemical Weapons Convention.

The possibility that chemical weapons may be used in the Balkans in the future cannot be discounted, especially in light of the likelihood that the Serb forces will not enjoy the enormous military superiority that characterized most of the Bosnian war. The war was marked by frequent and pervasive violations of international humanitarian law—"ethnic cleansing," indiscriminate use of force, summary execution, disappearance, mass rape, and targeting of civilian populations. Little if any regard was given for the safety and protection of civilians, and often civilians were the primary target of combatants. Chemical weapons would be one more tool to terrorize and kill unprotected civilians. One need only remember the Kurdish town of Halabja, where several thousand civilians were killed in an Iraqi chemical attack in 1988, to realize the terrible impact chemical weapons can have. Chemical agents are notoriously indiscriminate and can be horribly effective weapons of terror. This is one reason why the use of chemical weapons is prohibited by international law. It is also why Human Rights Watch holds that these weapons must be eliminated from the Balkans without delay.

The use of chemical weapons is prohibited under the 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and Bacteriological Methods of Warfare (Geneva Protocol). The ban on use, as codified in the Protocol, is considered to constitute customary international law, binding on all states regardless of whether they are parties to the Protocol. Moreover, the possession of chemical weapons is prohibited under the 1993 Chemical Weapons Convention, which is scheduled to come into force for ratifying countries on April 29, 1997.

According to information obtained by Human Rights Watch, the JNA conducted extensive research on a wide variety of military chemical agents, and produced the nerve agent sarin, the blister agent sulfur mustard, and the incapacitating agent BZ before the Bosnian war, and turned these chemical agents into weapons. The bulk of the JNA's chemical weapons program was acquired by the army of the Federal Republic of Yugoslavia (Serbia and Montenegro) at the time of the break-up of Yugoslavia in 1991, and it appears to remain active today, staffed by former JNA

chemical weapons experts.[1] Human Rights Watch also has obtained evidence indicating that the Bosnian government produced munitions filled with toxic chemicals in a factory near the city of Tuzla during the war. Human Rights Watch is continuing to investigate allegations that chemical weapons, in particular chemical incapacitants, were used during the war.

In light of the known chemical weapons production capability in the Federal Republic of Yugoslavia and the presence of chemical weapons experts—as well as the basic chemical industry to support the production of chemical weapons—in other republics of the former Yugoslavia, there is a danger that chemical weapons may proliferate in the region and that chemical weapons may be used in the future in the Balkans. Human Rights Watch therefore calls on the international community to apply pressure—by threatening to withhold aid and impose selective sanctions—on all states in the region to abandon any offensive chemical weapons program and destroy any chemical agents or munitions they possess, and to sign and ratify the 1993 Chemical Weapons Convention. (The Federal Republic of Yugoslavia has not signed the Chemical Weapons Convention. The Republic of Bosnia and Hercegovina signed the Convention in January 1997, but is yet to ratify it. The Republic of Croatia ratified the treaty in 1995.) In addition, in order to ensure that chemical weapons are eliminated from the region, the international community, including the United Nations, former members of the U.N. Protection Force (UNPROFOR) and the Peace Implementation Force (IFOR), as well as members of the Stabilization Force (SFOR) should release all information in their possession on the development, production, stockpiling, and use of chemical weapons in the former Yugoslavia.

II. A NOTE ON SOURCES

The evidence in this report of chemical weapons production in pre-war Yugoslavia is based on a variety of sources, including persons who were involved in the JNA's program, a JNA manual on the use of certain chemical munitions, and reports containing western intelligence assessments. Human Rights Watch has obtained detailed descriptions of the JNA's chemical weapons program from two former JNA chemical and biological warfare officers (one living in Croatia, the other in Bosnia and Hercegovina) and three former technicians at PRETIS, an ammunition factory in Vogosca, near Sarajevo (one living in Croatia, the other two living in Bosnia-Hecegovina), all interviewed by Human Rights Watch in 1996.[2] These testimonies corroborate and expand on an earlier description of the JNA's program contained in an unpublished paper, obtained by Human Rights Watch, that was written by the late Croatian General Zlatko Binenfeld, formerly a senior officer in the JNA's chemical weapons program.[3]

[1] During the war, the Federal Republic of Yugoslavia (Serbia and Montenegro) gave extensive military, economic and political assistance to the Republic of Srpska, the Bosnian Serb-ruled entity in Bosnia and Hercegovina. The Republic of Croatia gave similar assistance to the Croat Community of Herceg-Bosna, the Bosnian Croat-ruled entity, now part of the Federation of Bosnia and Hercegovina.

[2] Human Rights Watch interviews, Bosnia and Hercegovina and in Croatia, February-March and July-August 1996.

[3] Gen. Binenfeld distributed a paper entitled "Chemical Weapons Development Program" at a seminar on "National Authority and National Implementation Measures for the Chemical Weapons Convention" in Warsaw, Poland on December 7-8, 1993 (hereinafter: Binenfeld Paper).

The two chemical and biological warfare officers, when interviewed separately, gave similar descriptions of the role and activities of their units and their visits to several of the chemical agent production facilities in the former Yugoslavia. The three PRETIS technicians gave detailed descriptions of their roles in the production and development of chemical munitions before the war, including the production of a 122mm shell and the development of other munitions with demands for tolerances and quality control that far exceeded those for conventional munitions.[4] One of the technicians also claimed to have visited several of the JNA's chemical agent production facilities and gave descriptions of their function similar to those provided by the chemical and biological warfare officers.[5] Human Rights Watch also obtained testimonial evidence, supported by published sources, of the production by the Bosnian army of munitions filled with toxic chemicals during the war.[6]

Among documentary materials, Human Rights Watch obtained a copy of a classified 1981 JNA manual on the use of grenades filled with BZ, a psychochemical incapacitant, or CS, a tear gas.[7] The existence of the manual indicates that by 1981 the JNA's chemical munitions program was well advanced.

Moreover, both NATO and U.S. intelligence have prepared internal reports concluding that the JNA had, and the army of the Federal Republic of Yugoslav inherited and maintains, a chemical weapons production capacity.[8] Neither the United States nor NATO has made public pronouncements on these conclusions. Furthermore, an internal NATO intelligence report claims that Yugoslavia may have conducted research into biological weapons and that this research may be continuing in the Federal Republic of Yugoslavia today.[9]

III. RECOMMENDATIONS

In 1992-95, the Balkans were the scene of a horrible war that caused untold suffering to hundreds of thousands of people, the vast majority noncombatant civilians. Although hostilities have abated since the 1995 Dayton Accords, the conflict remains largely unresolved and might easily be reignited in the months or years to come. The development and maintenance of an offensive chemical weapons program by states of the former Yugoslavia may contribute to the breakdown of the fragile peace that prevails today, and the deployment and use of such weapons during a future conflict, a clear violation of international humanitarian law, is bound to lead to more suffering to combatants and noncombatants alike.

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[4] Human Rights Watch interviews, Bosnia and Hercegovina and in Croatia, February-March 1996.

[5] This technician also claimed that on one visit in 1981 he saw Iraqi scientists at a chemical agent production facility in Lučani, Serbia, where they were being trained in the production of the blister agent sulfur mustard. Human Rights Watch interview, Sarajevo, February 27, 1996. The Iraqi military is first reported to have used sulfur mustard agent against Iranian troops in 1983. Gordon M. Burck and Charles C. Flowerree, *International Handbook on Chemical Weapons Proliferation* (New York: Greenwood Press, 1991), p. 99. These weapons were later used by Iraqi forces against Kurdish towns and villages in the 1988 Anfal campaign. Human Rights Watch, *Iraq's Crime of Genocide* (New Haven: Yale University Press, 1995).

[6] Human Rights Watch interviews, Tuzla, July-August 1996.

[7] Yugoslav National Army, *Specijalne Ručne Bombe M79 I Leđni Raspršivač M1* (Special Hand Grenade M-79 and Sprayer M-1), (Belgrade, 1981).

[8] Acknowledgment of the existence of the JNA's chemical weapons program is contained in a 1995 NATO-wide intelligence assessment of chemical and biological weapons programs in the former Yugoslavia, excerpts of which were obtained by Human Rights Watch (hereinafter: NATO Intelligence Assessment); and in the U.S. Department of Defense, *Bosnia Country Handbook* (December 1995), pp. 6-32 to 6-33, a copy of which was obtained by Human Rights Watch.

[9] NATO Intelligence Assessment.

The international community has done much to bring the belligerents to the negotiating table and enforce the Dayton peace accords. It therefore has a responsibility to see to it that the republics of the former Yugoslavia abide by their commitments under these accords. These commitments extend to an obligation to comply with the standards of international humanitarian law, prohibiting the use of chemical weapons. The international community not only has a responsibility to enforce compliance with international humanitarian law standards, it also has the ability to ensure that the republics of the former Yugoslavia abandon any offensive chemical weapons programs and prevent the potential use of chemical weapons in a future conflict in the Balkans. It is in this context that we make the following recommendations:

To the Government of the Federal Republic of Yugoslavia (Serbia and Montenegro):

- Sign and ratify the 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (Chemical Weapons Convention).

- End all production and development of chemical munitions. Declare and destroy all stockpiles of chemical munitions and agents. Declare and dismantle all chemical agent production and filling equipment.

- Urge the Bosnian Serb leadership to declare and end all production and development of chemical munitions, and declare and destroy all stockpiles of chemical munitions and agents.

To the Government of the Republic of Bosnia and Hercegovina:

- Ratify the Chemical Weapons Convention.

- Ensure that the two constitutive entities of the Republic of Bosnia and Hercegovina—the Republika Srpska and the Federation of Bosnia and Hercegovina—declare and end all production and development of chemical munitions, and declare and destroy all stockpiles of chemical munitions and agents.

To the Government of the Former Yugoslav Republic of Macedonia:

- Sign and ratify the Chemical Weapons Convention.

To the Government of the Republic of Slovenia:

- Ratify the Chemical Weapons Convention.

To the Government of the Republic of Croatia:

- Declare and destroy any stockpiles of chemical munitions and agents as might still be in existence.

To the International Community:

- Urge the Federal Republic of Yugoslavia to sign and ratify the Chemical Weapons Convention. Urge the Republic of Bosnia and Hercegovina (comprising the constitutive entities of the Republica Srpska and the Federation of Bosnia and Hercegovina) to quickly ratify the convention. Link ratification of the Chemical Weapons Convention, and adherence to the treaty, to any further guarantees of security assistance. If the Federal Republic of Yugoslavia or the Republic of Bosnia and Hercegovina do not ratify the Chemical Weapons Convention, State Parties to the convention should immediately suspend export to them of chemicals listed in Schedule I to the convention, and require end-use statements from these governments for chemicals exported to them that are listed in Schedules II and III, as required by the treaty.

- Demand that these states and entities declare and end all development and production of chemical weapons, and declare and destroy any stockpiles of chemical munitions or agents.

- Instruct the Organization for the Prohibition of Chemical Weapons (OPCW) to monitor and inspect the implementation of the Chemical Weapons Convention by the republics of the former Yugoslavia once these

republics have ratified the convention and the convention has come into effect (on April 29, 1997). Ensure that the OPCW can operate in the countries of the former Yugoslavia freely and fully within its mandate.

- Release all information on the development, production, stockpiling, and use of chemical weapons in the former Yugoslavia which the United Nations and its member states, including members of the Stabilization Force, may have in their possession. Encourage greater candor and transparency on chemical weapons use and proliferation.

To the Government of the United States:

- Ratify the Chemical Weapons Convention.

- Release all information on the development, production, stockpiling, and use of chemical weapons in the former Yugoslavia which the United States government may have in its possession.

- Urge the Federal Republic of Yugoslavia to dismantle its chemical weapons production facilities, and assign high priority to republics of the former Yugoslavia in planning special operations designed to seize or recover chemical weapons under the Department of Defense's "counterproliferation" program.

- Investigate, as required by U.S. Public Law 102-182, the "Chemical and Biological Weapons Control and Elimination Act of 1991," whether chemical weapons have been used in the former Yugoslavia. If a determination is made that chemical weapons were used, impose sanctions as mandated by P.L. 102-182.

IV. CHEMICAL AGENTS IN THE FORMER YUGOSLAVIA

Before the breakup of Yugoslavia in 1991, the JNA's chemical weapons program produced the nerve agent sarin, the blister agent sulfur mustard, the psychochemical incapacitant BZ, and the irritants CS and CN, and turned these chemical agents into weapons, according to former JNA officers and technicians, as well U.S. and NATO reports.[10] In addition, the JNA also produced the choking agent phosgene, the psychochemical incapacitant LSD-25, and the irritant chloropicrin, and experimented with laboratory quantities of the nerve agents soman, tabun and VX, the blister agents nitrogen mustard and lewisite, and the blood agent cyanogen chloride.[11] Many of these agents are lethal or injurious in extremely small doses.

[10] Binenfeld Paper; Human Rights Watch interviews Bosnia and Hercegovina and in Croatia, February-March and August-September 1996; NATO Intelligence Assessment; and U.S. Department of Defense, *Bosnia Country Handbook*. It is unclear how many munitions were produced before the breakup of the former Yugoslavia. According to the Binenfeld Paper and corroborated by former workers at the PRETIS factory, the JNA ordered 5,800 122mm shells for chemical fill to be produced in 1991-95. Only several hundred were produced before the war ended production.

[11] Binenfeld Paper; and Human Rights Watch interviews with two former JNA chemical weapons officers, Bosnia and Hercegovina and in Croatia, February-March 1996.

Nerve agents are highly toxic chemicals that even in very small quantities can produce convulsions and rapid death. They are colorless and odorless in a pure state and can act after inhalation or following absorption through the skin or eyes. The general symptoms of nerve agent exposure in order are: running nose, tightness of chest, dimness in vision and contraction of the pupils of the eye to pinpoints, difficulty in breathing, drooling and excessive sweating, nausea, vomiting, cramps, involuntary defecation and urination, twitching, jerking and staggering, headache, confusion, drowsiness, coma and convulsion. These symptoms are followed by cessation of breathing and death, usually less than fifteen minutes after a fatal dose—a drop or less—is absorbed.[12] Nerve agents will penetrate normal clothing. The JNA produced sarin and made it into a weapon, and produced smaller quantities of tabun, soman and VX nerve agents.[13]

Blister agents are chemicals that affect the eyes and lungs, and blister the skin. Although many have a detectable odor, most are insidious in action, only producing symptoms hours or sometimes days after exposure. Blister agents produce long-term and painful, incapacitating injuries, much like burns, and may cause death through secondary infection or damage to the lungs.[14] The JNA produced large quantities of sulfur mustard and produced smaller quantities of nitrogen mustard and lewisite (a rapidly acting blister agent).[15]

Choking agents attack the respiratory tract. Exposure to a choking agent can cause the respiratory membranes to swell, and in severe cases can lead to death through pulmonary oedema (death results from a lack of oxygen when the lungs become filled with liquid).[16] The first choking agent employed in war was chlorine (during World War I). The Bosnian government produced limited quantities of munitions filled with what is thought to have been chlorine during the war.[17] These kinds of chemical agents are no longer considered to be effective military weapons by most states.[18] According to Gen. Binenfeld, the JNA produced fifteen tons of phosgene, a more toxic choking agent, for military use before the war in Bosnia.[19]

[12] Headquarters, Departments of the Army, the Navy, and the Air Force, Washington, DC, FM 8-285, NAVMED P-5041, AFM 160-11, *Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries*, Part III (February 1990), pp. 2-1 to 2-4.

[13] Binenfeld Paper; and Human Rights Watch interviews with two former JNA chemical weapons officers, Bosnia and Hercegovina and in Croatia, February-March 1996.

[14] Headquarters, Department of the Army et al., *Treatment of Chemical Agent Casualties*, p. 3-4.

[15] Binenfeld Paper; and Human Rights Watch interviews with two former JNA chemical weapons officers, Bosnia and Hercegovina and in Croatia, February-March 1996.

[16] Headquarters, Department of the Army et al., *Treatment of Chemical Agent Casualties,* pp. 4-1 to 4-3.

[17] Human Rights Watch interviews, Tuzla, August-September 1996, and Enis Dzanic, "The fall and rise of Bosnia's war machine," *Jane's Intelligence Review*, vol. 9, no. 1 (January 1997), p. 24.

[18] Headquarters, Department of the Army et al., *Treatment of Chemical Agent Casualties,* pp. 4-1 to 4-3.

[19] Binenfeld Paper. Gen. Binenfeld did not say if, or how, this agent was turned into a weapon.

Incapacitating chemical agents are intended to produce physiological or mental effects that prevent exposed military personnel from performing their duties for significant periods of time. With these agents, the incapacitation is only temporary and complete recovery is expected. Some of these agents lend themselves to covert purposes where use is to confuse or can be plausibly denied. One such agent is BZ, which produces a variety of symptoms, including restlessness, dizziness or giddiness, failure to obey orders, confusion, loss of memory, erratic behavior, stumbling or staggering, vomiting, slurred or nonsensical speech, hallucinatory behavior, disrobing, mumbling, stupor and coma.[20] The JNA produced the agent BZ, or some similar compound, turned it into a weapon, and developed doctrine for its use. The JNA also produced smaller quantities of LSD.[21] It is unclear if the JNA-produced BZ is the same as that standardized in the 1960s by the U.S. Army. (The United States discontinued production of BZ and destroyed its stockpile because the agent was considered unreliable and its effect unpredictable.[22]) The JNA doctrine, before the war, was to use this agent against enemy forces, and then capture or kill those affected.[23]

Riot control agents cause tearing of the eyes or irritation of the skin or respiratory tract. The United States does not consider riot control agents—as opposed to incapacitating agents—to be chemical weapons.[24] The United States military used large quantities of riot control agents in Vietnam in an effort "to 'flush out' unmasked troops from places of concealment or protective positions...and to facilitate their capture or their neutralization by other weapons,"[25] but in 1975 renounced the first use of riot control agents in war except in certain defensive circumstances. Human Rights Watch includes reference to riot control agents in this report because the JNA described these munitions as chemical weapons in its manuals and produced these munitions for offensive operations. The 1993 Chemical Weapons Convention explicitly bans the use of riot control agents as a method of warfare. The JNA produced, and made weapons of, huge quantities of the tear agents CS and CN, and there are numerous reports of the use of these agents, by all sides, during the war in Bosnia (see below).

V. PRODUCTION OF CHEMICAL AGENT MUNITIONS AND CHEMICAL WARFARE DEFENSE EQUIPMENT

[20] Headquarters, Department of the Army et al., *Treatment of Chemical Agent Casualties,* p. 6-2.

[21] Binenfeld Paper; and Human Rights Watch interviews with two former JNA chemical weapons officers, Bosnia and Hercegovina and in Croatia, February-March 1996.

[22] The United States produced 100,000 lbs. of the agent in 1963-1964. U.S. Army Medical Bioengeneering Research and Development Laboratory, *Problem Definition Studies on Potential Environmental Pollutants. VIII. Chemistry and Toxicology of BZ* (3-Quniuclidinyl Benzilate), (August 1977), p. 6.

[23] Yugoslav National Army, *Specijalne Ručne Bombe.*

[24] Headquarters, Department of the Army et al., *Treatment of Chemical Agent Casualties*, p. 1-1.

[25] U.S. Department of the Army, *Employment of Chemical and Biological Agents* (FM 3-10), (March 31, 1966), par. 46(a), pp. 25-26, quoted in Guenter Lewy, *America in Vietnam* (New York: Oxford University Press, 1978), p. 248.

The large majority of the chemical weapons production infrastructure in the former Yugoslavia is in the Federal Republic of Yugoslavia, the Serbian and Montenegrin remnant of Yugoslavia, but the scientific staff of the program, as well as the industrial chemical production infrastructure, remain in many of the various republics that emerged after the breakup.[26] There were four known facilities involved in the production of chemical warfare agents in the former Yugoslavia: "Prva Iskra" in Baric, Serbia; "Miloje Blagojević" in Lučani, near Čačak, Serbia; "Miloje Zakić" and "Merima" in Kruševac, Serbia; and the Military Technical Institute in Potoci near Mostar, Bosnia and Hercegovina.[27] The equipment in the Military Technical Institute in Potoci was disassembled by Serb troops between January and April 1992 and reportedly moved to Lucani, Serbia.[28] A rubber seal collected at a former building of the Military Technical Institute by a team working for *World in Action* in September 1995 and analyzed by the Swedish Defense Laboratory contained chemicals identical to known breakdown products of sarin.[29] The JNA tested its chemical munitions at Mt. Krivolak in what is today the Yugoslav Republic of Macedonia.[30]

The development of chemical agents in the former Yugoslavia began in the late 1960s.[31] This program did not become overtly offensive until the late 1970s when the JNA developed the offensive doctrine for the use of BZ, which was incorporated in a classified manual published in 1981.[32] Further experimentation, development and testing continued during the 1980s, and by the time of the dissolution of the Socialist Federal Republic of Yugoslavia, the JNA apparently had developed and/or produced 122mm, 152mm and 155mm artillery shells; air-delivered bombs; 122mm, 128mm rockets, and 262mm rockets; and mines for lethal chemical agents, making these munitions many times more deadly than their conventional counterparts.[33] Binary sarin munitions, in which two chemicals are mixed during firing to produce the chemical agent, were also in development.[34]

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[26] For example, according to an article in the magazine *Hrvatski Vojnik* (Croatian Soldier), the staff of the Military Technical Institute in Potoci, Bosnia and Hercegovina, was sixty percent Serb, thirty percent Bosnian and ten percent Croat. "Proizvodnja Kemijskog Oružja Bivše ja u Vojnotehničkom Institutu - Pogon Mostar," *Hrvatski Vojnik* (Zagreb), (December 1993), pp. 39-40. Former JNA chemical weapons officers claim that the chemical weapons units were heavily Serb, reflecting the general make-up of the JNA's officer corps. Human Rights Watch interviews, Bosnia and Hercegovina and in Croatia, February-March 1996.

[27] Binenfeld Paper; and NATO Intelligence Assessment.

[28] This is according to a former worker at the Potoci facility, interviewed in "The Unseen Enemy," *World in Action*, Granada TV Ltd. (U.K.), November 27, 1995.

[29] *World in Action*, "The Unseen Enemy."

[30] Binenfeld Paper; and Human Rights Watch interviews, Bosnia and Hercegovina and in Croatia, February-March 1996.

[31] Binenfeld Paper.

[32] Yugoslav National Army, *Specijalne Ručne Bombe*.

[33] According to Gen. Binenfeld, the JNA in the late 1980s decided to stock 122mm shells filled each with 1.8 liters of sarin or sulfur mustard, 128mm rockets filled each with two liters of sarin, and aircraft bombs filled each with twenty liters of sarin. Binenfeld Paper.

[34] Binenfeld Paper; and Human Rights Watch interview with a former Bosnian JNA chemical weapons officer, Jablanica, Bosnia and Hercegovina, March 13, 1996.

In the late 1980s, the JNA secretly planned to produce a stockpile of chemical munitions. According to Gen. Binenfeld, 5,800 122mm shells for chemical agents were ordered from the PRETIS factory, near Sarajevo, in 1991-95.[35] Although the JNA officially claimed that these were phosphorus "smoke" munitions, the tolerances for these shells were very high, normal production procedures were circumvented, and special security arrangements were made. All of this raised the suspicions of technicians at PRETIS.[36] Moreover, according to a public document, "Yugoslav Army Involvement With Chemical Weapons," prepared by the Yugoslav Federal President's office in September 1991, thousands of rockets for the "Orkan," a 262mm multiple rocket launcher system, were produced with three types of warheads: a warhead filled with antipersonnel cluster bombs, a warhead filled with antipersonnel landmines, and a chemical weapons warhead.[37] In the same document, the Yugoslav Federal President's office also claimed that several thousands of these rockets—it is not indicated what type—were shipped to Iraq in 1989-90.[38]

It is not clear how many chemical munitions were produced by the JNA. Because the Yugoslav defense industry was spread throughout the country, the war disrupted or ended production of many weapons. It is known that production of riot control agents and chemical warfare defense equipment continued in Serbia, despite the hardships imposed by the U.N. embargo during the war.

The JNA also produced hand grenades, rifle-propelled grenades, mortar shells, and possibly also artillery shells and 128mm rockets filled with the irritants CS and CN.[39] The production of CS- and CN-filled grenades continued at least until 1993. Human Rights Watch was shown a box of CS-filled grenades containing an instructional insert, stamped Kruševac, Serbia, and dated May 8, 1993, which Bosnian troops allegedly had captured from Bosnian Serb units near Bihac.[40] According to a JNA manual, the chemical incapacitant BZ was put into hand grenades.[41]

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[35] Binenfeld Paper. Two technicians at the PRETIS factory reported the total number was 5,500. Human Rights Watch interview, Sarajevo, February 27-28, 1996

[36] According to one PRETIS technician responsible for quality control, these shells, which were referred to in the factory as "special effect" shells, were produced under more stringent rules, had unusual production requirements, and did not go through the entire quality control process, including testing. Every twentieth shell was cut for quality control, and the threads of the fuse wells (where the fuse is screwed onto the shell) were coated with silver—apparently to create a tighter seal and prevent corrosion and leakage. Several hundred of these shells were produced at the factory until production was terminated by the war. Human Rights Watch interviews, Sarajevo, February 27-28, 1996.

[37] This document, while publicly released, has not been widely circulated. Human Rights Watch obtained a copy from Kenneth Timmerman of the Middle East Data Project, Inc. in Kensington, Maryland.

[38] The Yugoslav 262mm M-87 "Orkan" Multiple Rocket Launcher System was co-produced in Iraq as the Arabel 50. Several systems were in service in Iraq before the 1991 Gulf War. Christopher F. Foss, *Jane's Armour and Artillery 1993-94* (Coulsdon, Surrey: Jane's Information Group Ltd., 1994), pp. 632-33.

[39] Binenfeld Paper; Human Rights Watch interviews, Bosnia and Hercegovina and in Croatia, February-March and August-September 1996; NATO Intelligence Assessment; and U.S. Department of Defense, *Bosnia Country Handbook*, p. 6-32.

[40] Human Rights Watch was shown captured CS- or CN-filled grenades and rifle-propelled grenades by both the Croatian and Bosnian military. Human Rights Watch interviews, Zagreb, Croatia, March 22, 1996 and Zenice, Bosnia and Hercegovina, March 12, 1996.

[41] Yugoslav National Army, *Specijalne Ručne Bombe*.

Yugoslav tanks and armored personnel carriers were designed to operate in a nuclear, biological or chemical warfare environment. The decision to produce such vehicles was apparently made sometime in the 1970s. Newer Yugoslav combat vehicles, including the BVP M-80 Armored Personnel Carrier and the M-84 Main Battle Tank, had standard nuclear, biological and chemical warfare equipment.[42] Nuclear, biological and chemical warfare defensive equipment was produced at "Miloje Zakić" in Kruševac, Serbia. This included the M-1 and M-2 Masks, M-3 Protective Clothing, DHM-11B Chemical Detection Kit, and DRHT Radiological and Chemical Detection Equipment (for armored vehicles).[43] "Miloje Zakić" continues to develop, produce, and export nuclear, biological and chemical warfare defense equipment. Since the breakup of Yugoslavia, "Miloje Zakić" has started production of the M2F and M2FW masks, M3 protective coverall, and OFZ protective suit.[44]

There are strong indications that the Federal Republic of Yugoslavia has not abandoned its offensive chemical weapons program. The Yugoslav army continues to maintain a significant chemical defense posture,[45] despite the absence of an external chemical weapons threat. Yugoslavia has continued to produce and develop chemical warfare equipment. There is also no evidence of the destruction of stockpiles of chemical agents, the disassembly of chemical agent production equipment, or a willingness to sign and ratify the 1993 Chemical Weapons Convention.[46] Officials from the United States and international organizations interviewed by Human Rights Watch have indicated that they believe that the Yugoslav army maintains its offensive chemical weapons capability.

The Bosnian government produced crude chemical munitions at a factory near Tuzla, Bosnia and Hercegovina, during the war, according to a former Bosnian military officer and other sources.[47] The officer told Human Rights Watch that the Bosnian army was filling mortar shells with chemicals in 1992 and 1993, and that UNPROFOR units, upon discovering the ongoing production, would destroy any such munitions they found. President Alija Izetbegovic of Bosnia, while on a trip to Iran, declared in 1992: "If the current situation continues, the people of Bosnia will be forced to use poison gas to defend themselves and end the crimes committed by the Serbs, even though this may be against their true wishes."[48] Sources in the former Yugoslavia assert that the Bosnian government, now that the war is over, has

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[42] See Christopher F. Foss ed., *Jane's Armour and Artillery 1994-95* (Coulsdon, Surrey: Jane's Information Group Ltd., 1995), pp. 157, 505.

[43] Christopher F. Foss and Terry J. Gander, eds., *Jane's Military Vehicles and Ground Support Equipment 1987* (Coulsdon, Surrey: Jane's Information Group Ltd., 1987), pp. 759, 792-93; NATO Intelligence Assessment; and U.S. Army Foreign Science and Technology Center, "CBW Protective Equipment Manufactured in the Former Yugoslavia," *Individual Protection: Foreign Technology and Equipment of Military Significance* (November 1992), p. 25, obtained by Human Rights Watch under the Freedom of Information Act.

[44] Terry J. Gander, ed., *Jane's NBC Protection Equipment, 1996-97* (Coulsdon, Surrey: Jane's Information Group, Ltd., 1996), pp. 44-45, 79, 81.

[45] The U.S. Department of Defense's 1995 *Bosnia Country Handbook* describes how the Yugoslav army has special units dedicated to chemical warfare defense and trains individual soldiers in chemical detection and decontamination. U.S. Department of Defense, *Bosnia Country Handbook*, p. 6-33.

[46] A 1995 NATO-wide intelligence assessment, for example, lists under "Chemical Production Facilities" in the Former Republic of Yugoslavia the "Merima" facility in Krusevač as having the capability of producing nerve and mustard gases. (NATO Intelligence Assessment).

[47] Human Rights Watch interview, Tuzla, August 4, 1996. *Jane's Intelligence Review* has reported that these were chlorine-filled 120mm mortar rounds. Enis Dzanic, "The fall and rise of Bosnia's war machine," *Jane's Intelligence Review*, vol. 9, no. 1 (January 1997), p. 24.

[48] "Bosnia chief threatens to use poison gas against Serbs," *The New York Times*, October 31, 1992.

stopped production of chemical munitions.[49] The Republic of Bosnia and Hercegovina signed the Chemical Weapons Convention on January 16, 1997.

VI. OPERATIONAL DOCTRINE OF THE YUGOSLAV NATIONAL ARMY

[49] Human Rights Watch interview, Tuzla, August 4, 1996, and other interviews.

According to former JNA officers, high-ranking officers of the JNA were trained in the offensive use of chemical weapons.[50] Special JNA chemical and biological warfare units were trained to use and defend against chemical weapons attacks. Human Rights Watch has obtained a copy of a 1981 JNA manual for the use of "special" BZ- or CS-filled hand grenades and CS sprayers,[51] and a copy of a 1988 JNA manual describing the use of CS-filled "school" rifle-propelled grenades.[52] These manuals describe how these agents should be used and under what circumstances their use should be considered. According to the U.S. Department of Defense, JNA special operations teams were also trained to use toxic agents for sabotage.[53]

VII. ALLEGATIONS OF USE

During the war in Bosnia, there were multiple allegations of the use of chemical munitions, including CS, CN and an agent like BZ, emanating from the various sides. Human Rights Watch has no evidence of the use of lethal chemical weapons during the war. Human Rights Watch has not yet drawn a conclusion about the use of chemical incapacitants, like BZ, during the war, and is continuing to investigate allegations of the use of such agents.

Human Rights Watch also interviewed numerous persons who reported having been affected by a chemical agent that appears to have been the chemical irritant CS or CN. A typical example involves two Bosnian soldiers interviewed by Human Rights Watch who reported daily CS attacks on their lines in Zepa during the August 1995 Serb assault on the safe haven. Both described the effects the tear gas had on them, which they said were of a passing nature.[54] Another Bosnian soldier reported having been affected by a tear agent on the Sarajevo front in August 1993.[55] A Croat soldier described a Serb attack near Vukovar in November 1991 which produced symptoms consistent with a CS attack.[56] A second Croat soldier reported having been affected by a tear agent during a Serb attack near the village of Crnilug in the Krajina, Croatia, on July 25, 1995.[57] U.S. Department of Defense and NATO intelligence, as well as several U.N. officials in interviews with Human Rights Watch, have indicated that chemical irritants were used during the war.[58]

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[50] This is based on conversations with numerous ex-JNA officers, both in Croatia and in Bosnia and Hercegovina. Most claimed that they did not know whether the JNA had possessed chemical weapons, but said that they had been told by their superiors before the breakup of Yugoslavia that they would receive chemical weapons from "friends" in case they were needed. It was unclear to them who these "friends" were, but they said they assumed that they might be either the Warsaw Pact or NATO, depending on which alliance invaded Yugoslavia. Yugoslavia had long positioned itself as nonaligned between NATO and Warsaw Pact states, and its defense planning prepared for an invasion by either alliance.

[51] Yugoslav National Army, *Specijalne Ručne Bombe*.

[52] Yugoslav National Army, *Tromblonske Hemijske Školske Mine M83* (School Rifle-Propelled Grenade M-83), (Belgrade, 1988). Apparently many chemical munitions in the JNA were called "school" munitions to give the appearance that they were not intended for wartime use. Numerous western chemical weapons experts interviewed by Human Rights Watch said they had never heard of the use of CS-filled rifle-propelled grenades for training purposes or, for that matter, of explosive CS-filled hand grenades.

[53] U.S. Department of Defense, *Bosnia Country Handbook*, p. 6-18.

[54] Human Rights Watch interviews, Zenice, March 19, 1996, and Vareš, March 20, 1996.

[55] Human Rights Watch interview, Sarajevo, March 7, 1996.

[56] Human Rights Watch interview, Zagreb, June 28, 1996.

[57] Human Rights Watch interview, Zagreb, June 28, 1996.

[58] The DOD's *Bosnia Country Handbook* states: The only confirmed use of chemical agents [during the war in the former Yugoslavia] has been CS, which has been delivered by aircraft and, reportedly, mortars. The U.S. Department of Defense, *Bosnia Country Handbook*, p. 6-32.

VIII. THE ISSUE OF TRANSPARENCY

The United Nations, the United States and other NATO members have known of the production of chemical weapons in the former Yugoslavia since at least 1991, when the Yugoslav Federal President's office released a document on Yugoslav chemical weapons production.[59] In 1993 the U.S. Department of Defense prepared an internal handbook on Bosnia, which has not been publicly released but a copy of which was obtained by Human Rights Watch. It states: "Indigenous to the former Yugoslavia is a chemical warfare agent production capability that includes lethal and nonlethal chemical agents."[60] The handbook was updated in 1995.[61] Despite the existence of this handbook, neither the United States and its allies, nor the United Nations and other former members of UNPROFOR and IFOR, have ever publicly acknowledged the existence of chemical weapons in the region. Moreover, Human Rights Watch has learned through interviews with officials of the U.S. government and international organizations that member states of UNPROFOR have carried out at least three separate investigations into some of the numerous allegations of chemical weapons use during the war in Bosnia. The results of none of these investigations have been made public.[62] Although several U.S. officials agreed to discuss the issue of chemical weapons production in the former Yugoslavia with Human Rights Watch, they did so strictly off the record. Human Rights Watch believes that greater transparency on the part of the United Nations and the international community generally, including and especially the United States, on the presence of chemical weapons in the former Yugoslavia would be a vital and effective first step to eliminating them

The silence of the U.S. government regarding the disposition of the chemical and biological weapons arsenals of the former Yugoslavia is even more puzzling given the high profile "counterproliferation" program initiated by the Department of Defense at the beginning of the Clinton administration. Part of the program includes "cooperative threat reduction" efforts in the former Soviet Union to bring nuclear weapons and materials under safe control. These efforts—and the attempt to freeze the North Korean nuclear program—have been a high priority of Clinton foreign policy. Military elements of counterproliferation, however, are equally receiving attention. Existing programs seek to create the means to prevent or counter the use of weapons of mass destruction (e.g., effective detection, human protection, preemptive destruction, and active defenses). One component is the planning and training of U.S. "special operations" to take on the mission of seizing or recovering weapons of mass destruction. The former Yugoslavia has been systematically ignored in the public dimension of these efforts, if not altogether.

[59] Yugoslav Federal President's office, "Yugoslav Army Involvement with Chemical Weapons," September 1991.

[60] U.S. Department of Defense, *Bosnia Country Handbook* (1993), p. 6-42. Obtained by Human Rights Watch under the Freedom of Information Act.

[61] See previous references in the text to the 1995 handbook.

[62] Some information about one of these investigations has become public. *Jane's Defence Weekly* reported in August 1993 that UNPROFOR had launched an "official technical inquiry into allegations of the use of chemical weapons," and quoted an UNPROFOR spokesman in Zagreb as confirming that soil and plant samples had been collected after an alleged Bosnian Muslim attack with chlorine on Bosnian Serb positions near Zvornik in eastern Bosnia. "Chemical weapons claims probed," *Jane's Defence Weekly*, vol. 20, no. 8 (August 21, 1993), p. 5. The samples and shrapnel collected by UNPROFOR were later reported "lost." "Muslims accused again of using CW rounds," *Jane's Defence Weekly*, vol. 20, no. 17 (October 23, 1993), p. 8.

In the beginning of 1997, as the U.S. was poised to ratify the Chemical Weapons Convention,[63] the U.S. government had yet to take any action indicating that it intends to adhere not just to the letter but also the spirit of the treaty. As the principal sponsor of the Dayton peace accords, the U.S. has a special responsibility to prevent any one party to the accords to act as a spoiler. The U.S. also has the capability to do so, first by making public the information it has on the chemical weapons production capabilities that exist in the former Yugoslavia, and secondly by placing pressure on the Federal Republic of Yugoslavia to dismantle its chemical weapons production facilities. It is critical, also, that the U.S. itself ratify the Chemical Weapons Convention.

IX. A NOTE ON THE LAW

The ban on the use of chemical weapons, as codified in the 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and Bacteriological Methods of Warfare, is considered to constitute customary international law, applicable to all states regardless of whether they are parties to the Protocol.[64] The possession of chemical weapons is prohibited under the 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (the Chemical Weapons Convention), which is scheduled to come into force on April 29, 1997.[65] As of January 27, 1997, out of 161 states that had signed the convention, sixty-eight states had submitted instruments of ratification.[66] The Republic of Croatia ratified the Chemical Weapons Convention in May 1995. The Republic of Bosnia and Hercegovina and the Republic of Slovenia had both signed but not yet ratified the treaty in January 1997. At that time, neither the Federal Republic of Yugoslavia nor the Former Yugoslav Republic of Macedonia had signed the convention. Human Rights Watch holds that because of the grave threat chemical weapons pose to the people of the Balkans and in light of the well-documented abusive conduct of all sides during the war in Bosnia and Hercegovina, states of the former Yugoslavia should, regardless of treaty ratification, immediately end all production and development of chemical munitions, and declare and destroy existing stockpiles.

[63] In their respective confirmation hearings in January 1997, both the newly appointed secretary of state, Madeleine Albright, and secretary of defense, William Cohen, made strong statements supporting an early ratification of the Chemical Weapons Convention by the U.S. Congress. The Clinton administration has backed the treaty, which has a strong bipartisan history, with the Reagan administration having negotiated and President Bush having signed it.

[64] See Theodor Meron, *Human Rights and Humanitarian Norms as Customary Law* (Oxford: Clarendon Press, 1989), fn. 188, pp. 68-69.

[65] The Chemical Weapons Convention prohibits the development, production, stockpiling and use of chemical weapons for all State Parties to the treaty. Adherence to the provisions of the treaty by the 161 states that have signed the convention, including the destruction of chemical weapons stockpiles, may establish a rule of customary international law binding on all states.

[66] At the end of January 1997, the United States had signed but not yet ratified the Chemical Weapons Convention. Most European states had ratified the convention.

The international community has the capability and responsibility to investigate allegations of chemical weapons production and use. The U.N. Secretary General is charged by the U.N. General Assembly "to carry out investigations in response to reports that may be brought to his attention by any Member State concerning the possible use of chemical and bacteriological (biological) or toxin weapons...and to report promptly the result of any such investigation to all Member States."[67] Procedures for investigating such allegations were established in a report of the Secretary-General in 1989.[68] Moreover, under the 1993 Chemical Weapons Convention, a new international agency is to be established, the Organization for the Prohibition of Chemical Weapons (OPCW), based in The Hague, after the treaty enters into force in April 1997. The OPCW is to be charged with implementing the provisions of the convention and providing a forum for consultation and cooperation among State Parties to the treaty. The OPCW is also to have a mandate to investigate allegations of chemical weapons production and use. In the view of Human Rights Watch, any investigation of chemical weapons production, stockpiling and use needs to be transparent and impartial, and be held to rigorous international standards.

X. CONCLUSION

Reports suggest that the Bosnian government, now that the war is over, has stopped production of chemical munitions—for the moment at least. There is also no evidence to suggest that Croatia has an active chemical weapons program, at this time. The army of the Federal Republic of Yugoslavia, on the other hand, appears to be continuing its offensive chemical weapons program. This program represents a real danger to peace, security and human rights in the region, especially if the conflict in Bosnia erupts again. Experts from the former JNA program are thought to reside in all of the republics of the former Yugoslavia, and the basic chemical industry to support chemical agent production remains intact. These experts could help set up sophisticated chemical weapons programs if and when their respective governments felt threatened by the Federal Republic of Yugoslavia's chemical weapons program.

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[67] United Nations General Assembly resolution 42/37 C, November 30, 1987.

[68] United Nations General Assembly, "Chemical and Bacteriological (Biological) Weapons: Report of the Secretary General" (New York: United Nations, 1989), A/44/561.

Human Rights Watch Arms Project

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