Abstract:

Because of the more than 3,000 tons of Chemical Warfare agents used by the Iraqi army against Iranian soldiers and civilians during its invasion of Iran (1980-1988), about one million Iranians were exposed to CW, with more than 100,000 being severely injured and about 7,000 dying immediately. More than 70,000 individuals are still registered as survivors needing medical care, with many more not yet registered because of incomplete medical records. The many thousand Iranians who died from exposure to CW, and the many more survivors whose suffering continues to the present should be recognized by the world community as the victims of Saddam's war crimes. To that end the Iranian civil society have tried to respond to the issue and establish non-governmental organizations in order to raise awareness about the consequences of the use of CW against them and to attract the attention of the world community to the lingering suffering of the CW survivors.

The Society for chemical weapons victims support and the Tehran Peace museum are two examples if such an attempt by Iranian people to conduct awareness programs, try to prevent the repeat of such tragedy in the future and to provide help and support for the existing victims of the 80s chemical warfare.

This article will cover the following topics:
1. Past: Legacy of the Iran-Iraq War and Chemical Weapons attacks against Iran: Lessons learned
2. Present: Civil society response; peace movement by the Iranian survivors of chemical weapons attacks
3. Future: Preventing the repeat of those tragedies, what is our social responsibility?
Past:

History of Chemical Warfare

Throughout ancient and medieval times poisons (e.g. poison arrows) were commonly used in warfare, although at various times in history societies have tried to limit their use. The first international agreement limiting the use of chemical weapons dates back to 1675, when a French-German agreement not to use poison bullets was concluded in Strasbourg. Over the next two hundred years, large-scale development of chemical weapons became feasible due to industrialization and the development of chemical technology. In 1874, the Brussels Convention on the Law and Customs of War was adopted. It prohibited the employment of poison or poisoned weapons, and the use of arms, projectiles or material to cause unnecessary suffering. An international peace conference held in The Hague in 1899 led to the signing of an agreement that prohibited the use of projectiles filled with poison gas.

The first large-scale use of chemical weapons, in the modern era, occurred during World War I, on battlefields near Ieper (Ypres), in Belgium. In the course of that war, 100,000 tonnes of toxic chemicals, such as chlorine, mustard gas and phosgene were deployed, resulting in about 90,000 deaths and over a million casualties.

The horrors of chemical warfare experienced during World War I caused such outrage that the countries of the world resolved to ban the use of toxic chemicals or chemical weapons in war for all time. This commitment resulted in the signing of the 1925 Geneva Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and Bacteriological Methods of Warfare. Iran acceded to the Protocol on 5 November 1929, while Iraq acceded on 8 September 1931.

The Geneva Protocol bans the use of chemical weapons in war, but does not prohibit the development, production or possession of such weapons. Many states signed the Geneva Protocol, but with reservations that they had the right to retaliate in kind with chemical weapons should they or any of their allies be attacked in such a way. Many parties to the Protocol also reserved the right to use chemical weapons against states that had not joined.

In the 1990s the international community succeeded in producing a treaty that would verify the destruction of chemical weapons worldwide as well as ensure the non-proliferation of these weapons and the toxic chemicals used in their manufacture. The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (otherwise known as the Chemical Weapons Convention, or CWC) was opened for signature on 13 January 1993 and entered into force in 1997.

Chemical Warfare during the Iran-Iraq War

During the 8-year war between Iran and Iraq (1980-1988) Iraqi forces employed chemical weapons extensively against Iranian targets including both military personnel and civilians in border towns and villages. The agents used by the Iraqis fell into two major categories based on chemical composition and casualty-producing effects: The most frequently-used compounds were organophosphate neurotoxins, known as nerve agents Tabun and Sarin. Mustard gas was also used extensively.
Iraqi troops are reported to have used vomiting agents during their initial smaller attacks on the Helaleh and NeyKhazar zones in 1981. They then employed chemical weapons in August 1983 on the Piranshahr and Haj-Omaran battlefields and later in November 1983 on the Panjvien battlefield.

The first extensive chemical attack by Iraqi troops was carried out in March 1984, when they used tonnes of sulphur mustard and nerve agents against Iranian soldiers on the Majnoon Islands battlefields (along the southern border). Afterward, extensive employment of chemical weapons by Iraqi troops in March 1985 led to huge Iranian casualties both soldiers and volunteer combatants. Following requests by the Iranian Government, UN specialist teams were sent to Iran in March 1984, April 1985, February/March 1986, April 1987, March, July and Aug 1988. The conclusions, based on field inspections, clinical examinations of casualties, and laboratory analysis of samples, were released as official UN documents (S/16433, S/17127, S/17911, S/18852, S/19823, S/20060, S/20134). Based on the UN fact finding team’s investigations they confirmed the use of mustard gas as well as nerve agents against Iranians.

The reports were subsequently submitted to the Security Council and two statements were released on 13 March 1984 and 21 March 1986 condemning the use of chemical weapons. But neither these two statements, nor Resolution 612 (May 1988) or Resolution 620 (August 1988) secured the cessation of chemical weapons attacks by the Iraqi regime which continued to violate international law with impunity.

**Chemical attack against civilian targets**

The Iraqi regime not only used chemical weapons against military targets, but frequently targeted civilian residential areas, especially the border towns and villages.

According to official reports, there were more than 30 chemical attacks against Iranian (and some Iraqi Kurds) non-military targets.

The main attacks were:

- Sardasht (28 June 1987).
- Villages around the city of Marivan (March 1988)
- Halabja, with the massacre of more than 5,000 civilians (16 March 1988).
- Villages around the cities of Sarpol-e Zahab, Gilan-e-gharb and Oshnavieh. (May-Jun 1988).

Even some medical centers and field hospitals were targeted by chemical munitions which resulted in high casualties among medical personnel.

The most recent and accurate description of chemical weapons use by Iraqi forces during the conflict is the 2003 United Nations Monitoring Verification & Inspection Commission (UNMOVIC) report. This document estimates that 1,800 metric tonnes of mustard gas, 140 tonnes of Tabun and over 600 tonnes of Sarin were used against Iran in munitions that included approximately 19,500 aerial bombs, 54,000 artillery shells and 27,000 short-range rockets. In excess of 1 million Iranians sustained exposure to these agents during the war, resulting in thousands of deaths from their acute effects.

This tragedy was a horrifying epic in the annals of modern warfare, inflicting enormous suffering that continues
to the present day in the form of latent illness among tens of thousand of survivors.

Tragedy of Sardasht-28 June 1987

On Sunday, 28 June 1987, at 4:30 p. m., several fighter-bombers of the Iraqi Air Force released seven 250 kg bombs with liquid sulfur mustard (SM) warheads over Sardasht, a small city (population 12,000) in the province of West Azerbaijan in northwestern Iran. Four of the bombs were detonated near the town center, in densely populated residential areas-two directly in the bazaar, two more in residential areas of the central city.

Three of the bombs missed the city itself and fell into small farms and orchards on the outskirts. In the warm summer temperature, the sulfur mustard evaporated quickly, and vapors were carried by the wind over a large area of the city and surroundings. The smell of garlic and sulfur could be detected far from the city center.

Because Sardasht was not considered a military target, the population was both unprotected and unprepared for a chemical weapons assault. Due to the direction of the wind, even the hospital and the convalescent center were contaminated, and the few doctors and nurses who were working there had to leave.

Two public baths were used for decontamination of the victims and a small stadium was converted to a 150-bed medical facility. Within the first few hours, about 30 people died, mostly young children and old people, due to severe respiratory problems.

Out of 12,000 inhabitants, 8,000 were exposed. Of the 4,500 requiring medical care, 1,500 were hospitalized, 600 of them in Tehran. The other 3,000 were treated as outpatients and discharged. Many of these 3,000 former outpatients left the city for the villages and attempted to treat themselves, using traditional medicines, etc.

Included among the 4,500 casualties requiring medical attention were some of the rescuers.

In the days following the Sardasht gas attack, hospitals and medical centers in neighboring cities as well as in Tehran were overwhelmed by civilian victims, women and children with painful, disfiguring burns and life-threatening lung damage due to the effects of mustard gas.

Twenty-four mustard gas casualties from Sardasht were evacuated to European hospitals, where they were treated by specialists in Austria (Vienna and Salzburg), Belgium (Brussels and Ghent), Spain (Madrid), and Italy (Rome). Many European newspapers and other media reported the story of these patients.

According to Iranian doctors who studied the public health impact of the attack,

The incident resulted in a spectrum of SM exposures dependent on proximity to impact of each munition. Analysis of both short and long-term effects was additionally complicated by the fact that the bombardment resulted in mechanical trauma as well as chemical exposure.

The results included "long-term susceptibility to illness among survivors of the attack, which persists to this day."

Most individuals in the vicinity of the munitions impact sites developed severe acute effects. Infants and children tended to exhibit the most profound medical complications due to their heightened sensitivity to toxic challenge relative to adults. It has also been suggested that the air close to the ground that is breathed by children (because of their short stature) contains the highest concentrations of the heavier-than-air chemical vapors.

Tragic precedent. It was the first documented large-scale chemical attack against a residential area anywhere in
the world. And what makes the event more inexcusable, according to a team of Iranian medical observers, is the fact that "this atrocity failed to provide the Iraqis with any manner of military advantage." Sardasht bears the tragic distinction of having been the world’s first city to be attacked with chemical weapons. Perhaps this is why some Sardasht survivors feel a bond with the people of Hiroshima, the world’s first city attacked with nuclear weapons. The anniversary of the attack against Sardasht is commemorated every year in Iran as The National Day for Campaigning against Chemical and Biological Weapons.

The chemical warfare toll

During the Iran-Iraq War, an estimated 1,000,000 Iranians, both military and civilian, were exposed to chemical warfare agents. More than 100,000 Iranians were documented to have received emergency medical care for chemical injuries. Half of those injuries were moderate to severe. During the war, at least 5,500 Iranians died directly and immediately from chemical injuries (3,500 from nerve or blood agents and 2,000 from mustard agent). Since the end of the war in 1988, several hundred have died of chronic complications due to mustard intoxication.

In 2010, more than 20 years after the end of war, approximately 70,000 Iranians are registered as receiving care for chronic effects from chemical weapons injuries. Of these around 10,000 are civilians (including 4,000 women). An additional 25,000 civilians (including 6,000 women), are estimated to be currently affected by chemical weapons injuries but not included in the national registry.

While this article is about the use of chemical weapons against Iranians, it is important not to forget victims of Saddam’s chemical weapons attacks in Iraq. In the Anfal campaign (1986-1989), the Iraqi military used nerve and mustard agents against Kurdish villages in the northern provinces of Iraq. About 5,000 civilians in the town of Halabja alone died instantly from nerve agent poisoning on 16 March 1988, and many other Iraqi towns and villages were also gassed in this campaign. It is estimated that at least 20,000 Iraqi civilians sustained moderate to severe chemical injuries. Many of them were evacuated to Iran for medical treatment.

### Morbidity and Mortality from Chemical Warfare Agents (CW) during Iran-Iraq War

<table>
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<tr>
<th>Category</th>
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<tbody>
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<tr>
<td>Iranians who received medical treatment for heavy exposure</td>
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<td>Iranian deaths from direct and immediate CW effects</td>
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<tr>
<td>- 3,500 nerve or blood agents</td>
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<tr>
<td>- 2,000 mustard agent</td>
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<tr>
<td>Iranians with chronic CW injuries, in registry</td>
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<tr>
<td>Iranians with chronic CW injuries, not in registry</td>
<td>40,000*</td>
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<tr>
<td>Iranian civilians with chronic CW injuries *(registered &amp; unregistered)</td>
<td>35,000*</td>
</tr>
</tbody>
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* Estimate
Background on the health effects of the Iran-Iraq war

The Iran-Iraq war that took place between 1980 and 1988 was one of the longest and most destructive wars of the 20th century. At least 300,000 Iranian soldiers and civilians were killed, around half a million seriously injured, and hundreds of thousands of people were displaced. Approximately one million soldiers and civilians were exposed to chemical warfare agents.

As well as horrifying immediate effects, mustard agents are known to cause long-term medical complications lasting for many decades. Exposure to mustard gas is associated with the development of complicated respiratory diseases and cancers; loss of sight through cornea damage; skin lesions, chronic neuropathic pain; damage to immune system and other chronic illnesses.

Not only that, but the environment is also suffering. Because of the possible toxic effects of those hazardous materials on the environment of western Iran, people living in these areas are concerned about the possible contamination of their food crops and water supply. More work is needed to assess the long-term impact of CW on the environment.

The health effects of the war are ongoing and continue to impact tens of thousands of CW survivors in Iran. As mentioned earlier, around 70,000 Iranian nationals are still suffering from the after effects of chemical weapons exposure, and the Iranian government continues to pay $37 million annually for treatment of chemical weapons victims.

Millions of veterans and civilians also suffer from psychological aftereffects of the violence. Several scientific studies conducted by research institutes and universities show that the psychological aftereffects of the Iran-Iraq war are widespread and persistent.

The indirect costs of ongoing medical care, disability pensions, social benefits, and reconstruction on both sides is significant.

The Iran-Iraq war has demonstrated that the health effects of war, far from being confined to immediate signs and symptoms, can linger or worsen with time. This is particularly true when nonconventional weapons are used. Exposure to mustard gas, for example, can cause long-term, late onset illness, and with effects often increasing with time.

Nonconventional weapons pose special dangers to civilians, often children: chemical agents may be brought into the home by exposed adults, and can cause birth defects in children.

Environmental exposure to landmines and mustard gas continues, and economic costs to families are ongoing.

Chronic Health Effects of Sulfur Mustard Exposure

Studies of Iranian scientists reveals that the most common long-term health effects of exposure to mustard gas are:

✓ Respiratory problems including
  · Chronic Bronchitis /Bronchiolitis
Casualties of Chemical Warfare in Iran: Response of Iranian Civil Society to the Tragedy

- Airways stenosis
- Damage of the wind pipe structure (tracheomalacia)
- Recurrent lung infection
- Decreased respiratory volumes and lung function

√ Eye lesions including
  - Corneal damage/melting/perforation
  - Dry eye

√ Skin lesions
  - Scars
  - Dry skin

√ Psychological disorders

According to chamber, field, and patch tests run by the U. S. Army during the Second World War, in which over 60,000 U. S. servicemen sustained varying degrees of exposure to mustard gas, the following specific health problems are caused by exposure to mustard agent:

- Respiratory cancers (nasopharyngeal, laryngeal, lung)
- Skin cancer
- Pigmentation abnormalities of skin
- Chronic skin ulceration and scar formation
- Chronic respiratory diseases (asthma, chronic bronchitis, emphysema, chronic obstructive pulmonary disease-COPD, laryngitis)
- Eye problems (recurrent corneal ulcerative disease, delayed recurrent keratitis of the eye, chronic conjunctivitis)
- Bone marrow depression and immunosuppression as an acute effect
- Psychological disorders (mood disorders, anxiety disorders, post-traumatic stress disorder, other traumatic stress disorders)
- Sexual dysfunction due to scarring

The reason for these effects can be traced to the alkylating effects of mustard:

Mustard agents are DNA-alkylating agents and are extremely cytotoxic at low doses. DNA alklation is probably responsible for the mutagenicity of mustard agents. These agents also alkylate RNA and proteins and can, at moderate to high doses, produce nonrepairable DNA lesions (genotoxicity).

Present:

A major response of Iranian civil society to the tragedies of the Iran-Iraq war has come from survivors of the chemical weapons attacks. Also a visit to Hiroshima, Japan by members of the Tehran-based NGO, Society for Chemical Weapons Victims Support (SCWVS) in 2004 created interest in the idea of an Iranian peace museum.
Hiroshima served as an example of a movement to convert great suffering into a powerful drive for peace. In 2005, the founder of SCWVS met with a coordinator for the International Peace Museums Network, and the planning for a peace museum in Tehran began.

During their 2004 visit to the Hiroshima Peace Museum, the founders of Tehran’s Peace Museum realized the necessity of involving the victims of the war in the creation of the museum. The stories of these individuals proved to be the clearest, most moving evidence of the harsh realities of war. Iranian victims of the Iraqi chemical weapons attacks, in particular, provided invaluable help in the creation of the museum.

The Society for Chemical weapons Victims Support: an NGO based on Survivors role

The SCWVS is a Tehran-based non-governmental organization (NGO), founded in 2003 and operates on a national basis, many of its members are survivors of chemical attacks or their family members, it has also many volunteers with different backgrounds.

Recent activities and projects of SCWVS include the following:

- Conducting awareness programs in order to increase public awareness on the consequences of war and the use of chemical weapons (and other weapons of mass destruction).
- Providing advisory services to the veterans and war victims organization and the government in the fields related to the CW victims
- Organizing national and international conferences addressing the medical, environmental and social consequences of the use of chemical weapons.
- Conducting oral history projects based on eye witness accounts of the survivors of CW attacks
- Increasing awareness in Iran and internationally of the continuing health effects of chemical warfare on both civilians and veterans by preparing educational materials on the topic in Farsi, English, and Japanese.
- Educating the Iranian and broader international community on important happenings within the framework of the Chemical Weapons Convention.
- Organizing and establishing the Tehran Peace Museum (2005) as part of an international network of peace museums. Its Mission is to raise awareness of the consequences of war, to promote citizen diplomacy, and to educate the public (especially schoolchildren) on peaceful ways to resolve conflict.
- Sending delegations of physicians and CW victims to Hiroshima, Japan, each August (from 2004) for the Peace Memorial Ceremony commemorating the 1945 atomic bombing.
- Organizing exhibitions on consequences of war and gas attacks:
  - √ At annual Chemical Weapons Convention conferences at The Hague (since 2003),
Casualties of Chemical Warfare in Iran: Response of Iranian Civil Society to the Tragedy

✓ On the 90th anniversary (2005) of the first attack, at Ypres, Belgium,
✓ At the Second Special review Conference of the Chemical Weapons Convention (CWC), The Hague, Netherlands, April, 2008.
✓ At several US Universities (including Harvard, George Washington, UCLA) during medical and public events during a US tour in May 2008

· Organizing the “Messengers of Peace” international seminar /Exhibition with representatives of those countries affected by weapons of mass destruction including atomic bomb survivors from Hiroshima, Chemical weapons survivors from Halabja- Iraq, Agent orange survivors from Vietnam, representatives of the city of Ieper in Belgium (the birth place of chemical warfare in the first world war and many Iranian survivors of chemical weapons, 2010-Tehran

Future:

As war survivors with intimate personal experience of warfare in Iran, we have come to understand that war is a humanitarian disaster, and one that continues for decades, even generations, after the cessation of fighting. Following the beginning of a conflict, disasters become regular and cannot be prevented.

The escalating political tensions in many countries especially in the middle east, possibility of a military intervention in Iran, and prolonged sanctions are of concern to many activists and members of Iranian civil society.

Without sufficient awareness of the effects of past conflicts, it is difficult to ensure that history will not repeat itself, bringing about further human tragedy.

As peace advocates, we have a social responsibility to prevent wars from beginning in the first place. The deterioration of a situation to military conflict constitutes a political failure on the level of the international community.

The Iranian experience is one in which international actors were unable to prevent Iraq from using inhuman and prohibited weapons, even when their use directly violated international treaties. There cannot, therefore, be full confidence that, if Iran or any other country is attacked again, the international community will be willing or able to prevent a human tragedy like we have seen in the past.

Conclusion

The tragedy of the use of chemical weapons against Iranians during the Iran-Iraq war was a terrible experience whose deep scars are still visible among Iranian society.

The response of Iranian civil society to the tragedy including establishment of NGOs like the SCWVS shows that the survivors of wars can stand up from the ashes of wars and raise awareness among the next generation about the brutality of war and its devastating consequences and the importance of peace, experience of Iranian CW survivors and their peace movement reveals that when the war survivors spread such peace message to the community, it would be much more
welcomed and more effective as it comes from those who have been victimized by war.

Final message:

Peace is not a distant dream, but an achievable reality. It is the duty of all of those who appreciate and understand the important of peace to work towards this reality. The prevention of violence and warmongering, and the abolition of destructive and inhumane weaponry are first steps that must be taken towards peace.

The atomic bomb attacks on Hiroshima and Nagasaki, the chemical weapons attacks on Iranians, are some of the most violent and bitter pages of 20th century history, the memories and suffering from which will never completely be erased. With such experiences motivating us, however, the survivors of such attacks, and all people around the world whose lives are impacted by weapons of mass destruction, must unite and send this message to the world:

- Let us put an end to inhuman catastrophes of war;
- Let us take practical steps towards abolishing nuclear and chemical weapons, and reaching stable peace;
- Let us plant the seeds of love and friendship, instead of those of war and hate.

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