

Legacy of Wars and Conflicts: Chemical Weapons Destruction

Green Cross Legacy Programme

The Legacy Programme of Green Cross International, past and present activities:

- ✕ Inventory of nuclear contamination in Russia (Radleg)
- ✕ Trust-building to resolve issues surrounding civil and military uses of nuclear technology (Nuketrust)
- ✕ Trust-building to facilitate chemical weapons destruction (Chemtrust)
- ✕ Military base clean-up and destruction of conventional weapons (Conweap)
- ✕ Accompanying measures in the social, medical and educational fields (Soemed)



Further information available at:
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Chemical Weapons Threat

About 70,000 tons of chemical weapons stockpiled in Russia, the U.S., and four additional countries continue to pose a threat to people all over the world. Until they have been completely destroyed in a safe and environmentally sound way, the following non-military threats will continue to exist:

- ✗ Theft or diversion of chemical weapons by terrorists and their use for terrorist aims
- ✗ Severe pollution of soil and groundwater by leaking or improperly destroyed weapons
- ✗ Worldwide proliferation of weapons R&D (research and development) expertise



Leaking weapons in Penza, Russia are a serious risk to public health and the environment.

Destruction potential of chemical weapons:

Just as an example, the chemical weapons stored in Shchuch'ye (Russia) – an average sized chemical weapons stockpile - are sufficient to kill all humankind six or more times over.

Stockpiles in the U.S. and Russia



U.S. initially declared a stockpile of 31,500 metric tons at nine stockpile sites



Russia initially declared a stockpile of 40,000 metric tons at seven stockpile sites

Destruction Programme

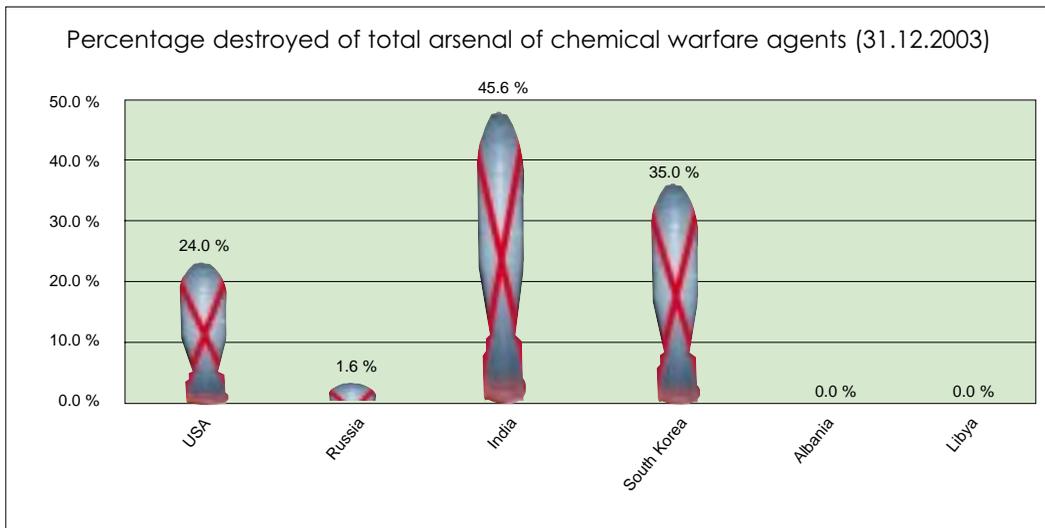
1993: Chemical Weapons Convention signed after nearly 12 years of negotiation.

1997: Entry into force of the Chemical Weapons Convention: United States, Russia, India, South Korea, and later Albania and Libya, commit to abolish their arsenals by 2007 with a possible five-year extension until 2012.

All of the 164 current State Parties commit to:

- ✗ prohibit all development, production, use, stockpiling and transfer of chemical weapons
- ✗ destroy chemical weapons stockpiles and former production facilities
- ✗ prevent their re-emergence by monitoring production, use, and trade of chemicals and the chemical industry

Destruction status



Main classes of chemical warfare agents

Class	Examples	Used in
Choking agents	Chlorine, phosgene	First World War
Blistering agents	Mustard gas, lewisite	First World War, Iran-Iraq War
Nerve agents	Tabun, sarin, soman, VX	Iran-Iraq War, Halabja attack

Main classes of chemical warfare agents

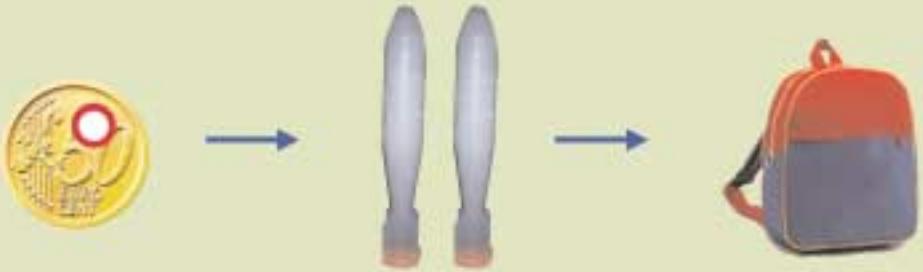
	Initial estimated completion year	Estimated costs at that time	Realistic completion year	Realistic costs (low estimate)
U.S.	1997	\$ 1.5 Billion	2012-2015	\$ 25 Billion
Russia	2007	\$ 5-6 Billion	2012-2020	\$ 10 Billion

Terrorist threat

One dose of VX (10mg, size of a pinhead) is sufficient to kill one person

Two 122mm artillery warheads filled with 3kg of VX each, theoretically containing 600,000 lethal doses

Two 16kg warheads (56cm long) can be transported in a simple daypack



Global Partnership Initiative (GPX)



«The G8 calls on all countries to join them... to prevent terrorists or those that harbour them from acquiring or developing nuclear, chemical, radiological and biological weapons; missiles; and related materials, equipment and technology.»

Statement by G8 Leaders, Kananaskis, Canada 27 June 2002

International activities against the proliferation of weapons of mass destruction:

- 1991: Soviet Nuclear Threat Reduction Act
- 1992: Creation of the Nunn-Lugar Programme
- 1993: Signing of the Chemical Weapons Convention
- 1997: Entry into Force of the Chemical Weapons Convention
- 2002: Global Partnership Initiative

GPX pledges for destroying weapons of mass destruction

Country	Pledge
Canada	\$735 million
Finland	\$18 million
France	\$916 million
Germany	\$1,832 million
Italy	\$1,221 million
Japan	\$200 million
Russia	\$2,000 million
UK	\$750 million
U.S.	\$10,000 million
EU	\$1,221 million
Netherlands	\$29 million
Norway	\$122 million
Poland	\$0.05 million
Sweden	\$44 million
Switzerland	\$14 million
Total	\$19,102 million
GPX goal	\$20,000 million

Approximately 10% of the GPX pledges will be used for chemical weapons destruction

Why the GPX was initiated?

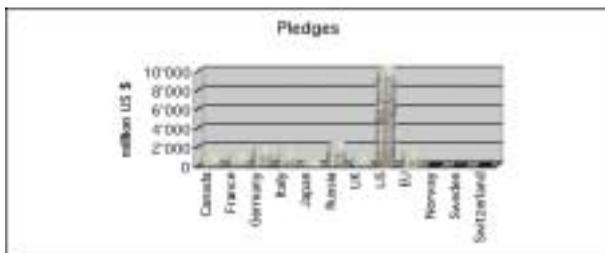
The attacks of September 11 demonstrated that terrorists are prepared to use any means to cause terror and inflict appalling casualties on innocent people.

In response, the GPX supports specific cooperation projects, initially in Russia, to address non-proliferation, disarmament, counter-terrorism and nuclear safety issues. The GPX plans to spend \$20 billion over ten years.

What are challenges to the GPX?

Implementation of the GPX faces serious road-blocks and delays from:

- ✗ Liability questions
- ✗ Red tape
- ✗ Tax issues
- ✗ Site access
- ✗ Transparency
- ✗ Public concerns in local stockpile communities with regard to health and environmental impacts, emergency preparedness, economic prospects.
- ✗ Mistrust towards authorities.
- ✗ Lack of timely, clear and objective information.



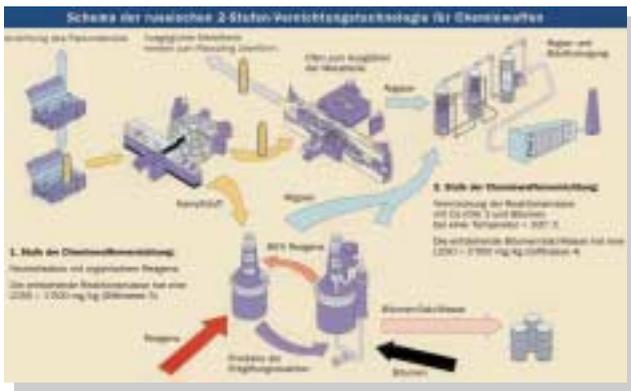
Destruction Facilities



Destruction plant in Tooele, Utah (USA)

Chemical weapons destruction technologies

- ✗ More than 100 possible technologies
- ✗ Incineration (the U.S. baseline destruction technology) is mature but produces large volumes of gaseous effluents
- ✗ Neutralisation and bituminisation (the Russian nerve agent destruction technology) is a simpler process but produces large amounts of solid wastes



Scheme of neutralisation and bituminisation

Local acceptance as key issue

Three case studies showing the importance of integrating local communities in the demilitarisation process:

1. Chapayevsk: failed start-up of new Soviet destruction facility

In the late Soviet Union, the Ministry of Defence secretly constructed a centralised destruction facility in Chapayevsk (Samara Region). When, in 1989, the then Minister of Foreign Affairs Eduard Shevardnadze publicly announced the opening of the facility, there were immediate public protests at the local level, leading a few months later to the closure of the facility before it ever became operational. As a direct consequence, massive financial investments had been wasted and the destruction programme was set back by a decade.

2. Newport: plans of U.S. Army blocked by protest actions

In Newport, Indiana, VX nerve agent is to be neutralised and the resultant low-toxicity liquid transported to the “DuPont Chambers Works” plant in New Jersey. This liquid hydrolysate would then be treated and finally released into the Delaware River. This plan, as well as an earlier 2003 plan to transport hydrolysate to Dayton, Ohio, is currently being blocked by organised community and state opposition. The state governors of Delaware and New Jersey are both opposed to the shipment plan.

3. Votkinsk: project fails due to insufficient collaboration with local community

The recent case of Votkinsk, a U.S. Cooperative Threat Reduction project to destroy over 800 Russian strategic missiles filled with solid rocket propellant, is a good example of what can happen when there is insufficient investment at the local community level. The city and region of Votkinsk, located in the Udmurt Republic of Russia, requested that a medical clinic be constructed in the town in order to provide improved services to both workers and citizens. However, neither the U.S. CTR programme, nor the Russian government, would agree to fund the request – probably a \$1 million investment. The Udmurt Government and Parliament then refused to provide the necessary permits for major construction to begin in Votkinsk, thus forcing missile destruction to be moved to Perm where it faces more opposition today. This lack of foresight was one of the major contributing factors to the unscheduled termination of the Votkinsk CTR project in 2003 after almost \$100 million had already been spent by the U.S. Government on its design and development.

Responses needed

The local population, in most cases, remains indifferent or critical towards the construction of a chemical weapons destruction facility because of unclear benefits but visible burdens for the community. So called «Chemophobia» in communities leads to the perception that all problems in a stockpile area are related to the presence of the chemical weapons.

In addition to concerns about the safety of the destruction process and security at chemical weapons stockpiles, recurrent issues at the local community level include:

- ✘ Impact on public health of the demilitarisation project
- ✘ Impact on environment and agriculture, which are core to the livelihood of the communities
- ✘ The need for adequate and credible emergency preparedness
- ✘ The need for clear, comprehensive and objective information provided in a timely manner
- ✘ Economic impacts, in particular employment opportunities during construction and operation of destruction facilities
- ✘ Trust in authorities; feeling marginalised in the decision-making process



International Green Cross Forum on chemical weapons destruction at the UN in Geneva, June 2003

Response: outreach offices at demilitarisation sites

Outreach offices are situated in a central location in stockpile communities and are open to the public on a daily basis. The outreach offices provide the local population with the following services:

- ✗ Provide access to information of a technical, environmental, political, medical or other nature with relation to the destruction and/or transportation of the local stockpile
- ✗ Keep the local population and administration informed on progress throughout the chemical weapons destruction programme
- ✗ Identify public perceptions, concerns and attitudes as well as potential controversial policies and issues and supply information to address these concerns
- ✗ Facilitate an open and direct communication between Federal officials, State officials, experts and citizens
- ✗ Provide representatives of ministries and donor nations with information on community perspectives and needs
- ✗ Contribute to resolving key community issues in a practical manner



Trust building

- ✗ open information policy
- ✗ transparency
- ✗ active cooperation
- ✗ Respond to community issues with practical solutions
- ✗ Integration of communities in decision-making process through e.g. Citizens' Advisory Commissions or a National Dialogue

Response: dealing with health concerns

What is Soemed?

The Soemed Programme (Social, Medical Care and Education) offers assistance to the most affected sectors of the population, especially children and teenagers as well as mothers and fathers with their young children. Soemed helps to improve public health services and social infrastructure and focuses especially on education and training in order to disseminate knowledge on health, environment and nutrition to local networks, namely pedagogues, camp educators, youth group leaders, medical personnel, civil organisations and governmental bodies.



Success in the Chemical Weapons Stockpile Communities of the Russian Federation in the Year 2003:

- ✗ Preventative **health** care education for 1'544 children, medical assistance for 194 children and medical checks for 790 adults
- ✗ Extensive environmental **education** for children and adults, including teacher training and chemical agent specific medical training for doctors
- ✗ Added **social** cohesion through improved intra-community relations developed through «Family Club» activities

Response: Emergency training in stockpile communities

Provide support to the local population by

- ✗ Equipping citizens with gas masks
- ✗ Training people on recognising alarm signals and on correct behaviour in the case of an emergency

Provide support to emergency services by:

- ✗ Specialised training of medical staff and first-aid workers on treatment of injuries inflicted by chemical warfare agents
- ✗ Supporting emergency training opportunities with the population
- ✗ Equipping emergency response services
- ✗ Upgrading alarm and communication systems
- ✗ Performing risk assessments, as a basis for properly planning and responding to emergencies



Citizens training in Russia

With only 1% of GPX pledges, channelled into addressing community concerns and into providing public outreach and participation, risks to the successful implementation of chemical demilitarisation can be significantly lowered. These types of activities are key toward mitigating project challenges.

Response: Environmental projects

Many chemical weapons stockpile regions suffer from soil and water pollution from:

- ✗ former chemical weapons destruction sites (e.g. open-pit burning sites)
- ✗ non-stockpiled, old, leaking chemical weapons
- ✗ accidents at former production facilities
- ✗ disposal of toxic production wastes



Examination of a chemical weapons open-pit burning site near Penza (Russia)

Environmental Impacts

When warfare agents leak into soil and/or water, they have several potential impacts:

- ✗ Accumulation in soil
- ✗ Migration into groundwater
- ✗ Health impacts (short- and long-term) on people, plants and animals
- ✗ Decomposition (with resultant compounds still toxic)

Clean-up Projects

Clean-up of former destruction sites and environmental safety are key for community trust.

Clean-up technologies should be:

- ✗ affordable
- ✗ easy to use
- ✗ sustainable
- ✗ reliant on local resources where possible
- ✗ transfer know-how to local authorities

Clean-up methods for different degrees of contamination

There is no “one size fits all” clean-up technology. Technology choices depend on site-specific factors including future reuse of the land, finances available, urgency of clean-up, technologies and expertise available.



Polluted Region in Russia

Degree of contamination	Clean-up method
Highly contaminated soil, hotspots	<ul style="list-style-type: none">✗ Incineration of contaminated soil in special facilities✗ Soil washing✗ Vitrification in-situ✗ Isolation of polluted site
Vastly contaminated soil and water areas	<ul style="list-style-type: none">✗ Bio-remediation✗ Ecocatalytic recovery✗ Isolation of polluted site

To decontaminate vast areas polluted by military pollutants, additional research is needed on affordable and effective clean-up methods.

1% of the GPX pledges should be used to set up inventories, initiate pilot clean-up and remediation projects and to finance environmental monitoring.

Response: economic prospects

Job creation

Creating new economic prospects is, in addition to health, environmental monitoring and emergency preparedness, a central prerequisite for the participation and support of local communities in the GPX action plan. This necessitates:

- ✕ Workers' training programmes providing employment opportunities at CWDF and other construction sites
- ✕ Small grant programmes for facilitating the creation of small and middle-sized enterprises, agriculture conversion, etc.



Workers in closed destruction facility in Chapayevsk, Russia, used nowadays for training purposes

Reuse of the facilities after the destruction of chemical weapons

In order to provide a longer term outlook, conversion of destruction facilities for other purposes should be evaluated. Destruction of obsolete pesticides is a possible option.

How the EU contributes

The EU contribution to the G8 Global Partnership Initiative is provided through two different mechanisms. The first is the long-standing European Community “TACIS” programme; the second is the more recent European Union “Joint Action on Non-proliferation and Disarmament” in Russia, implemented under the Common Foreign and Security Policy.

European Union

- ✘ TACIS (Technical Assistance to CIS countries): installation of an environmental monitoring system in the Gorny region; environmental projects at the former lewisite production facility in Dzerzhinsk; installation of an environmental and health monitoring system around the former chemical weapons production facility in Novocheboksarsk
- ✘ Joint Action (a European Union Cooperation Programme for non-proliferation and disarmament in the Russian Federation): technical support for Gorny; construction of technical infrastructure in Shchuch'ye
- ✘ G8 Inter-parliamentary Conference with the European Parliament in Strasbourg to coordinate the actions of the EU with the GPX (November 2003). France, Germany, Italy, and UK are members of both the G8 and the EU.
- ✘ New Security Strategy in December 2003, which highlights terrorist acquisition of weapons of mass destruction as “the most frightening scenario.”

Members of the EU

Czech Republic

- ✘ Contribution to construction of an electricity sub-station in Shchuch'ye

Denmark

- ✘ Support to public outreach

Finland

- ✘ Installation of warfare agent detection systems at the chemical weapons storage site in Kambarka and the destruction facility in Gorny.

Germany

- ✘ Equipment for the chemical weapons destruction facilities in Gorny and Kambarka

Italy

- ✘ Construction of one segment of a 135km gas pipeline, which is to provide power to the future Shchuch'ye chemical weapons destruction facility

The Netherlands

- ✘ Construction of an electricity sub-station to provide power to the Gorny destruction facility
- ✘ Construction of an electricity sub-station at the Kambarka chemical weapons destruction plant (jointly with Switzerland).

Poland

- ✗ Research on lewisite destruction

Sweden

- ✗ Risk assessment of possible accidents at the Kambarka stockpile
- ✗ Furnishing of a public information office in Kambarka and communication training for office personnel
- ✗ Upgrade of regional hospital's capacity to analyse human exposure to arsenic

United Kingdom

- ✗ Construction of water pumping station and water line in Chumlyak
- ✗ Construction of electricity supply and transformer sub-station in Shchuch'ye Area
(jointly with other donor countries)
- ✗ Support to public outreach

Other European Countries

Norway

- ✗ Purchase of two electricity transformers for the supply of power to the Shchuch'ye destruction facility

Switzerland

- ✗ Implementation of an environmental monitoring system in the Shchuch'ye Area.
- ✗ Construction of a transformer sub-station in Kambarka (jointly with The Netherlands)
- ✗ Support to public outreach

Non-European Countries

Canada

- ✗ Construction of an 18km railway in the Shchuch'ye Area for transporting chemical weapons from the stockpile to the destruction facility USA
- ✗ Construction of a chemical weapons destruction facility in Shchuch'ye
- ✗ Equipping of a central analytical laboratory in Moscow
- ✗ Provision of three mobile laboratories
- ✗ Security upgrades at the Shchuch'ye and Kizner chemical weapons stockpiles
- ✗ Support for conversion and destruction of former chemical weapons production facilities

What should be done?

In order to remove obstacles to the rapid and safe elimination of existing stockpiles of weapons of mass destruction, the Global Partnership Initiative should work to:

- ✗ Closely coordinate efforts between all partners in order to implement cost-efficient projects in a timely manner, thus meeting the overall GPX goals
- ✗ Provide national leadership in order to remove unnecessary bureaucratic obstacles and red tape which have stalled overall progress to date
- ✗ Use 1% to finance **public outreach, community participation and to directly address community concerns; and 1% to set up inventories, initiate pilot clean-up and remediation projects and for environmental monitoring in order to mitigate project risks leading to setbacks of years and potential large losses of investment**

The keys to success:



Use 2% of the GPX pledge for accompanying measures and monitoring

1% for public outreach, community participation, and for addressing community concerns

1% for setting up inventories, initiating pilot clean-up and remediation projects and for environmental monitoring

These less expensive, but no less important, measures are a perfect opportunity for smaller countries to participate in an effective and meaningful way to the implementation of the Global Partnership, even with a limited budget.