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IMPLEMENTING THE CHEMICAL WEAPONS CONVENTION: TECHNICAL AND POLITICAL CHALLENGES IN THE US AND RUSSIA

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After years of tedious and contentious negotiations, most everyone breathed a deep sigh of relief when the Chemical Weapons Convention (CWC) was signed by 130 countries in January 1993. The immediate challenge thereafter was to achieve ratification by the required 65 nations for entry into force and by the two major chemical weapon powers – Russia and the United States. Over four years later, on 29 April 1997 the CWC entered into force with the United States just making it under the wire with its ratification four days earlier. Russia ratified on 5 November 1997.

For some observers, this was the long-awaited culmination of many decades of effort to abolish a whole class of mass destruction weapons. For others, however, it was only the beginning of a difficult road ahead to implement the CWC. Questions of technology choice, environmental permitting, public health impacts, financing, and community involvement remained to be tackled in both the US and Russia. And with the CWC's official entry into force, a ten-year clock began ticking for abolition of chemical weapon stockpiles by April 2007 (with the possible option of a five-year extension to 2012 upon request and approval by the CWC Conference of the States Parties). Thus the inevitable clash of legally binding deadlines, of development of appropriate destruction technologies, and of democratic decision-making and consensus-building began in earnest.

Two recent Global Green/Green Cross forums in Moscow and Washington illustrate the high hurdles still remaining. On 26 May Global Green USA organized a Legacy Program briefing on Capitol Hill with Dr. Theodore M. Prociv and Brig. Gen. Thomas E. Kuenning Jr. (USAF, retired), each speaking respectively on the American and Russian chemical demilitarization programs. Entitled *Abolition of Chemical Weapons: An Update on Russian and American Demilitarization on the Second Anniversary of the Chemical Weapons Convention*, the forum sought to review how much both countries had accomplished and how much remained one-fifth of the way down the CWC ten-year path.

Prociv, the Deputy Assistant Secretary of the Army for Chemical Demilitarization, emphasized that some 22 per cent of the US stockpile – 6,865 tons – would be destroyed by the end of 1999 and that 90 per cent of the initial 31,495 tons in the stockpile is now under contract for destruction. Only two of the nine major American stockpile sites remain without a contract or technology for stockpile destruction. The total estimated cost for stockpile destruction has grown to $12.4 billion, for non-stockpile chemical materiel to $1.4 billion, and for emergency preparedness to $1.2 billion; the grand total of $15 billion far exceeds early estimates of $2 billion or less and, as Prociv pointed out, will be subject to "out-year cost growth" if schedules continue to slip, additional technology development is necessary, or more buried chemical weapon materiel is identified.

The "baseline" incinerator technology has been chosen for five of the nine US sites – Johnston Atoll (operating since 1990); Tooele, Utah (operating since 1996); Anniston, Alabama (construction started in 1997); Umatilla, Oregon (construction started in 1997); and Pine Bluff, Arkansas (construction started in 1999). Neutralization followed by bioremediation has been selected for the mustard agent in bulk containers at Aberdeen, Maryland (design/build contract awarded in 1998); neutralization followed by supercritical water oxidation has been selected for the bulk VX nerve agent at Newport, Indiana (design/build contract awarded in 1999). Only Pueblo, Colorado and Blue Grass, Kentucky are still in search of appropriate technologies through the congressionally mandated program (Public Law 104-208) on Assembled Chemical Weapons Assessment (ACWA) which will present findings to Congress in September on three recent technology demon-

strations. Combined with a National Research Council independent assessment, and a schedule and cost audit by Arthur Andersen consultants, the forthcoming ACWA report should allow a technology selection for Colorado and Kentucky within the coming year.

Regarding the "non-stockpile" chemical sites, Prociv underlined that suspect material is located in 38 states at several hundred sites with a wide variety of activity currently ongoing including destruction of the VX production facility at Newport, the BZ munitions fill facility at Pine Bluff, and buried chemical weapons cleanup in the Spring Valley section of Washington, DC. The good news about binary weapons is that all 201,728 excess M-687 projectile bodies were destroyed at Hawthorne Army Depot, Nevada by 6 January this year; all excess canisters were destroyed by 16 March, thus meeting an interim CWC deadline. Still awaiting destruction are 17,220 M-687 binary projectiles and canisters scheduled for elimination by August plus the 56,820 complete sets of projectiles and precursor-filled canisters that are to be eliminated in the second and final phase of the binary-munitions destruction campaign. Also, a small transportable destruction device for detonating chemical munitions has been tested and will be shipped to Britain in June for further testing.

Former production facilities for chemical weapons at three sites – Aberdeen, Newport and Pine Bluff – also await destruction; the Newport VX plant is now ahead of schedule with some ten per cent of specialized equipment destroyed.

Prociv concluded that he was committed to controlling "cost growth and schedule creep" which have plagued the American chemical weapons demilitarization for over a decade but, when asked about the viability of meeting the 2007 CWC deadline, he cited a 1998 audit by Arthur Andersen consultants estimating "a five percent probability" of meeting this initial CWC target date and projecting another $3 billion in program cost growth.

Also raised by Prociv was the ongoing need for citizen and community involvement. He cited this as a key and successful component of the national Dialogue on Assembled Chemical Weapons Assessment, where states, regulatory agencies, tribal representatives, citizens, and national environmental groups (including Global Green USA) have reviewed plans over the past two years for innovative, non-incineration technologies. The Dialogue process, recently selected by Harvard University as a finalist in its annual innovative technology award competition, was established as part of the ACWA process to help build consensus around destruction processes. Global Green USA has played an active role in this process since its inception in 1997 and was selected to join the CATT – a four-person Citizens' Advisory Technical Team which joins the sensitive procurement process as the Dialogue's eyes and ears.

The May GGUSA roundtable also heard from Brig. Gen. Thomas Kuenning Jr. on the Cooperative Threat Reduction (CTR) program and its efforts to destroy chemical weapons at one of seven Russian chemical weapons stockpile sites. The CTR program began in fiscal year 1992 with an initial appropriation of $12.9 million and has since grown to almost $500 million annually. As part of Defense Department expenditures, CTR is aimed at destroying weapons of mass destruction of the former Soviet Union, enhancing safety and security of Russian facilities, encouraging military reductions and reform, and supporting non-proliferation policies.

The large majority of CTR funding to date has been oriented toward nuclear weapons. However, some $100 million has been targeted at biological weapons by dismantling the BW production facility at Stepnagorsk in Kazakhstan, by collaborative Russian–American research, and by securing laboratory stocks of potential BW agents. The current value of the CTR program for chemical weapons is $192.2 million, but the projected total is $1.1 billion. Most of this will be dedicated to constructing a pilot demilitarization facility at Shchuch'ye in the Kurgan Oblast just north of Kazakhstan. Also funded is the construction of a Central Analytical Laboratory (CAL) in Moscow, now scheduled for completion in December 1999, and three mobile labs.

CTR funding will support construction of the first stage of the Shchuch'ye facility — two destruction processing lines for 85–152 mm and 220–240 mm artillery shells filled with nerve agent. This will handle up to 500 metric tons per year. A second stage of construction for two additional lines for 85–152 mm artillery shells and larger 540–880 mm artillery and rocket (FROG and SCUD) warheads is planned to be the responsibility of Russia. This would add another 700 metric tons per year of processing capability.

Two major procedural goals for construction of the Shchuch'ye facility have already been met: the "Justification of Investment" (JOI) in July 1996 and the site selection in June 1998. Still to be addressed is the land allocation, now scheduled for September 1999. General Kuenning pointed out that, assuming that the schedule is no longer delayed, construction of the facility could be finished in 2004 or 2005, with operations beginning in 2006. He admitted to the "impossibility" of Russia therefore meeting the CWC deadline of 2007.

A recent report of the US General Accounting Office (GAO) also pointed out that Shchuch'ye's 5,600 tons of nerve agent would probably not be fully destroyed until 2017 unless the facility design was expanded. Russia's 1995 chemical weapons destruction plan projected completion of five nerve agent facilities by 2001 but continual delays and lack of Russian funding now make compliance with CWC time lines an academic exercise.

CWC implementation in Russia has been burdened by a number of roadblocks, perhaps the greatest being the demand by local stockpile communities for infrastructure investment. When I first visited a Russian CW stockpile in 1994, local town leaders explained to me that the arsenal in their backyard had been kept secret until the early 1990s and had thereby prevented any outside involvement, and therefore investment, in their community for decades. They were now adamant that any destruction facility, with its associated risks and burdens, would have to include considerable benefits for the local community so that the region could become sustainable over the longer run. Kurgan Governor Oleg Bogomolev stated in a recent press interview that he would not allow land allocation to take place until visible progress had been made with housing and road construction and other infrastructure development requested by the community.

American politics also plays a role in delaying Russian chemical weapons demilitarization. The CTR program is constrained by past congressional legislation specifying that no funds can be spent "outside the fence", that is, beyond the immediate needs of weapons destruction. Proposed legislation for fiscal year 2000 delineates additional specific prohibitions: peacekeeping activities, housing, environmental restoration, and job retraining. House Armed Services Committee Chairman Floyd Spence, a conservative Republican from South Carolina, has also proposed killing CTR support for Russian chemical weapons demilitarization, arguing that nuclear weapons destruction should take complete priority. (See Section 1305, "Limitation on Use of Funds for Chemical Weapons Destruction", of H.R. 1401 for FY 2000 defense authorizations.)

Still another challenge for Russian CW demilitarization to meet is the optimization of the technology of destruction. Several years ago, through the Russian–American Joint Evaluation Program, Russian scientists developed a two-stage technology for destruction of Russian VX nerve agent. The first stage would be neutralization by ethanolamine solvolysis, followed by bitumenization – the mixing and solidification of the neutralized mixture with asphalt for subsequent landfill. Although US scientists several years ago recommended leaching studies of the potential toxicity and long-term carcinogenic effects of the bitumen mass, Russian labs have continued to scale up the technology. The GAO reports that the initially proposed bitumen waste product had a flash point "about 20 degrees Fahrenheit below the threshold that US fire code standards would classify as 'explosive'", further delaying the Shchuch'ye schedule until the composition could be modified. Preliminary reports now state that the Russian two-stage technology may be progressing successfully, but the community remains wary of an enormous, long-term landfill with little confidence in long-term federal funding for maintenance. Kuenning has promised the public that CTR will not support any technology which does not meet American environmental and public health standards.

Another related problem with Russian CWC implementation is funding. A conference held in Moscow on 18 May, organized jointly by Global Green/Green Cross and the EastWest Institute, sought to bring together individuals and organizations interested in demilitarization and development. Entitled *Chemical Weapons Destruction: Opportunities for Regional Development, Civil Society, and Business*, the conference underlined the need for foreign investment in not only chemical weapons demilitarization, but also socio-economic infrastructure in the stockpile regions. Regional governors and representatives portrayed development needs in stark terms and argued that until such investment was forthcoming from Moscow and/or abroad, chemical weapons would not be destroyed. In other words, chemical weapons stockpiles are being held hostage to long-awaited societal needs in the Russian regions.

Two representatives of the Russian Ministry of Defence, Generals Valeri Kapashin and Vladimir Ulyanov, readily admitted that Russian financial support for CW destruction had fallen far short of requests and projections. They also pointed out, however, that except for the American support of the Shchuch'ye site, there had been very little help from other countries. The United States has estimated that planning, construction, and initial operation of the Shchuch'ye facility will cost upwards of $800 million to destroy some 13 per cent of the Russian CW stockpile. What of the remaining 87 per cent – some 35,000 tons of nerve and blister agents?

Several West European countries have initiated much less ambitious efforts to support Russian CW demilitarization. Sweden, for example, signed a 1993 agreement with Russia to undertake risk analysis for the Kambarka CW site, a lewisite bulk agent stockpile in the Udmurt Republic. It has also supported the opening of a public outreach center to link Russian military authorities and local citizens. To date the cost of this effort is estimated by Swedish authorities at 3.6 million Swedish Krona ($420,000).

As reported by General Kapashin, Germany has committed some DM22 million ($11.8 million) to date to support the CW site in Gorny, a stockpile of mustard and lewisite in the Saratov Oblast. Norway has also promised $190,000 for environmental and health monitoring at Gorny. The Netherlands signed a December 1998 agreement to work at Kambarka as well for NLG10.8 million ($5.1 million). Finland is also supporting Kambarka with FM2 million ($350,000). France is also considering helping out in Gorny, while Italy promised at a 1998 Green Cross/Global Green hearing some $8 million for pipeline development in Kizner in the Udmurt Republic. The UK and Canada may also join in support this year. Switzerland has been supporting much of the public outreach work of Green Cross Russia and Green Cross Switzerland for some $300,000 annually. In addition, as reported by Stefan Schleunning of the European Commission, also at the Conference, 10 million Euros ($10.4 million) has been dedicated by the European Union for 1997–99 for environmental protection and monitoring in Gorny, for safety and health work at Nizhny Novgorod (CW production facility), and for 'micro-projects' this year in civil society and ecological monitoring.

These ten countries, however, have to date committed only a small fraction of the support of the United States and of the overall estimated cost of Russian CW abolition – likely to reach $10 billion or more for all seven major sites. It is readily apparent that without expanded Western aid Russia will not destroy its 40,000 tons of chemical weapons for decades to come.

The Green Cross/Global Green program to address the need for CWC implementation, CW demilitarization, and CW nonproliferation has sought to address these many and interrelated challenges on several levels in both the US and Russia. The Legacy Program was founded five years ago by Green Cross President Mikhail Gorbachev to help facilitate the cleanup and sustainable redevelopment of military lands after the Cold War. It has operated as a joint American–Russian–Swiss project and has focused to a large extent on the demilitarization of chemical weapons arsenals as one of the most dangerous, challenging, costly, and timely legacies of the Cold War.

"ChemTrust", as the Legacy Program's chemical demilitarization efforts have been called in Russia and the US, has first sought to facilitate federal-state-local dialogue and consensus on CW destruction efforts. Five public hearings

in state capitals and at local CW sites have been organized to date in Russia; one hearing has been convened in the US in Indiana. Three briefings have also been held on Capitol Hill in Washington with federal, state, and local officials, state regulators and governors' representatives, citizens, industry representatives, and arms control and environmental groups. A sixth public hearing is now planned for 1999 in Russia.

Global Green and Green Cross have also initiated a Russian-American partnering program and have partnered the Kurgan Oblast with the State of Indiana; the village of Shchuch'ye has also been partnered with the town of Clinton, Indiana. A second Russian region will be partnered with an American state in 1999.

Under sponsorship of the Cooperative Threat Reduction program, Global Green and Green Cross also organized a workshop in March 1999 on the establishment of citizens' advisory boards in Russia in order to further local and regional consensus-building. A workshop discussion paper was presented which analyzed the American and Swiss experiences with Citizens' Advisory Commissions (CACs) at CW stockpile sites, Restoration Advisory Boards (RABs) at closing military bases, and consensus-building processes in Basel, Switzerland. Hosted by the Russian Ministry of Defense, this workshop has led to a Green Cross CAC model now being considered in Russian regions of demilitarization. An additional and obvious product of this work in Russia has been promotion of civil society, democratization, and the rule of law.

Global Green USA, while taking no stand on specific technologies, has also sought to facilitate the research, development, and demonstration of alternative destruction technologies in order to provide communities with a wider range of technology choice and to provide the military with a more robust and complementary tool box for CW destruction. This work has been done primarily through active involvement in the national Dialogue on Assembled Chemical Weapons Assessment, mentioned above, and sponsorship of Russian delegations to participate in Dialogue meetings. ACWA completed its initial demonstration phase of three groups of technologies in early May and, as noted earlier, will present its evaluation of the data to Congress in September. These non-incineration technologies include neutralization, bioremediation, supercritical water oxidation, plasma arc, and a number of related systems.

In conclusion, the negotiation of international arms control agreements is only the first step in elimination of weapon systems. The Chemical Weapons Convention — which took some sixteen years to get from the establishment of the Ad Hoc Committee on Chemical Weapons in Geneva to entry into force — may indeed require another sixteen years or more to fully implement. CWC implementation requires a multi-pronged approach: government-sponsored technology development in partnership with industry; proactive involvement of all stakeholders at federal, state, and local levels; transparency of information; dedicated facilitation of consensus-building around technology choice, construction, and public health and environmental impacts; investment in local infrastructure in order to help establish sustainable economies after CW stockpiles and military bases are gone; and sufficient funding from the federal government and, in the case of Russia, from multiple sources to carry the abolition of chemical weapons to its ultimate conclusion.

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THE EUROPEAN UNION'S ROLE IN CBW DISARMAMENT AND NON-PROLIFERATION

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According to Article 11 of the Treaty of Amsterdam (which entered into force on 1 May) the European Union (EU) "shall define and implement a common foreign and security policy covering all areas of foreign and security policy". Throughout the implementation of this common foreign and security policy (CFSP), the EU has paid much attention to the non-proliferation and disarmament of chemical and biological weapons.

The Union[1] played a constructive role during the negotiation and preparatory phase of the 1993 Chemical Weapons Convention (CWC) and is currently playing a similar role in the negotiation of the protocol to strengthen the 1972 Biological Weapons Convention (BWC) and in the implementation of the CWC following its entry into force in April 1997. While, for a number of years the EU has expressed its support for the CBW disarmament and non-proliferation regimes, its activity is not limited to a merely declaratory approach. On a more practical level, the EU facilitates the coordination and cooperation of its fifteen member states on CBW issues, particularly in international organizations and negotiations. The EU also provides funding for the demilitarisation of chemical weapons production facilities in Russia and for the re-training of scientists from former CBW programmes in Russia and Ukraine. The member states of the EU operate controls on the export of dual-use goods from their territory.

EU activity with regard to CBW does not fit neatly into one of the three "pillars" which make up the Union. Instead, activity cuts across all three, from the supranational first pillar (the original European Communities structure), to the intergovernmentalism of the second (the CFSP) and third (justice and home affairs) pillars. The changes recently introduced by the Treaty of Amsterdam, in particular the appointment of the high representative for the CFSP, the

in state capitals and at local CW sites have been organized to date in Russia; one hearing has been convened in the US in Indiana. Three briefings have also been held on Capitol Hill in Washington with federal, state, and local officials, state regulators and governors' representatives, citizens, industry representatives, and arms control and environmental groups. A sixth public hearing is now planned for 1999 in Russia.

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