Chemical terrorism: prevention, response and the role of legislation

In November 2010, a table-top exercise was held in Warsaw, Poland, to gauge the preparedness of states parties to the 1993 Chemical Weapons Convention to prevent and respond to chemical terrorism. The table-top exercise or 'TTX' was a good example of one way in which to test the procedures, evaluate the operational capabilities and clarify the responsibilities and legal authority of national, regional and local authorities. Running the TTX served to identify any legal and administrative gaps that could impair response, coordination and information-sharing efforts between relevant authorities, as well as any that might undermine investigations and prosecutions.

Participants for the TTX were drawn from relevant national agencies from states parties to the CWC, other states, and representatives from the chemical industry, scientific communities, NGOs, media, and international organizations. In total, representatives of 27 states, 16 international organisations and two NGOs—including VERTIC's Senior Legal Officer, Scott Spence—took part in the exercise.

In the first section of this article, VERTIC—with consent from the Organisation for the Prohibition of Chemical Weapons (OPCW)—describes the scenario used in the TTX. The second section draws from VERTIC's presentation in Warsaw and examines how countries can use effective legislative frameworks to prevent and respond to terrorist attacks using chemicals. Though the Chemical Weapons Convention is not an anti-terrorism instrument, implementation of its requirements through laws and regulations can create obstacles for terrorists attempting to use chemicals to cause harm and damage.

In this issue...

Scott Spence discusses the role of legislation in preventing and responding to chemical terrorism, while Andreas Persbo looks at the potential for arms control confidence-building measures between India and Pakistan. Plus, a VERTIC statement delivered by Scott Spence on the challenges of regulating biosecurity and, as usual: Verification Watch, Science & Technology Scan, Verification Quotes, staff news and reflections by the Executive Director.

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Scenario setting

A terrorist attack scenario was developed for the TTX so that participants could identify how countries could prevent and respond to such an incident. To do this, the scenario sketched out the main political and geographical characteristics of a fictional country and drew up a detailed chain of events leading to a terrorist attack on a chemical plant within the state. The scenario comprised events starting from the identification of a planned attack, tracking of suspects and interdiction of one group of terrorists, first response to the incident committed by a second group, crisis management, request for international assistance, and cooperation with a neighbouring country affected by the attack.

The broad set of circumstances and details provided in the scenario allowed exercise participants to explore important questions on the type and scope of security arrangements and crisis management measures that countries would need to deal with such situations.

In the scenario, the fictional state belongs to a regional cooperation union and is politically active on the international scene, being considered a close ally to one of the world superpowers. At the time in question, it is hosting a major international sporting event taking place in four locations around the country. A regional town and nearby chemical works are described in some depth by the scenario. The chemical works manufactures cyanogen chloride by chlorinating hydrogen cyanide with gaseous chlorine (the properties and significance of these chemicals are discussed in the second section of this article). Hydrogen cyanide is manufactured on the spot, without intermediate storage, from methane and ammonia in the presence of oxygen and a platinum catalyst (Andrussow process). The chemical works import their chlorine stock in rail tanks from a manufacturer located in another region, around 130 km away. Apart from holding chlorine for its own production, the company also stores the chemical for use in a regional drinking water facility.

The chemical works are described in the country's national industrial safety plans as a high-risk plant (HRP). The facility therefore has an internal response operations plan for emergencies, and district fire fighters have rescue procedures prepared for the plant. The scenario supposes that it is early summer and there is a large increase of sports fans in the country due to the sporting event reaching its climax. The state's national security agency obtains warnings from partner intelligence services about plans for a possible terrorist attack somewhere on its territories. The sources indicate that a terrorist organization based in a neighbouring country is facing being disbanded due to a lack of funds—the consequence of freezes on certain financial transfers instigated by international counter-terrorism measures. The organization is therefore planning to conduct a major attack in order to attract more funds and maintain its operationality. However, the presence of a peacekeeping mission in the country where the group is based makes staging attacks there difficult. The terrorist organization instead targets the neighbouring country since they object to its foreign policy, and it offers increased visibility for the attack since it is hosting an international sporting event.

A week before the attack, the 'Cooperating State Party Intelligence Service' spots individuals interested in facilities located on its territory. Simultaneously, the national security agency obtains information on unidentified individuals taking an interest in small companies using chlorine. At this point, the authorities believe they have confirmation of the suspected terrorists' intention to stage an attack on a chemical storage or production plant. The time and location of the attack are, however, unknown, but a very likely target is a chlorine storage or production plant. The national security agency undertakes operations to track the suspected terrorists' movements, in cooperation with intelligence services of neighbouring countries.

One group of terrorist suspects is caught and detained by border guards and anti-terrorists operatives at a railway border check point while en-route by train to the target country. Another group, however, manages to enter the country, gain access to the chemical works and succeed in detonating an explosion. The scenario describes meteorological conditions and outlines the state of activities in the nearby town as well as the local road traffic situation. It also

provides information on the volumes of chemicals on-site at the facility at the time of the incident. Two tanks together hold 28t of chlorine (one larger vessel holds 20t while a smaller unit holds 8t). There are also two empty vessels. The plant is operating at its regular capacity of 0.7 tons per hour of cyanogen chloride and 0.28 tons per hour of hydrogen cyanide.

The scenario supposes that the terrorists break into the site and eliminate all the guards and control room personnel. However, they fail to correctly identify the storage tanks containing cyanogen chloride —which they want to target—and instead place an improvised explosive device on the largest storage tank which contains chlorine. After securing an escape route they detonate the explosives remotely. The chlorine tank breaks releasing all of its content into a dike. About 5t of chlorine evaporates in a very short time as a result of quick evaporation; the remaining 15t evaporates at a slower rate. The chlorine plume reaches the first settlement after 13 minutes and the town centre after 25 minutes, resulting in several deaths and injuries among the local population.

Legislation for preventing terrorist attacks involving chemical weapons

Results from running the table-top exercise highlighted the need for states to have various types of prevention and response measures for criminal or terrorist attacks using chemicals. It is also crucial that states have comprehensive legislation in place to enable and facilitate these prevention and response procedures for chemical attacks. Though the discussion below focuses on legislation solely to address chemical terrorism, it should be noted that, increasingly, many states are also considering comprehensive legislation to prevent and respond to attacks involving biological, radiological or nuclear weapons. Many states are also combining their actions to tackle chemical, biological, nuclear or radiological (CBRN) terrorism with strategies to prevent and respond to accidents during the production, storage or transport of CBRN materials—be they the result of human error or natural disaster. Indeed, the process of building state capacity to prevent and respond to CBRN attacks inevitably helps countries to reduce the risk of accidents involving CBRN materials, and to be better prepared if they do happen.

In the scenario described in the first part of this article, the country's intelligence services had confirmed early on that a terrorist attack on a chlorine storage or production plant was likely. For dealing with such situations, governments will need to consider whether they have legislation in place which enables them to investigate suspected preparations for a terrorist attack involving CBRN materials, including laws to enable electronic and physical surveillance of suspected terrorists. Governments would also need to be enabled by law to gather intelligence and analyze it, which would require a level of technical expertise that differs from terrorism involving more conventional materials. Intelligence services in neighbouring countries in the scenario were able to share useful information about an imminent terrorist attack, most likely on a chlorine production or storage plant. This suggests that governments will need to consider whether they have legislation in place to allow co-operation with intelligence and law enforcement agencies in other countries, including their customs and port authorities.

Certain terrorist threat situations may require a rapid collaborative response between states that do not have a history of co-operation with one another. So it may not be sufficient for a country to have only bilateral agreements; they could also need authority for co-operation with law enforcement officials in other countries. International co-operation also needs to encompass financial surveillance. This technique could be particularly useful for detecting and monitoring criminal and terrorist groups planning CBRN attacks. These typically require significantly more money, so groups may resort to money laundering and other forms of illicit financing for their activities. Many governments have set up Financial Intelligence Units for this purpose and in many countries a number of financial entities must comply with regulations to prevent money laundering and terrorist financing.

Adequate legislation is also needed to restrict access to chemical production or storage facilities, particularly those

sites holding any chemicals that are listed in one of the three schedules of chemicals annexed to the CWC, which are subject to monitoring by the OPCW. Background checks, access authorization procedures and personnel monitoring will be needed, along with measures for the physical protection of chemical facilities. Finally, though not relevant to the TTX scenario, governments should also consider whether they have measures in place to criminalize unauthorised activities involving Schedules 1, 2 and 3 chemicals, including international transfers by terrorists. These chemicals have historically been used as either precursors or as chemical agents for the production of chemical weapons.

Legislation for responding to terrorist attacks involving chemical weapons

Should a terrorist or criminal group succeed in carrying out an attack using chemicals, governments will need appropriate legislation in place to respond to the incident. In the TTX scenario above, the terrorist group had intended to blow up tanks containing cyanogen chloride (a Schedule 3 chemical subject to monitoring by the OPCW). Instead, they confused storage tanks and released chlorine, which is a particularly deadly chemical if released into the air in large quantities. Indeed, chlorine has been used as a chemical warfare agent but it is not a scheduled chemical under the CWC (because of its ubiquity) and is therefore also not subject to OPCW monitoring.

Governments would need to have several measures in place to respond to an attack of this kind. Their most important priority will of course be tending to casualties, which may require a legislative basis for co-operation among officials from law enforcement, public health and crisis and media management. First response will then be followed by investigation. In the case of incidents involving CBRN materials, investigative techniques, including collection of evidence and sampling, will necessarily be different to techniques in more conventional contexts, and most states will require regulations to facilitate these kinds of investigations, as well as training for the investigators. Governments will need to consider whether they have relevant terms defined in law to enable prosecution of any suspects identified through the investigation phase. These would include terms such as 'chemical weapon', 'toxic chemical' and 'purposes not prohibited under the Chemical Weapons Convention'. The definitions could be incorporated into CWC implementing laws, penal codes, counter-terrorism or other similar laws. When taken together, these definitions would characterize the intentional use of chlorine to kill or harm humans or animals, as the use of a chemical weapon. It is largely irrelevant whether the terrorists in the scenario blew up a tank containing cyanogen chloride or chlorine—in either case their intention was to commit a terrorist act using chemicals in order to harm or kill humans. By definition, they used a chemical weapon. In addition to definitions for relevant terms, a state party's legislation must include the CWC's Article I prohibitions, which include a complete ban on any use of chemical weapons by state or non-state actors. Without specific criminal provisions and stiff penalties, it may be harder to secure a satisfactory court judgment. A government should also be able to exercise extraterritorial jurisdiction over any violations involving chemical weapons, since terrorists may flee the territory where the attack occurred, or there may have been preparatory events that took place elsewhere.

Conclusion

All parties to the CWC are required by Article VII to implement the convention through national laws and regulations. States that are not party to the convention are under no legal obligation to implement it but are required, like all UN members, to implement measures to prevent the proliferation of chemical weapons to non-state actors under UN Security Council Resolution 1540. Though the CWC is not an anti-terrorism instrument, an effective legislative framework which implements the non-proliferation obligations of the CWC will greatly facilitate the prevention and response to criminal or terrorist attacks involving chemicals. It will also greatly facilitate the monitoring of routine commercial or state activities involving scheduled chemicals, including their production, use and transfer, to ensure that they are being used legitimately and not for terrorist purposes.

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Building confidence in India and Pakistan

For the past two years, VERTIC has been running a project on South Asia under a grant from the Norwegian Ministry of Foreign Affairs. This project was set up to identify confidence-building and transparency measures that the two countries could explore and perhaps undertake in the arms control field. It has involved several trips to the sub-continent, as well as engagement in several other meetings with participation from across the region. This article summarizes the outcome of our consultations.

Politics on the sub-continent is mired down in a dangerous cocktail of strategic competition, neighbourly misgivings, resource shortages, and qualms about Western intentions. Policy seems entangled in ways that inhibit prospects for effective arms control. While exchanges between India and Pakistan are happening at the political level, their respective military establishments are not communicating nearly as much, or as effectively, as they should.

While India and Pakistan are still struggling with the legacy of their 1947 partition, the rising strength and influence of China increasingly complicates matters even further. It comes as no surprise, therefore, that the people of India and Pakistan are witnessing a slow and steady acceleration of 'a regional arms competition', to quote Michael Krepon of the Washington-based Stimson Center. Fuelled by decades of wars, suspicion and mistrust, both India and Pakistan have chosen to develop nuclear weapons. In the process, both countries have developed an extensive nuclear industry. Some of it is dedicated to producing nuclear weaponry; other parts are devoted to electricity production.

The *SIPRI Yearbook 2010* estimates India's nuclear arsenal as comprising of around 60-80 weapons. The Pakistani nuclear arsenal is estimated to comprise some 70-90 weapons. These estimates, however, are conservative. It is impossible to determine how much weapons-usable heavy metal each country has produced to any degree of exactness. What is known is that both countries have produced material for decades, and that they have possessed nuclear devices for at least 20 years.

While the arsenals of the two countries have matured, their policies have remained tainted by brinkmanship. Indeed, both India and Pakistan may even have considered using their nuclear weapons during the last few decades. At the height of the bloody Kargil conflict during the summer of 1999, Pakistan's then foreign secretary, Shamshad Ahmad, reportedly said that his country reserved the right to use 'any weapon' in its arsenal. But former Pakistani President Pervez Musharraf later wrote in his memoirs that Pakistan's nuclear weapons were not ready at the time. His country would have been at an immediate disadvantage in a nuclear exchange, he argued. Nonetheless, whatever actually happened, many in the region feel that the recurrent conflict between the two has on occasion been pushed right to the edge of the nuclear abyss.

Both countries have a rough idea of the other's nuclear capabilities. This is intentional. Military establishments on both sides of the border know that there are benefits to be had from hiding their true capabilities and misleading their opponents. As Musharraf hinted in his memoirs, India might have deployed its own arsenal had they conclusively known that their opponent was weak. Even if strength is lacking, both sides have an interest in faking it.

The introduction of nuclear weapons in the region has given rise to intense speculation that strategic stability—the impossibility of full-scale war—has fuelled smaller conflicts. If this interpretation is true, increased transparency in nuclear capabilities might not be so desirable because any confirmation that the countries have strategic parity could escalate smaller-scale conflicts. And, of course, if transparency measures reveal that one state or the other is vulnerable to a first strike, the other may be tempted to go on the nuclear offensive. On the other hand, the inherent uncertainty that results from low levels of transparency inevitably

forces politicians to base assumptions on worst case scenarios. Production of fissile material—the critical ingredient of nuclear weapons—will only stop when the two countries feel confident that they have more than enough material to satisfy their defence needs. Increased transparency could contribute to hastening an end to fissile material production in the region.

A number of transparency arrangements are already in place between the two countries. The Stimson Center maintains a well-populated webpage detailing these instruments, which include a number of 'hotline' and notification agreements. The idea behind these initiatives is to clearly communicate intentions in times of military tension. However, none of these agreements have the potential to significantly reduce these pressures. And none of these agreements, moreover, allow the other party to increase their knowledge of the other's strategic capabilities. Decision-makers on both sides of the border are left to plan and react largely on the basis of conjecture and worst-case assumptions.

The availability of fissile materials

India and Pakistan have carried out research on military and civilian uses of nuclear energy since the 1950s. In addition, both countries have several decades experience in manufacturing fuel for use in nuclear weapons. Despite this, it is difficult to find reliable information on their weapons manufacturing capabilities in the public domain. All estimates of how much fissile material each country possesses, and how much of that is used for military purposes, are therefore subject to considerable degrees of uncertainty.

In India, fuel for weapons was produced in the 40 megawatt-thermal CIRUS reactor. This reactor went critical on 10 July 1960 and was operational for over 50 years. It was shut down between 1997 and 2005 for refurbishment, and shut down again on 31 December 2010. Presently, there are no plans to permanently decommission it. The reactor could have produced up to around 15kg of weapons-usable plutonium per year (enough, it is generally thought, for one nuclear device at least), although anecdotal evidence suggests that it has not operated optimally throughout its lifespan.

In addition, India has operated its 100 megawatt-thermal DHRUVA reactor for since 1985. How much plutonium this reactor produces is uncertain. Any estimate will depend on several factors, such as availability and burn-up. Conservative estimates put the reactor's production capacity at about 16-26kg a year.

India also operates a uranium enrichment plant at Mysore. According to the Institute for Science and International Security, this plant, referred to as the 'Rare Materials Project', is believed to have become operational around 1997. This plant is known to be undergoing expansion. But, in general, great uncertainty surrounds India's enrichment programme.

The International Panel on Fissile Materials estimates the Indian stockpile of weapon-usable uranium to be around 600 kilograms, with a 50 per cent uncertainty. It is not entirely clear what this estimate, or the uncertainty, is based on. Likewise, the Indian stockpile of weapons-usable plutonium is estimated at around 700 kilograms, with a 20 per cent uncertainty.

Pakistan is running one unit for the production of weapons-grade plutonium, the 50 megawatt-thermal heavy water moderated Khushab-I reactor which went critical some time in 1998. This reactor reportedly may produce some 10kg of weapons-usable plutonium per year, and has been operating for 12 years.

Pakistan has also been running a uranium enrichment plant in Kahuta since the early 1980s. According to some sources, the country produced enough material for its first nuclear device by 1984. It is widely assumed that Pakistan upheld a moratorium on the production of fissile materials for weapons purposes during the 1990s (although this was never verified). It is likewise assumed that production started again after India's second round of nuclear testing in 1998. All production estimates on this plant are old, however, and exceptionally uncertain. To add to the confusion, it is not known if the plant was damaged by the earthquake that struck the country in October 2005. Pakistani officials claim that it escaped unharmed.

The International Panel on Fissile Materials estimates that the Pakistani stockpile of highly enriched uranium stands at some 2.1 tonnes of material. The Pakistani plutonium stock is estimated at 100 kilograms. Both estimates are, according to the panel, 20 per cent uncertain. Again, it is not clear what these estimates, or the uncertainties, are based on.

Using these numbers, SIPRI estimated in 2010 that Pakistan possesses 70-90 nuclear weapons that can be delivered by aircraft or ballistic missiles. It estimates India's arsenal to be 60-80 weapons.

State of verification

Neither India nor Pakistan are members of the 1968 Nuclear Non-Proliferation Treaty (NPT). They are therefore not bound by the treaty's prohibition on the development and manufacture of nuclear weapons. Nor are they required to sign comprehensive safeguards agreements with the International Atomic Energy Agency (IAEA), as Article III of the NPT requires. In addition, there are few restrictions on their ability to conduct nuclear tests. India joined the 1963 Partial Test Ban Treaty in October 1963, and is thus prohibited from conducting surface tests. Pakistan joined the same treaty in March 1998. But since neither country has signed the 1996 Comprehensive Nuclear-Test-Ban Treaty, let alone ratified it, they are not restricted by this agreement from conducting underground tests should they so desire.

Both countries have, however, joined the IAEA—in 1957—and are bound by the organization's statute. Both have also agreed to a number of facility-specific safeguards arrangements. IAEA safeguards in Pakistan cover the country's two power reactors (Chasnupp-1 and KANUPP) as well as two research reactors (PARR-1 and 2). In 2007, Pakistan also entered into agreement with the IAEA to apply safeguards on a 325 megawatt-electric pressurized light water reactor supplied by China (Chasnupp-2). This reactor may start up some time in 2011.

IAEA safeguards in India are applied to three power reactors, three fuel fabrication facilities, and, in addition, the Power Reactor Fuel Reprocessing (PREFRE) facility, dedicated to reprocessing CANDU reactor fuel. In 2010, India offered a larger selection of facilities to be safeguarded. As a result, IAEA safeguards are now applied on the majority of India's civilian nuclear infrastructure.

Confidence-building in South Asia

Some progress has, therefore, been made in placing more of each country's nuclear fuel cycle under international safeguards. This is a good development, as it verifiably excludes these facilities from India or Pakistan's weapons efforts. As noted, however, several key facilities remain devoted to the military-industrial complex, and continue to stand outside the safeguards system. What further efforts can be made to promote stability between these two adversaries?

In recent years, the relationship between the two countries has been tainted by outbreaks of violence and terrorism. Any diplomatic effort between the two faces an uphill struggle, and one weighed down by a complex, and often interconnected, set of issues. Even suggestions of relatively simple, purely technical, collaborations are met with acute unease, sometimes even ridicule and scorn. To some degree, this is a matter of attitude. As Michael Krepon wrote in August 2010:

'Indian strategic analysts tend to be extremely confident, which often results in a dismissive attitude toward Pakistan. Indian government leaders have been proud about their ambivalence toward the Bomb, while being optimistic about the benefits of minimal nuclear deterrence. In Pakistan, on the other hand, deterrence pessimism reigns. This helps explain why India has been so relaxed about nuclear weapon-related issues, while Pakistan takes them so seriously'

In June 2008, VERTIC staff travelled to Islamabad, Pakistan, for a workshop on confidence building measures in the region. The seminar was hosted by the South Asian Strategic Stability Institute and featured prominent members of Pakistan's nuclear industry, both military and civilian. The meeting was informative, and highlighted the difficulty of getting the two countries to agree on further steps. Never-

theless, a number of possible areas where confidence can be built were raised:

• **Proposals that increase the strategic warning time.** Strategic warning cannot be ignored in nuclear warfare, and especially so in South Asia. There, flight times are short, which means that officials will have to reach a decision on any counter-strike in a very short space of time (if they have any time at all). Proposals that enable the strategic warning time between the two countries to be increased may help reduce the risk that decision-makers launch a nuclear counter-strike in response to false alarms or miscommunications.
• **Non-deployment of nuclear weapons.** Any forward deployment of nuclear weapons will increase the psychological strain on decision-makers. Measures that ensure short-range weapons are not deployed within striking range may decrease tension.
• **Nuclear risk reduction centres.** These could help to increase communications between the two countries' military establishments, and may also help to increase the strategic warning time.
• **A force limitation zone.** Any such zone along the border would lower armament levels in forward positions and eliminate the threat of surprise attack, thereby reducing the danger of miscalculation.
• **Other qualitative restraints**, such as on missile technology, could also be explored.

The majority of participants at the Islamabad meeting felt that India and Pakistan can cooperate on the civilian applications of nuclear energy. Both countries face acute energy supply problems. Both countries are planning far-ranging investments into nuclear power. Participants thought, however, that attempts at bilateral fissile material control—perhaps along the lines of the bilateral arrangement between Argentina and Brazil—would be a step too far for the two countries.

If Pakistani officials were cautiously optimistic, Indian officials were pessimistic about the prospects for concrete confidence-building measures. Some officials were even outright dismissive of the idea.

In November 2009, VERTIC staff travelled to New Delhi, India, for discussions with senior Indian officials. The meeting was hosted by the United Service Institute of India. The discussion was frank. Many participants agreed that there was practically no good faith between the two countries, and that the fragile security dialogue attempted between the two was not working. 'Pakistan's nuclear weapons are used to shield the country's terrorist activities,' said one senior former official, illustrative of the deep mistrust felt toward the country.

There was quite some animosity toward the West also, especially the way in which the West had handled Pakistan's illicit nuclear procurement network. 'It only stopped when [the West] wanted to stop it', argued one former senior official, adding that, 'the lesson to be learned is that one first needs the permission of the US to be proliferative'. Some participants claimed that Pakistan's nuclear programme receives active support from China. One senior participant, associated with India's intelligence apparatus, even claimed that 'India has evidence of Chinese transfers of [weapons-grade] uranium to Pakistan'.

In February 2010, VERTIC again travelled to New Delhi, this time to participate in a meeting organized by the Institute for Defence Studies and Analyses. The meeting focused on broader Indian foreign policy. At present, India has very little interest in confidence-building measures, as their strategic orientation is more toward China. From an Indian perspective, any proposed confidence-building measure 'has to be pitched very low'.

In June 2010, VERTIC staff travelled back to Islamabad to participate in an International Pugwash meeting, for which VERTIC provided part funding. This meeting confirmed many of the impressions gathered in the previous two consultations. For instance, that both countries lack a solid definition of what constitutes a minimum deterrent. They also have differing threat perceptions. Pakistan's main concern is India, whereas India's main strategic concern seems to be directed toward China. Some participants highlighted fears that a low intensity arms race may be occurring in the

region, with the development of low-yield nuclear weapons, the further development of new types of tactical nuclear weapons and, worryingly, the introduction of submarine-based weapons systems. Among suggestions raised at the conference were those to the effect that:

• India and Pakistan should have a meaningful dialogue on the consequences for the two countries of a fissile material cut-off treaty;
• India and Pakistan could both reaffirm that they have no intention to conduct future nuclear tests;
• peaceful uses of nuclear energy could further be discussed by the two countries;
• progress on limiting or eliminating short range systems could also be discussed as a confidence-building measure;
• greater transparency on nuclear doctrines should be pursued;
• non-deployment and/or de-alerting agreements should be explored;
• that the consequences of potential nuclear use should be explored also;
• that further confidence-building could be arranged for nuclear risk reduction and nuclear crisis management.

Conclusion

At present, there is no room for ambitious confidence-building measures between India and Pakistan. Any proposals on bilateral fissile material controls, for instance, are likely to be rejected outright. For the foreseeable future, both countries are likely to consolidate their military nuclear fuel cycle, and continue the production of fissile materials. Since neither country has a clear view of what constitutes, in their mind, a minimum credible deterrent, such production may continue for many more years.

This does not mean, however, that exploratory talks on confidence-building measures and other issues cannot be held. In particular, both countries should, at least internally, start to discuss how a fissile material cut-off will affect their defence needs. More urgently, they may also need to discuss whether signing up to the Comprehensive Nuclear-Test-Ban Treaty will, in fact, be detrimental to their security. Once the five major nuclear-weapon states have signed up to the test ban, India and Pakistan will be left outside. This development may be damaging to both countries' relationships with the other nuclear-weapon states.

Non-deployment of delivery vehicles is an especially interesting concept, particularly if such an arrangement could be found for the retirement of short-range ballistic missile systems. Most of these systems are ageing, and will be withdrawn from active service anyway. Withdrawing the weaponry under bilateral supervision would increase confidence that the systems are indeed out of active service. It could also act as a platform for future arms control and disarmament measures.

Andreas Persbo
Executive Director, VERTIC

A civil society response to the challenges of regulating biosecurity

In November of last year, VERTIC Senior Legal Officer, Scott Spence, travelled to Italy to deliver a statement to the Landau Network-Centro Volta—an NGO supporting a global network of international experts on security, disarmament and cooperation.

The statement examined legal implementation challenges in the biosecurity field and discussed how VERTIC's National Implementation Measures (NIM) Programme is providing assistance in this area. It concluded with views on how civil society can contribute to the ongoing development of a global network dedicated to ensuring dual-use biological materials and technology are only used for peaceful purposes.

The observations on implementation challenges are drawn from the NIM Programme's wide field-experience in assisting governments with strengthening their legislative frameworks for implementation of the 1972 Biological Weapons Convention (BWC) and UN Security Council Resolution 1540. This version of the statement has been abridged and edited for *Trust & Verify*.

VERTIC statement

Implementation challenges

One of the main challenges to effectively regulating biological materials is the absence of an intergovernmental organization to oversee and support comprehensive coordinated implementation of the BWC. This absence stands in contrast to the presence of well-established intergovernmental organizations supporting implementation of agreements on chemical weapons and nuclear non-proliferation. An important component of this support is legislative assistance. These organizations' legal offices, for example, have prepared guidance materials and carried out legal drafting workshops and follow-up activities for governments around the world, with the power of stable budgets and dedicated staff behind them.

An Organisation for the Prohibition of Biological Weapons (OPBW) was not meant to be, however, for the BWC. A few months before the 2001 Fifth Review Conference for the Convention, the United States indicated that it would no longer continue to support negotiations, which had been underway for several years, for the development of a protocol to the BWC. This protocol would have had several objectives, including the establishment of an OPBW. Instead, a resumed Fifth Review Conference in 2002 agreed to the launch of a new initiative—known as the 'intersessional' process—devoted to examining, among other topics, national implementation of the convention. This process was extended after the Sixth Review Conference in 2006 through to 2010. As well as saving the BWC regime from uncertainty and irrelevance, the annual sets of Meetings of Experts and States Parties since 2003 have engaged civil society in novel and exciting ways. They have also provided an opportunity for civil society actors to engage with states more directly on activities that have normally been associated with intergovernmental organizations.

But implementation of the convention is not only complicated by an institutional deficit, it also faces:

- a lack of universality in BWC membership;
- a perception among parties and non-parties alike that they do not have to implement effective controls on biological materials if they do not possess biological weapons;
- a lack of awareness in governments of the BWC and Security Council Resolution 1540 and their requirements and obligations, as well as a lack of political will to implement these instruments;
- limited or no technical, human or financial capacity for drafting implementing laws and regulations, training rel-

evant officials, or enforcement;
• difficulty maintaining momentum in the implementation process due to turnover in staff, elections and changes in government, or internal or external conflicts; and
• competing legislative, parliamentary, budgetary or economic priorities.

Challenges to legal implementation of the BWC and regulation of biological materials also vary in and among regions. In order to give effect to the BWC, states should adopt penal measures criminalizing the development, production, manufacture, stockpiling, acquisition, retention, transfer and use of biological weapons. Preparatory measures to carry out such activities, including assistance, encouragement, or inducement, should also be penalized.

States should also adopt appropriate biosafety and biosecurity measures. These should include procedures to account for and secure the production, use, storage and transport of particularly dangerous pathogens, as well as measures to control activities involving human, plant or animal pathogens where infection may pose a risk. Licensing procedures will be needed too, as will safety and security measures for laboratories; containment measures; and genetic engineering regulations. Import and export controls should also be adopted, including export licenses for particularly dangerous toxins and pathogens, and measures should be in place ensuring general oversight on transfers. An official body should be designated to effectively enforce these measures. Enforcement measures will be needed to facilitate ongoing monitoring of life sciences activities and compliance with the convention, and to prosecute and punish offenders. Finally, other measures may be necessary to facilitate domestic and international cooperation and assistance.

These measures are important for several reasons. First, with effective legislation, states can investigate, prosecute and punish any offences, including preparations, associated with biological weapons activities committed by non-state actors, including terrorists. Second, it will strengthen their ability to monitor and supervise any activities, including transfers, involving especially dangerous pathogens and toxins. Third, states will enhance their national security and public health and safety. Fourth, they will send a strong signal to potential investors that they are a safe and responsible location for biotechnology and research. Fifth, their obligations under Articles III and IV of the BWC and UNSCR 1540 will be satisfied. And, finally, states will be able to comply effectively with international reporting requirements (BWC Confidence Building Measures, UNSCR 1540, etc.) if they have fully adopted effective legislation to implement the BWC.

In South and Central Asia, some states have little or no legislation to control even the most basic activities involving biological agents and toxins, while other states in the region have more robust biosecurity regulatory frameworks. These differences appear to be the result of two predominant factors: the negative impact of conflicts on a state's ability to develop and maintain a fully functioning and comprehensive legal system, alongside a legacy of Soviet 'anti-plague' stations and biological weapons programmes which necessitated legal measures to protect personnel and the environment.

In the Middle East and North Africa (MENA) region, there is some movement towards a more robust biosecurity regulatory environment, but the progress is slow and uneven. In East Asia and the Pacific, some larger countries are developing more robust biosecurity regulatory frameworks. However, the smaller, lightly populated Pacific Islands nations perceive the vulnerability resulting from having weak biosecurity frameworks and the risk of proliferation in biological weaponry to be negligible or at least, less urgent than other, competing priorities.

In sub-Saharan Africa, South Africa has very good legislation, in comparison to countries in the region and globally. There is progress in some other countries in the region. However, most have little or no law in place to prevent the proliferation of biological weapons including laboratory biosecurity measures and export/import controls. A small number of sub-Saharan countries do, however, criminalize terrorist offences involving biological agents. In general, it seems that many African countries are more concerned about the impact of genetically modified organisms (GMOs) on

their agricultural sectors and so have given less priority to laboratory biosecurity and other measures to control pathogenic agents.

As might be expected, given the European Union's strong role in biological weapon non-proliferation efforts, there is significant movement toward a more robust biosecurity regulatory environment throughout most of Europe and Eurasia. Nevertheless, many countries in both regions appear to require additional laboratory biosecurity measures, including some of the most advanced European economies.

Across the Atlantic, progress is somewhat uneven. Countries that have progressed the furthest in the Americas include Argentina, Brazil, Canada, Cuba and the US. Although other countries in the region have not advanced as far, they nevertheless have some controls over activities involving microorganisms and related biological products. These regulations—which include measures on laboratory biosafety and transfer controls— provide a platform on which stronger legislative frameworks could be built.

Some of the Caribbean states, in particular, have adopted short and simple, but effective, laws to implement the BWC. This may suggest that they have a higher degree of awareness of the need to counter the threat of biological weapons proliferation through effective legislation. On the other hand, there are still several states across the Americas that do not have adequate legislation since they lack provisions criminalizing biological weapons and basic controls over micro-organisms.

Building a global network

This statement began by noting the difficulties arising from the lack of an international organization for the BWC and other, regional, challenges. These issues are being responded to in a number of ways. For its part, VERTIC set up its National Implementation Measures or 'NIM' Programme to assist states in understanding what measures are required to comply with their international obligations, and how to implement them.

The NIM Programme was developed to work with states on a range of nuclear, biological and chemical weapons treaties and certain UN Security Council resolutions. Currently, it is largely—but not completely—focused on the BWC. The NIM Programme has four principal activity areas. Programme staff prepare comprehensive analyses of countries' existing legislation for implementing the BWC and related provisions of UN Security Council Resolution 1540. Based on these 'gap analyses', the programme provides direct legislative drafting assistance, or other forms of assistance such as remote reviews of draft legislation, legal advice, and information exchanges.

To facilitate this work, the programme has developed an 'Implementation Kit' for BWC implementation consisting of fact sheets, a sample act for national implementation, and regulatory guidelines (available in several languages). The sample act and regulatory guidelines devote considerable space to biosecurity including licensing, inspections, enforcement mechanisms and transfer controls for particularly dangerous biological agents, toxins and dual-use biological equipment. The NIM Programme also engages in outreach at workshops and conferences, including at the BWC Meetings of Experts and States Parties.

VERTIC is one of many organizations and initiatives working to fill the BWC's institutional deficit. Intergovernmental organizations such as the World Health Organization, the World Organization for Animal Health, the UN Food and Agriculture Organization, the World Customs Organization and Interpol engage in their respective fields. The BWC Implementation Support Unit (BWC ISU) provides a coordinating role. And members of the BioWeapons Prevention Project (BWPP) network provide outreach and research activities. The BWPP is a global network of civil society actors dedicated to the permanent elimination of biological weapons. It was launched in 2003 by a group of non-governmental organizations concerned at the failure of governments after 2001 to fortify the norm against the weaponization of disease.

There are numerous other projects being undertaken by civil society actors in this field. These provide education for scientists on the BWC; skills development for laboratories, universities and governments; industry engagement; and training on law enforcement. There are also projects on public health co-operation, disease surveillance, and development and implementation of codes of conduct.

The BWC Implementation Support Unit has often observed that implementation of the convention in its fullest sense is a global network activity in which civil society actors play a major role. But there are both strengths and weaknesses to this network approach. The strengths are that civil society action can be nimble and certainly more affordable than a large secretariat for an international organization. Due to funder requirements, civil society projects are increasingly tightly goal-oriented and time-bound. Many of those engaged in these activities have worked and been trained in government or in the treaty organizations and therefore have a deep understanding of the treaties, issues, and the people involved in their implementation.

Nevertheless, there are several weaknesses in the network approach: funding cycles for civil society can be unpredictable and the loss or shrinkage of an important civil society actor can disrupt new assistance activities, delay crucial follow-up, and curtail information and outreach exchanges and activities. Additionally, some governments may simply be unwilling to work with civil society actors for historical or political reasons. I am confident, however, that the nonproliferation community—and this includes intergovernmental organizations; international, regional and subregional organizations; and governments—is becoming increasingly comfortable and familiar with the elevated level of involvement of civil society actors in the implementation of the BWC. This comes with the responsibility, however, for civil society to be highly competent and effective, discrete and professional, and aware of the limits of what it can reasonably accomplish with states.

Delivered by Scott Spence, November 2010

Verification Watch

Safeguards Symposium held in Vienna

The 11th IAEA Safeguards Symposium was held during the first week of November at the Agency's headquarters in Vienna. Herman Nackaerts, head of the Agency's Department of Safeguards, said the aim of the event was 'to provide an opportunity...to explore possible solutions to the various current and future challenges that confront us and thereby to support the Agency's verification mission'.

The technical plenary opened with the presentation of the Department of Safeguard's strategic plan by Jill Cooley, director of the Concepts and Planning division within the Department. Introduced as the 'first ever long-term' plan, and running from 2012 to 2023, it sets out steps to advance the department's three strategic objectives, namely: deterring the proliferation of nuclear weapons; contributing to nuclear arms control and disarmament; and improving and optimizing departmental operations and capabilities. The plan's conceptual framework highlighted how the efficiency and effectiveness of the safeguards system could be improved by making it more information-driven and through the wider implementation of 'state-level' and 'integrated safeguards' approaches. The symposium sessions then moved on to exploring the plan's strategies and objectives in more detail.

One session, referred to by Chile as 'the most important of the Symposium', was dedicated to exploring the possible uptake of new verification missions by the Agency, specifically in the disarmament field. Summing up the arguments made by Andreas Persbo, Ole Reistad, Jan Lodding and Tom Shea on this topic, John Carlson said that the IAEA was 'well equipped' on both the legal and technical fronts to take on greater responsibilities in the realm of disarmament verification. Indeed, in this respect, discussions are being held on how the Agency should assume its responsibilities under the 2000 US-Russia Plutonium Management and Disposition Agreement (see T&V 130, p8).

Besides discussions on new verification missions, several sessions focused on the need to enhance the Agency's existing capabilities for its current work on safeguards. The need for universalization of the Additional Protocol was stressed many times as a matter of great importance. The symposium also underscored the need to address funding issues at the Agency. In John Carlson's view 'it is clear that there is a fundamental problem that resources are not keeping track with increasing workload'. If the Agency is ever to take on new verification roles, having an appropriate budget will be vital.

Sonia Drobysz, Paris

Progress in CW destruction, but a long way left to go

According to figures reported by the US Army Chemical Materials Agency (CMA) in October 2010, the United States has managed to dispose of 30 per cent of its chemical weapons in the last three years. In comparison, between 1997 and 2007, only half of US stocks had been destroyed. Last autumn also saw the completion of disposal operations at a US arsenal where 3,850 tons of the country's chemical weapons had been stored for over sixty years.

Russia's chemical weapons disposal has also been accelerating. According to the head of the Russian Ministry of Industry and Trade, the country destroyed over 19,000 tons of weapons stockpiles between November 2009 and September 2010, which amounts to more than it had been able to eliminate over the previous two years.

Despite this accelerated progress, however, neither Russia nor the United States will be able to meet the 2012 deadline for the complete destruction of their chemical weapons. As parties to the 1993 Chemical Weapons Convention (CWC), both countries were originally expected to eliminate their stockpiles by 2007, but were granted five-year extensions since they said they needed more time.

While the CMA is on track to complete the disposal of 90

per cent of US chemical weapons by the April 2012 deadline, the remaining ten per cent of the stockpile, which is to be eliminated through the Assembled Chemical Weapons Alternatives (ACWA) programme, will not be destroyed on time. In addition, two chemical agent destruction plants currently under construction and not scheduled to begin operations until at least 2017 and 2021 respectively. The US will therefore also miss deadlines set by two 2008 national laws which mandated that the country's stockpile be destroyed by the CWC deadline (29 April 2012), and failing that, no later than 2017.

In Russia, a new chemical weapons disposal plant was opened in November 2010 to speed up the elimination process. The facility, located 250 miles southwest of Moscow, is the largest of the six chemical weapons disposal plants built in the country in recent years, and is expected to destroy about 19 per cent of Russia's stockpile. While Russia had announced this summer that elimination would not be complete until 2015, according to a high-ranking Russian official, as of November the country was expecting to finish disposal by the end of 2014.

Agata Slota, London

Funding disputes delaying ozone protection

Parties to the 1987 Montreal Protocol failed this November to reach an agreement on how to fund the destruction of stockpiles of ozone-depleting substances (ODS), a step necessary for ensuring that the substances do not leak into the atmosphere. Financing is needed for the recovery of the substances from ODS 'banks' (chemical stockpiles and discarded products and equipment) and their subsequent destruction. But negotiators at the annual meeting of parties to the protocol—held in Bangkok, from 8 to 12 November—were unable to agree on sources for funding these activities.

The Montreal Protocol mandates the gradual phase-out of the production and consumption of a number of ODSs. Shortly after the treaty came into force, parties established a 'Multilateral Fund' (MLF) to assist developing countries with implementing the control measures specified by the treaty. Replenished every three years through developed countries' contributions, the fund remains the key financial mechanism of the protocol.

But, countries disagree over whether the MLF should be the sole source of funding for ODS destruction or, indeed, whether it is appropriate to use this mechanism at all for this purpose. Disagreements also persist over types of alternative financing arrangements. Until this issue is resolved, ODS destruction activities might not go ahead in states that do not have the financial means to dispose of the banks themselves.

The absence of clear funding sources is largely due to the fact that ODS disposal is not mandated by the treaty, with attention having been primarily focused on consumption and production activities. Consequently, when some states in Bangkok argued that funding should come from the MLF, opponents maintained that ODS destruction 'is not a compliance requirement under the Protocol' and cannot, therefore, be covered by the MLF.

States opposed to drawing money from the MLF instead argued for using external funding sources, such as the Global Environment Facility (GEF), a financial organization that provides environmental grants to developing countries. Many developed states pushed for GEF funding, underlining 'the opportunities for partnership and co-financing that the GEF presents.' But there was concern among developing countries that GEF could prioritize other multilateral environmental agreements over the ozone treaty. They also pointed out that the GEF had not provided adequate funds for ODS destruction in the past.

Another option proposed at the meeting was the use of voluntary carbon markets, which would allow countries to

earn carbon credits through the destruction of ozone-depleting substances.

Despite not being included in the treaty's provisions, bank destruction is an important activity because these holdings can release ODSs into the atmosphere, damaging both the ozone layer and the climate. According to reports from the Intergovernmental Panel on Climate Change (IPCC) and UNEP's Technical and Economic Assessment Panel (TEAP), 20 per cent of ODSs (measured in carbon-dioxide equivalent) have leaked from ODS banks since 2002.

The TEAP has also pointed out that, if unmanaged, those banks which are relatively easy and cheap to destroy will have released most of their stored gases by 2020.

Despite the impasse over funding, the parties did make some progress on ODS destruction mechanisms. They agreed to request the TEAP to review the list of destruction technologies adopted by parties at a previous meeting and to 'develop criteria that should be used to verify the destruction of ODS in facilities that use appropriate ODS destruction technologies.' But as long as the funding issue is not resolved, the overall rate of ODS bank disposal will be restricted and opportunities to prevent emissions from easily destroyable banks could be missed.

Agata Slota, London

Cancun climate talks show signs of progress

In December of last year, after two weeks of negotiations, the annual UN climate change conference ended with the adoption of an important set of agreements. Gathering over 190 countries together, the event encompassed negotiating tracks on the UN climate convention and its Kyoto Protocol, as well as sessions of both subsidiary bodies and numerous side-events. Named after the Mexican city where the meeting was held, the 'Cancun Agreements' hold a good deal of promise for future efforts on climate change.

The agreements reaffirm and go beyond the accord reached at the previous UN climate change conference in Copenhagen, which ended largely in disappointment, and polarisation on a number of issues, last year. These agreements show progress on several major areas including emissions reductions, finance, forests, and transparency. Although some may have viewed the outcome as rather modest (in particular with regard to the depth of emissions targets set), the agreements reached in Cancun have established a series of goals, institutions and processes that will be instrumental in accelerating action on climate change. These negotiations were also characterized by a marked change in mood since Copenhagen, with countries apparently showing greater willingness to collaborate with one another. Indeed, this new spirit fo cooperation and the tangible progress made in Cancun have helped to revitalize the UN negotiating process.

However, due to the pace of negotiations so far, and the set-backs of Copenhagen, the Cancun meeting began from a low baseline. Thus, although progress has been made, the level of ambition in addressing climate change needs to be raised significantly. In addition, there is a considerable amount of work still left to be done in order to flesh out the framework adopted in Cancun. The agreements establish a platform for action; the detailed working procedures still need to be developed.

Technology, adaptation and finance also feature in the Cancun Agreements with a new set of frameworks and institutions to push for progress in these areas. Of particular importance—both in terms of climate action and relation-

ships between countries—was the reaffirmation of a commitment by developed countries to specific amounts of financial assistance and to timelines for its provision. Cancun also established a 'Green Climate Fund' governed by a board composed of an equal number of members from developing and developed country parties.

The agreements contain a significant development for the treaty's verification procedures. Though arguments over transparency and accountability have soured relationships in the past, a broad monitoring, reporting and verification (MRV) framework has now been established, building on existing structures.

The framework enhances MRV reporting requirements of both developed and developing countries, but still distinguishes between them on the basis of 'common but differentiated responsibilities'. Developed countries are to improve MRV of emissions, implementation of mitigation measures and financial support—with reviews to be conducted by technical experts. Measures to improve MRV by developing countries were also agreed.

But it was progress on forests and climate change that many consider to be among the most positive of all the results from Cancun. Some major issues remain outstanding—finance and functional defintions of key terms among them—but the decision includes an agreement on an overall goal to reduce emissions, to address the drivers of deforestation and to establish forest monitoring systems.

Critically, the decision on forests includes requirements for upholding social and environmental safeguards and systems for generating information on progress on these issues. Strengthening forest governance and systems designed to assist in policy development and implementation have been a key component of VERTIC's work on climate change for a number of years. The progress made in Cancun is welcome, but it will be important to ensure that good intentions are put into practice in the years ahead.

Sonia Drobysz, Paris

Verification Quotes

'Our challenge today is to apply safeguards more effectively and more efficiently—at a time of rising demand on our services and a static Agency regular budget. In other words, we need to further optimize the use of our resources by avoiding unnecessary effort and focusing instead on that which is most important.' Herman Nackaerts, director of the IAEA's Department of Safeguards, addressing the opening session of the Agency's Safeguards Symposim on 1 November 2010. '***But—at the same time—we must not compromise our ability to draw independent and soundly-based safeguards conclusions: we must continue to apply safeguards in a fair and non-discriminatory manner to all states.'***

'This is the most significant arms control agreement in nearly two decades, and it will make us safer and reduce our nuclear arsenals along with Russia. With this treaty, our inspectors will also be back on the ground at Russian nuclear bases. So we will be able to trust but verify'. - US President Barack Obama, speaking in December 2010 following the US Senate's vote in favour of ratifying the 'New START' deal on strategic nuclear arsenals.

'Cancun must deliver! Believe me, the eyes of the world are measuring our work, they will be reporting, and they will certainly verify.' - Christiana Figueres, executive secretary of the United Nations Framework Convention on Climate Change addresses the Cancun climate summit on 7 December 2010.

'Governments have given a clear signal that they are headed towards a low-emissions future together...they have agreed to be accountable to each other for the actions they take to get there.' - Ms Figueres, speaking after Cancun, celebrates the acheivements made at the summit, one year after the high hopes of the much-publicised UN climate meeting in Copenhagen failed to materialise.

Science & Technology Scan

Laser monitoring of UF6 cylinders developed

During the recent IAEA Safeguards Symposium in Vienna, attention focused not only on ways to safeguard new GEN IV reactors, but also on how to implement new safeguards approaches for existing facilities. One such approach, in testing by the Joint Research Centre (JRC) of the European Commission since March 2009, involves a laser-based monitoring technique to track uranium hexafluoride (UF6) cylinders while in motion. According to the JRC's presentation to the Safeguards Symposium, the system is now able to recognise all types of cylinders—which holds a great deal of promise for future verification activities.

UF6 can be used in enrichment operations. Although it is processed in civil enrichment plants to produce low-enriched uranium, it can also be used to produce high-enriched uranium for nuclear explosives. From a non-proliferation perspective, it is therefore important to ensure that declarations concerning the flow of cylinders used to store, transport and process UF6 are correct.

Different identification techniques for UF6 cylinders were evaluated between 2005 and 2007, including stand-alone surveillance, identification tags, passive radio frequency and reflective particle tags. But the operators were either reluctant to use these techniques, or they proved to be insufficiently effective. Laser based technology—which permits the cylinder surface to be scanned—was then examined, and two techniques suggested. The British company Ingenia Technology Limited worked on a laser surface authentication system (LSA) that was ultimately not selected by the IAEA. As Stéphanie Poirier from the IAEA Department of Safeguards explained in 2007, this was because 'the proximity of the laser to the cylinder being scanned was too close for UF6 cylinders' and 'too much constraint [was put] on the field system and the operator'.

A different technique, one which uses 3-D laser surface mapping was instead chosen for the Agency's Laser Item Identification System (L2IS). Developed by the JRC, it captures the cylinder's side surface, which becomes a 'fingerprint'. The verification process comprises two steps: the first is an 'attended initial scan' during which cylinders are made available so that their 'surface identity' can be established and stored in a laptop. The second step is an 'unattended scan' which records the surface identity of all cylinders entering and exiting the enrichment process area. At this stage, the L2IS is coupled with the IAEA standard surveillance system. Ms Poirier concluded in 2007 that 'the L2IS system appears to be reliable and consistent with the needs specified by the IAEA'; it also contributes to the objective of optimizing safeguards activities by decreasing the inspection implementation workload.

Sonia Drobysz, Paris

VERTIC | News & Events

National Implementation Measures Programme

Between October and December 2010, the NIM Programme completed 7 legislative surveys. Staff conducted one legislative drafting workshop that also included a session to raise awareness among the key national stakeholders on BWC implementation.

NIM staff contributed to the Regional BWC Implementation workshop held in Abuja, Nigeria, 25-27 October, where they liaised with several countries on ratification of the convention. The team also contributed to a workshop held in Beijing, China, on 'Strengthening International Efforts to Prevent the Proliferation of Biological Weapons: The Role of the Biological and Toxin Weapons Convention', held between 4-6 November. Additionally, the NIM Programme presented a paper at the 'Global Networking to Promote Biosecurity and Limit Dual Use Risks' seminar held in Como, Italy, 12-13 November, Italy. The NIM team was also present at the Lima regional workshop on implementation of the UNSCR 1540, from 7-9 November. VERTIC discussed approaches and further co-operation with participating countries on strengthening their legislation for implementation of the BWC and UNSC Resolution 1540.

The NIM Programme engaged with the scientific community at the seminar 'Trends in Science and Technology Relevant to the Biological and Toxin Weapons Convention' held in Beijing, from 31 October to 3 November, and at the 'Biosafety Association for Central Asia and the Caucasus (BACAC) 2nd Annual Conference', held in Bishkek, Kyrgyzstan, from 9 to 13 November.

Members of the team also had the opportunity to actively participate in two practical exercises simulating the response to biological or chemical incidents: the 'BIOSHIELD Global 2010' held in Utrecht, Netherlands, between 16-18 November, and the 'Table-top exercise: Preparedness of States Parties to prevent terrorist attacks involving chemicals' held in Warsaw, Poland, from 22-23 November.

Three members of the team participated in the annual Conference of States Parties to the CWC, held in The Hague from 29 November to 3 December and actively contributed to the CWC Coalition. The entire NIM team attended the BWC Meeting of States Parties (MSP) in Geneva, from 6-10 December. VERTIC delivered a statement in Arabic highlighting the threat of bioterrorism and the need to strengthen biosafety and biosecurity measures in laboratories. VERTIC urged parties to consider important issues such BWC universality, implementation and the strengthening of the Confidence Building Measures mechanism in their deliberations for the upcoming Seventh Review Conference. VERTIC hosted a breakfast seminar during the BWC MSP where the new NIM Database and VERTIC website were launched and VERTIC's Rome Statute Article was presented.

Arms Control and Disarmament Programme

In October, members of the Arms Control and Disarmament team travelled to the United States to promote VERTIC's recently-released publication on *Verifying Warhead Dismantlement*. During the trip, Andreas Persbo presented the main findings of the report to the United Nations Office of Disarmament Affairs and the EastWest Institute in New York City, and at the American Association for the Advancement of Sciences in Washington, DC. October also saw Hassan Elbahtimy travel to Austria to lecture on verification, as part of a course run by the CTBTO in Vienna. He also participated in a Pugwash consultation on the Middle East in the UK.

In early November, Mr Elbahtimy travelled back to Vienna to attend the IAEA Safeguards Symposium, as part of a delegation that also included Andreas Persbo, David Cliff and the nuclear team's newest volunteer, Sonia Drobysz. At the symposium, Mr Persbo delivered a presentation on the verification of warhead dismantlement, and VERTIC subsequently submitted a paper on the subject for inclusion in the conference compendium.

During November, Mr Persbo also participated in a high-level roundtable discussion organized by the United Nations Association of the UK. Then, in late November, the VERTIC ACD Programme hosted a book launch for John Walker of the Foreign and Commonwealth Office, whose book on *British Nuclear Weapons and the Test Ban 1954-73* has recently been released.

In December, Mr Persbo took part in a conference on nuclear non-proliferation at Wilton Park in West Sussex, and VERTIC's newest briefs—on the 2010 NPT Review Conference and the IAEA General Conference—were released (and made available for download on our newly-redesigned website). Aside from these activities, the VERTIC nuclear team is currently fully engaged in a project investigating the concept of irreversibility in nuclear disarmament, on schedule to be released in March.

Environment Programme

In early October, the Environment Programme's Larry MacFaul was invited to participate in a stakeholder consultation on the UK's timber procurement policy and level of service provided by the Central Point of Expertise for Timber Procurement or 'CPET'. During October, the Environment Programme also attended a meeting to discuss how stakeholders can collaborate to address the exploitation of Flags of Convenience by illegal 'pirate' fishing vessels. This meeting, held in London, was hosted by the Environmental Justice Foundation and the Foundation for International Environmental Law and Development. The event brought together representatives from a range of NGOs, policy think-tanks, academic institutions, trade unions and other interest groups.

In November, Larry was invited to participate in a civil society consultation on the UK government initiative for a new Forest Governance, Markets and Climate (FGMC) programme. The purpose of the meeting was to review the proposed programme's purpose, outputs and scope. Set up by the UK Department for International Development (DFID), the programme will build on the current Forest Governance and Trade Programme, due to end in 2011. This consultation took place in London, in the offices of DFID, and included representatives from both NGOs and the private sector.

November also saw Larry spend time using his environmental expertise to help in the field of security. He travelled to Geneva in order to give a presentation in a seminar on 'International Aspects of Arms Trade Treaty Implementation: Learning from existing international agreements'. The seminar, which ran between 10-11 November, was hosted by Saferworld and included representatives from governments and international organizations.

The aim of the Saferworld seminar was to examine what kind of provisions and institutional architecture the nascent Arms Trade Treaty needs in order to ensure that it is both effective and durable. The meeting was also intended to build awareness of the importance of these issues in the negotiations on the treaty. The meeting's sessions looked at monitoring and reporting arrangements, review processes, consultations and

dispute settlement, and capacity building.

The seminar included speakers on a range of international agreements and structures—including on conventional arms transfers, the Biological and Toxin Weapons Convention, the Chemical Weapons Convention, UN Security Council Resolution 1540, the convention on nuclear safety, international human rights instruments, the World Trade Organization and various environmental treaties.

Mr MacFaul gave his presentation during the session on Monitoring Implementation. In his presentation, he provided an overview of the institutional bodies and processes that make up the UN climate regime and the rationale for their establishment. He also contributed to the debate using VERTIC's experience in policies and measures on trade in natural resources. Owen Greene, Co-Chair of VERTIC's Board of Directors, also presented in this session, drawing lessons from the Montreal Protocol on Ozone Depleting Substances.

Director's reflections

This is edition No. 131 of Trust & Verify, and the first edition in our anniversary year. The New Year brings with it many exciting prospects and opportunities, not least for arms control and disarmament. A few weeks ago, the US Senate voted to give its consent to the New START treaty between the United States and the Russian Federation. While the vote was tight, the treaty itself received endorsements from nearly every one of the United States' national security community. This endorsement indicated how important the concept of transparent accountability is in non-proliferation and disarmament matters. The US arms control agenda is now beset by post-vote exhaustion. A Republican memo circulated around Capitol Hill after the vote noted that the 'CTBT [the Comprehensive Nuclear Test Ban Treaty] is effectively off the table'.

Others see it differently. 'The New START vote suggests it is possible for the Senate to reconsider and come together around the CTBT', wrote Daryl Kimball, the Executive Director of the Arms Control Association, in 22 December 2010 post-vote commentary. Without doubt, the CTBT will be thoroughly debated in the coming year. However, many other challenges will also remain on the agenda. To the worry of many, Iran's nuclear programme continues to develop without legal constraints. The North Korean government has unveiled a uranium enrichment plant, with worrying security implications for the Korean Peninsula. India and Pakistan continue to slowly but surely build up their arsenals.

The checklist in respect to environmental agreements remains steep. December saw some progress in climate talks at the UN's Cancun summit, but there remains a long way yet to go in developing the architecture of the regime. What's more, the level of ambition in climate mitigation still needs to be raised significantly.

Andreas Persbo

Grants and Administration

In this quarter, VERTIC received £54,500 from the Foreign and Commonwealth Office (FCO) for the project 'Combating the illicit trafficking of nuclear and radiological material: defining an action plan'. The FCO also provides on-going support for VERTIC's project on 'Legislative Assistance to Ensure Non-Proliferation of NBC Weapons'.

The Swiss Federal Department of Foreign Affairs awarded VERTIC a grant of £29,242 for a project to study the concept of irreversibility in nuclear disarmament. VERTIC is grateful to all our funders for their support.

The VERTIC website has recently undergone a comprehensive makeover to give it greater user-friendliness and bring it up-to-date with the latest online tools. A new logo to celebrate VERTIC's 25th anniversary has also been developed and incorporated into the design of the new website.

In November 2010, Sonia Drobysz joined the Arms Control & Disarmament Programme as a volunteer. Sonia, who is based in Paris, previously assisted with the VERTIC dismantlement report and was a valued member of the VERTIC delegation to both the IAEA General Conference last September and the Agency's Safeguards Symposium in November. Agata Slota and Ramee Mossa are currently providing assistance to VERTIC through our internship programme.

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building trust through verification

VERTIC is an independent, not-for-profit non-governmental organization. Our mission is to support the development, implementation and effectiveness of international agreements and related regional and national initiatives. We focus on agreements and initatives in the areas of arms control, disarmament and the environment, with particular attention to issues of monitoring, review and verification. We conduct research and analyisis and provide expert advice an information to governments and other stakeholders. We also provide support through capacity building, training, legislative assistance and cooperation.

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