CBWNet

Strengthening the norms against chemical and biological weapons

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Chemical and Biological Terrorism and the Norms of the CBW Prohibition Regimes

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Introduction to the Workshop – CBW Terrorism and the Duality of Regime Norms

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This workshop forms an important element in the implementation of the CBWNet work package on terrorism with chemical and biological weapons (CBW). In a nutshell, this work package seeks to analyze the emergence of CBW terrorism, assess its impact on the CBW prohibition regimes, and evaluate the measures taken to strengthen regime implementation.

Terrorism with CBW constitutes one of three intervening variables – the other two being the changing security environment/great power relations, and developments in science and technology – which have the potential to affect the norms of the CBW prohibition regimes and their implementation. CBW terrorism presents a distinct challenge as it involves sub-state actors intending to do harm. This is not only challenging state-based political orders, but also multilaterally agreed-upon norms, that is "standards of behavior defined in terms of rights and obligations". Likewise, measures to counter CBW terrorism will ultimately have to be taken at the domestic level. This notwithstanding, coordination and assistance activities at the international regime level can have an important guidance and support function.

This already points to the duality of regime norms in relation to CBW terrorism. On the one hand, CBW terrorism presents a challenge to certain norms of the CBW prohibition regimes. On the other hand, regime norms and their implementation provide a tool for countering CBW terrorism. In the former category are the non-acquisition norm, the non-retention norm, the non-transfer norm, the non-assistance norm, and last, but not least, the non-use norm.

Several CBW terrorism incidents have challenged these norms over the past 30 years. Among the more high-profile ones have been the 1995 Aum Shinrikyo Sarin attack on the Tokyo subway, a biodefense insider mailing anthrax letters to US Senators and media in late 2001, the use of sulfur mustard in Marea and Umm Hawsh in Syria in 2015 and 2016 by ISIL/Da'esh (as confirmed by the OPCW-UN Joint Investigative Mechanism), and up to 12 cases of CW use by ISIL/Da'esh. The CBW agents developed or used in these attacks range from toxic industrial chemicals to sulfur mustard and from weapons-grade anthrax to sarin.

Most relevant among the norm-based tools to address CBW terrorism are national implementation measures based on the internalization norm, as well as norm-guided assistance and protection measures. Articles VI and VII of the Chemical Weapons Convention (CWC) and Article IV of the Biological Weapons Convention (BWC) provide the normative basis for national implementation measures under the two treaties. CWC Article X and BWC Article VII enable the provision of assistance in case of (threat of) CW or BW use, regardless of whether the perpetrator is a state or non-state actor.

Responses to CBW terrorism are thus multi-level by necessity. The regime norms on the international level provide both the standards for appropriate state behavior and, via the internalization norm, expect states to set corresponding standards of behavior on the national level. In addition, in the CW prohibition regime, the OPCW as a key actor in CWC implementation has an important function in supporting states parties to live up to their obligations under the internalization, assistance and protection, and cooperation norms. State-level implementation of the norms of the CBW prohibition regimes overlap to varying degrees with states' criminal and penal laws and standards. Ideally, these domains would be mutually reinforcing. Last, but not least, countering CBW terrorism benefits from sub-state level codes of ethics and practice, and academic or industry guidelines on *inter alia* dual-use research and development in chemistry, biology, and related scientific and engineering fields.

Keynote Address by Ambassador Ahmet Üzümcü

Director-General of the OPCW (2010-2018) and member, CBWNet Transfer Network

Terrorism affects us all. From the local to the international level, terrorist acts place a terrible burden on our societies. The sarin gas attacks by the Aum Shinrikyo cult in Matsumoto, in 1994 and on the Tokyo subway system in 1995 demonstrated the horrifying potential of chemical warfare agents as instruments of terror. Chemical weapons use in Iraq and Syria by the terrorist group ISIL or Da'esh also show that toxic chemicals offer a potent means of sowing terror.

During negotiations of the Chemical Weapons Convention in the 1980s, priority was given to the elimination of large CW stockpiles under international verification and to prevent their re-emergence through national implementation, and routine and challenge inspection mechanisms. The Convention was based on inter-state relationships. There is no mention of non-state actors or terrorist threats. Countering such threats was considered a national responsibility.

In spite of this deliberate omission, the OPCW has been working to grapple with the issue of non-state actors in a comprehensive manner. The Open-Ended Working Group on Terrorism, established in December 2001, following the 9/11 terrorist attacks, has been the main platform for states parties to discuss and exchange information and best practices in countering terrorism.

In its work in this domain, the OPCW focuses on three core issues: prevention, response, and legal accountability. In the mid-2010s, as chemical terrorism evolved from a theoretical possibility to a dreadful reality, the issue became a standing agenda item of Executive Council sessions. In October 2017, the Council further recognized this urgency by adopting a landmark decision, which established parameters of action for states parties and the OPCW Technical Secretariat. The Conference of states parties endorsed this decision during its special session in June 2018.

The decision emphasized the fundamental importance of national implementation under Article VII of the CWC. Indeed, the full implementation goes beyond making the necessary declarations and receiving OPCW inspections. states parties have to enact their national legislation criminalizing the activities prohibited by the CWC. In spite of all efforts deployed by the Secretariat, seventy member states still have only partial or no legislation at all. The 2017 Council decision tasked the Secretariat to step up its efforts to address this problem.

In May 2018, the Technical Secretariat published a discussion paper on the "Implementation of Art. VI as a Contribution to Countering Chemical Terrorism". This underlines that the choice of necessary measures to ensure that chemicals are only used for activities not prohibited by the CWC was left to the discretion of states parties. The TS was limited to facilitating the sharing of best practices and could provide technical assistance upon request. This is a rather timid attitude and more could be done in terms of enhancing chemical security and mitigating the risk of diversion of toxic chemicals.

Serving as a platform for international cooperation against chemical terrorism, the OPCW organized an international conference on this topic in June 2018 at its headquarters. The conference addressed prevention, response and legal accountability questions. International cooperation with maximum openness, involving member states, law enforcement agencies, and stakeholders in industry and relevant international organizations was deemed essential to reduce the risks of chemical terrorism.

Under Article X of the CWC, the states parties have the right to request the assistance of the Organization and other members if they come under attack or perceive such a threat. The Secretariat has been carrying out several capacity building activities at national and regional levels in order to improve the capabilities of individual countries to respond to chemical attacks.

In mid-2016, after the CW use by ISIL in Iraq and Syria, and encouraged by the enhanced awareness among states parties of the terrorist threat, I decided to create the RRAM (Rapid Response

Assistance Mission) to assist countries that may come under a chemical attack. It was composed of a team of 15 OPCW staff, who, in normal times, would serve as instructors for capacity building activities could, in times of emergency, be rapidly deployed carrying with them the necessary equipment. In addition to the authority to establish the RRAM stemming from the CWC itself, the EC decision a year later and the special CSP session in June 2018 both endorsed its creation. Its capabilities, in my view, enhance the OPCW's credibility in the eyes of its members and stakeholders.

In establishing the RRAM, I took into account that in spite of all efforts, we would not be able to create effective response capabilities at the national or regional level worldwide, and external assistance would be required in times of emergency. Secondly, many countries could prefer to receive this assistance from an independent international organization rather than bilaterally from other countries, including neighboring ones, due to political reasons. Additionally, if there were a crisis involving different international agencies in response, these would probably turn to the OPCW for leadership based on its chemical weapons expertise. A tabletop exercise at OPCW headquarters in early 2017, in which 15 agencies from across the UN system participated, confirmed this assessment. The OPCW should be ready to lead within its mandate and develop its own capabilities. This was another motivation for us to initiate the project of the ChemTech Centre a year later.

Finally, on legal accountability, national legislation regulating chemical activities and the penal code criminalizing the activities prohibited by the CWC are the main prerequisites. The use of chemical weapons is a crime and those who are responsible must be prosecuted and punished. At the Conference in June 2018, some experts referred to the critical importance of international legal cooperation for ensuring accountability. Given the fact that the evidence required to secure convictions for terrorist acts can often be scattered across several jurisdictions and across cyberspace, such a cooperation was deemed essential.

The OPCW is neither a court nor a law enforcement agency. Nevertheless, its capacity building activities and providing a platform for states parties to exchange information and best practices are significant contributions to countering chemical terrorism. Furthermore, experiences of FFM, DAT and IIT enabled the OPCW to develop new skills and capabilities in the field of investigations, which could support the efforts aimed at strengthening legal accountability.

In the CSP decision of June 2018, which asked the DG to establish the IIT, it was also decided that a State Party investigating a possible CW use on its territory could request the Director-General to provide technical expertise to identify those who were involved in the use of CWs. As a result, this decision gives a universal mandate going well beyond the case of Syria. This important milestone for the Organization could be achieved without an amendment to the Convention.

To be better prepared for the future the OPCW should develop an inventory of lessons to be drawn from the FFM, DAT, JIM and IIT missions.

In addition, capacity-building activities under Article X should focus on regions rather than individual countries. Relevant international organizations should be divided in two categories: prevention and response, and the OPCW should select the most relevant ones to cooperate with for future emergencies. Conferences similar to the one in 2018 gathering should be held at the OPCW at least every two years.

The Chem-Tech Centre and the network of designated laboratories supported by the SAB should continue to address the ramifications of emerging technologies for the CWC implementation, particularly from the perspective of the terrorist threat.

In all these areas, civil society could develop some recommendations for the consideration of the OPCW, its states parties and stakeholders.

In sum, the OPCW has become a mature organization that is well-positioned to continue to fulfill its mandate in the post-destruction phase, giving priority to efforts aimed at preventing the re-emergence of CWs, including the threat of use by non-state actors.

Terrorism and Antiterrorism Efforts: A Quick Historical Overview

Bernhard Blumenau, University of St. Andrews

Terrorism — defined here as the threat or use of violence for political purposes by non-state actors — fundamentally influences the antiterrorism and counterterrorism strategies implemented worldwide. Antiterrorism strategies are concerned with legal and political responses, whereas counterterrorism strategies encompass the operative measures taken by police, military, intelligence, and other agencies. Certainly, terrorism is far from a modern phenomenon. However, the way it manifests itself has undergone significant changes over the past century and a half, reflecting the evolving political landscapes and technological advancements. A deep understanding of the nature of the threat is essential to devise effective responses.

The evolution of terrorism has also influenced multilateral responses. Initial efforts by global and regional international organizations such as the International Civil Aviation Organization, the United Nations (UN), the International Maritime Organization, and the African Union focused on criminalizing aspects of terrorism. These measures aimed to eliminate safe havens and ensure the prosecution of perpetrators. More recent initiatives have shifted to preventive measures, such as tackling the financing of terrorism and sanctioning individuals involved in these activities.

Nevertheless, global and regional organizations face several challenges in combating terrorism. Firstly, the political nature of terrorism means that states often have differing perceptions of the threat and its implications. National interests and geopolitical factors also affect antiterrorism efforts. Moreover, states less afflicted by terrorism may not prioritize responses as highly as those facing constant threats. Furthermore, attempts to protect their sovereignty can lead to states scrutinizing and weakening international obligations through vagueness or reservations. Additionally, the lack of a robust implementation mechanism is a persistent limitation of international law, leaving states essentially uncoerced to comply with their obligations. Lastly, mistrust among states, even those with aligned interests, hampers cooperation on sensitive issues like terrorism.

Over the last fifty years, however, some mechanisms have emerged to address these challenges. A sectoral or piecemeal approach, focusing on specific threats posed by terrorism, has proven a suitable response as it depoliticizes the issues. Therefore, international conventions can target particular acts of terrorism, such as hostage-taking, hijackings, or bombings. Moreover, the 'aut dedere aut iudicare' principle, which obliges states to either extradite or prosecute suspects, is now a key component of many antiterrorism conventions. Yet, the rise of suicide terrorism, where attackers do not expect to survive, has lessened the impact of traditional deterrents.

The involvement of various levels of the international community has fostered an increasingly extensive regime. It allows for differentiated cooperation and obligations, facilitating the evolution of antiterrorism treaties across different levels of the global arena. The traditional punitive approach to terrorism has recently been complemented by strategies aimed at cutting off resources to terrorists. This shift addresses the changing nature of terrorism, particularly the lack of deterrence for suicide attackers. The Security Council's role, acting under Chapter VII, has also been pivotal, enabling direct targeting of individuals and imposing obligations on states.

Despite the establishment of a rigid international antiterrorism framework over the past decades, persistent obstacles and emerging trends continue to challenge its robustness. New forms of social-revolutionary terrorism might evolve in response to political polarization. There is also the potential for increases in state-sponsored terrorism as global affairs become more confrontational. Lastly, there is the threat of environmental terrorism due to inadequate climate change mitigation. Adapting effective strategies, such as the sectoral approach, remains the most pertinent response.

Terrorism and the OPCW

Ralf Trapp, CBWNet Consultant

The Chemical Weapons Convention (CWC) does not refer to terrorism. In fact, negotiators felt that they were lucky they did not have to develop provisions to this end, given the complexities that would have entailed. Nevertheless, the CWC's aspiration to "exclude completely the possibility of the use of chemical weapons, through the implementation of the provisions of this Convention" supports an interpretation that CWC implementation can and should contribute to anti-terrorism objectives when it comes to the use of chemical weapons.

This became apparent first in 1995: the Aum Shinrikyo group released Sarin in the Tokyo subway, killing 13 people and injuring 5,800 others. The CWC Preparatory Commission offered technical support to the Japanese government and facilitated contacts with competent laboratories to support its incident investigation. Furthermore, Japan expedited the adoption of its CWC implementing legislation, with some provisions taking effect immediately to prevent further terrorist Sarin attacks.

In October 1997, 6 months after the entry into force, Japan approached the OPCW with a request to adapt the modalities for the initial inspection and eventual destruction of the Aum's CW production facility "Satian 7" to meet prosecutorial requirements. After several rounds of discussions in the Executive Council, the OPCW agreed on modalities to meet the Japanese requests, showing that it was able to adapt treaty implementation to extraordinary circumstances not envisaged in the treaty.

This ability to adapt was tested again by the terrorist attacks of 11 September 2001 and the concurrent Anthrax letter attacks in the USA. These acts demonstrated that terrorists had the intent to use attack modes that could kill or harm large numbers of people, or inflict significant economic and psychological damage, and had acquired the know-how and operational capacity to deploy weapons to this end. This changed the way in which the OPCW needed to look at chemical threats emanating from terrorism. Following up on a Note by the Director-General on the subject, the Executive Council took a landmark decision (subsequently endorsed by the First Review Conference in 2003) on the OPCW's contribution to global anti-terrorism efforts.

The decision was based on the understanding that full CWC implementation was in itself a contribution to this struggle. It identified several operational areas which could make a tangible contribution to this end: promoting universal CWC adherence to strengthen the global norm against chemical weapons, full implementation of Articles IV and V to strengthen security and safeguards applied to the remaining chemical weapons stockpiles, Articles VI and VII to prevent that toxic chemicals and their precursors could be diverted to nefarious ends and Article X measures to help developing the protective capacity of states parties against chemical weapons uses and of international cooperation among them. The Council also established an open-ended Working Group on Terrorism, which still continues its work today.

These are early examples of how an arms control organization such as the OPCW can adapt its activities to circumstances and requirements not anticipated by the negotiators and make its competence available to common goals of the international community. This is not an easy path: circumstances and positions of key states parties may result in some resistance against such adaptations. At the same time, the international response to terrorist uses of chemical weapons cannot be delegated to any one organization - interagency discussions in the UN context have shown that there is no single lead agency to deal with the chemical terrorism threat and that a coordinated international multiagency effort is required. Recent OPCW decisions on addressing the threat from chemical weapons use have also highlighted the benefit of sharing OPCW technical expertise in support of national measures to prevent and investigate chemical weapons uses.

Investigating Terrorist Chemical Weapons Use: The Experience of the OPCW-UN Joint Investigative Mechanism

Stefan Mogl, Spiez Laboratory and member, CBWNet Transfer Network

Following the accession of the Syrian Arab Republic (SAR) to the Chemical Weapons Convention (CWC) in October 2013, the removal of the declared chemical weapons stockpile by the UN-OPCW Joint Mission in 2014 and continued reports by the OPCW Fact Finding Mission (FFM) confirming the use of chemical weapons in the SAR, the UN Security Council (UNSC) established in August 2015 with the adoption of resolution 2235 the OPCW-UN Joint Investigative Mechanism (JIM) for one year. The UNSC extended the mandate of the JIM for one more year on 17 November 2016 in Resolution 2319.

The JIM was composed of an independent three-member leadership panel and of a core staff. During the first months of 2016, the JIM leadership and a large part of the JIM staff were changed. The new leadership panel assumed its function on 1 May 2017 (JIM2). The staff of JIM2 was comprised of a group of highly dedicated professionals located at the JIM's UN offices in New York and at the JIM's OPCW office in The Hague. JIM2 investigated chemical weapons use in Umm Hawsh in September 2016 and Khan Shaykhun in April 2017, as reported by the FFM.

During the planning of JIM2's investigations of Umm Hawsh and Khan Shaykhun, an in-depth investigation plan was developed, including a range of possible scenarios that would guide each investigation. Subsequently, information was sought and gathered through various investigative activities in order to establish key data for each incident. The investigations for both use cases were conducted in parallel. Organizing and executing field missions, expert workshops, scientific studies, witness interviews, meetings with parties willing to share information with the JIM, amongst others, required good scheduling and planning, as well as flexibility. Vast amounts of information were gathered, reviewed, analyzed, documented, and filed.

The ongoing conflict in the SAR and a frequently changing security environment with many armed groups made missions by the JIM to the SAR challenging. While JIM2 traveled to the SAR on several occasions, it could not visit Umm Hawsh or Khan Shaykhun due to security concerns. JIM2 did however visit Al Shayrat airbase in early October 2017 accompanied by several experts on loan from the OPCW. This mission required an armored vehicles convoy and a comprehensive security concept. JIM2 presented the findings on Umm Hawsh, use of sulfur mustard by a terrorist group, and on Khan Shaykhun, use of sarin by a state, to the UNSC on 7 November 2017, ten days before the end of its mandate. The findings of JIM2 are described in the 7th Report of the JIM to the UNSC.

JIM2 conducted two complex investigations from May until November 2017 in less than half a year and in a politicized environment. From the perspective of the author, the following factors contributed to a successful completion of the JIM2 investigations: team spirit, investigative skills, interview skills, technical and legal team expertise, testimony analysis, report writing, sources of information, access to information and expertise, authentication of information, corroboration of information, data management, confidentiality, operations management and -security, time management.

How an investigation of a terrorist use of chemical weapons compares to an investigation of a state use of chemical weapons is difficult to ascertain. Various factors influence investigations of incidents of chemical weapons' use, many are case-specific and some can be political.

From the list of success factors presented here for the work of JIM2, the following three seem the most likely to differ when investigating a terrorist use of chemical weapons from state-level use, they are sources of information, access to information and expertise, operations management and -security.

INTERPOL's Role in Chemical Security

Christos Eleftheriou, INTERPOL

The International Criminal Police Organization (INTERPOL) is an intergovernmental organization with 196 member countries. The aim of the organization is to ensure and promote the widest possible mutual assistance between all national police authorities within the limits of the laws existing in the different countries and in the spirit of the "Universal Declaration of Human Rights", as well as supporting international efforts to safeguard communities and make the world a safer place.

INTERPOL's CBRNE and Vulnerable Targets Sub-Directorate supports the global Law Enforcement community to prevent, detect, respond to, and investigate incidents involving use of CBRNE materials committed by non-state actors and incidents involving the targeting, or attempted targeting of vulnerable targets.

The Chemical and Explosives Terrorism Prevention Unit (CMX), through its global Chemical and Explosives Terrorism Prevention Programme (CHEMEX Programme), offers a wide range of training courses designed to counter these threats, improve chemical security, and build long-term capacity within INTERPOL member countries. The CHEMEX Programme, driven by CMX, is guided by a comprehensive criminal intelligence-driven approach to ensure that the support provided is based on current threats and responds to member countries' most pressing needs, whilst maintaining a level of flexibility to adapt to changes in the evolving threat landscape. It is organized in three pillars.

Watchmaker is integral to the first pillar on intelligence sharing. It is the central intelligence collection tool to counter the global threat of chemicals and explosives in collecting, analyzing, and sharing intelligence on devices in order to identify, locate and arrest suspected bomb-makers. Terrorist groups within certain regions can be characterized by their use of devices, their manufacture and the modi operandi. For this reason, Project Watchmaker applies a national or regional tailored approach to its programming. This enables INTERPOL to provide targeted support in terms of data collection and analysis, and to coordinate effective cross-border operations.

In its second pillar – in-country engagement – CMX supports member countries to prevent, prepare, respond to and investigate the use of chemicals and explosives in terrorist incidents. CMX offers a range of capacity building activities that are based on individual countries' vulnerabilities and needs. These training courses target government authorities, police services, and the chemical industry, and are aimed at building long-term and sustainable capacity of national authorities to counter current and emerging threats related to chemicals and explosives materials.

CMX can also support member countries by conducting operations. These operations can be national or regional where INTERPOL coordinates and supports with INTERPOL databases, tools, and services working with key partner agencies to target the illicit smuggling of chemicals and identify criminals.

As part of its third pillar – international dialogue – INTERPOL collaborates with other organizations, agencies, and governments to strengthen efforts to discuss and produce strategies to prevent and minimize the effects of terrorism.

In this context, the Global Congress on Chemical Security & Emerging Threats is an international network of more than 1,500 experts who work together to address the threat of chemical and explosives terrorism. Launched in 2018, chemical security practitioners from different countries, sectors, and institutions participate to share best practices and explore innovative ways to counter the threats. By providing a platform for multi-sector global cooperation and partnership, the Global Congress enables members to build relationships, exchange expertise, share important information on emerging threats and innovative best practices, and ultimately enhance capabilities. This diverse range of stakeholders, including private industry and law enforcement agencies, facilitates a comprehensive approach to addressing chemical security challenges.

Chemical Terrorism Threat Perceptions and Responses at CWC Review Conferences

Alexander Kelle, IFSH and CBWNet

The Chemical Weapons Convention (CWC) does not explicitly mention terrorism. However, after the 9-11 terrorist attacks and the anthrax letters sent through the US mail system, the OPCW Executive Council in December 2001 declared, "the full and effective implementation of all provisions of the Convention is in itself a contribution to global anti-terrorist efforts" (EC-XXVII/DEC.5). It identified CWC universality and the full implementation of CWC Articles IV, V, VI, VII and X, as particularly relevant in the OPCW's contribution in the global fight against terrorism. Subsequent CWC review conferences reconfirmed this classification of normative guidelines as applicable and useful for guiding the organization's activities against chemical terrorism.

CWC states parties' threat perceptions related to CW terrorism have evolved over time. Based on national statements given during the general debates of CWC Review Conferences (RevCon), which are publicly available on the official OPCW website, states' concerns about chemical terrorism peaked during the 4th RevCon in 2018. Of those statements available for all five RevCons, around one third were delivered by states of the Western European and Others Group, around one quarter by the Asia group, and the remainder by the Eastern European Group (17%), the Latin America and Caribbean group (11%) and the Africa group (10%). These preliminary findings come with the caveat that, when comparing the speakers that took part in the general debates and have been listed in the RevCon reports with the number of available documents, this reveals significant gaps in the latter.

Analysing responses to chemical terrorism in CWC RevCon final documents is presented with the challenge that the last two RevCons in 2018 and 2023 did not produce such a document. Therefore, in those two cases, the Chairperson's report of the Conference (RevCon4) and the Chairperson's report of the Open-Ended Working Group to prepare RevCon-5 have been used instead.

Responses to CBW terrorism at RevCons have been linked most often to the international cooperation and assistance norms, have most of the time referenced relevant EC decisions, and regularly noted the work of the Open-Ended Working Group on Terrorism. In addition, RevCons have made explicit reference to universality on three occasions, once to CWC Article VI and never to Articles IV and V. The following table provides an overview over time.

	RC-1	RC-2	RC-3	(RC-4)	[RC-5]
Universality	✓		✓		✓
Art. IV & V					
Art. VI				✓	
Art. VII	✓	✓			✓
Art. X		✓	✓	✓	✓
Art. XI	✓	✓	✓	✓	✓
EC decisions	EC-XXVII/DEC.5	EC-XXVII/DEC.5	EC-XXVII/DEC.5	EC-86/DEC.9	
OEWG-T	✓	✓	✓	✓	✓

Some Aspects Regarding Chemical Terrorism and Counterterrorism in Chemical Industry

Detlef Männig, Mannig Consulting and member, CBWNet Transfer Network

Besides the difficulties in defining „chemical terrorism", the question arises: who is in charge of dealing with the problem? The Chemical Weapons Convention (CWC) does not address chemical terrorism, however Article VII of the CWC states that "each State Party shall…prohibit natural and legal persons…from undertaking any activity prohibited to a State Party under this Convention." Similarly, UN Security Council Resolution 1540 (2004) states that "all States … shall adopt and enforce appropriate effective laws which prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery, in particular for terrorist purposes".

Therefore, the responsibility to deal with chemical terrorism rests primarily with states. However, in implementing the requirements, states can pass and have passed legislation which obligates chemical industry to act in order to participate in meeting these requirements.

In my own experience as a chemical industry player, this industry has been living up to its commitment to deliver safe and sustainable products and processes to society under the Responsible Care® program, which started 1985 in Canada and today covers over 90 percent of global chemical industry. While originally focusing on chemical safety to promote occupational health and to protect the environment, the European Responsible Care Security Code expands this voluntary initiative to cover management practices to protect chemical industry against criminal, malicious, and cyber acts. Together, these initiatives and documents provide important normative guidance for chemical industry in its contribution to the fight against chemical terrorism.

In addition, chemical industry supports the Global Framework on Chemicals (GFC), which in September 2023 succeeded the Strategic Approach to International Chemicals Management (SAICM). The GFC brings together stakeholders, national governments and international organizations working for the sound management of chemicals. The framework has five strategic objectives and several related targets and guidelines across the entire lifecycle of chemicals. These should be implemented by 2030, or 2035 at the latest.

A further important tool to prevent chemicals from getting into the wrong hands is the "Know Your Customer" principle. Originally developed for financial institutions to prevent money laundering and terrorist financing, it is now widely used by chemical industry. It includes generating a customer profile and asks several questions, such as:

- Are types and quantities consistent with the intended purpose?
- Are there unusual requests for shipping (packaging, delivery address)?
- Are there unusual requests for payments (cash, banking transactions with dubious partners, upfront, cryptocurrencies)?

Last, but not least, the use of IT tools such as SAP GTS (Global Trade Services) can be helpful in ensuring regulatory compliance by chemical industry, and enhancing data, product and business process security. In this context, it is also useful to have customer profiles regularly updated.

Science and Technology as a Factor in BW Terrorism (1/2)

Anna Krin, ZNF, University of Hamburg and CBWNet

Biotechnology and genetic engineering have a long development history marked by several milestones. On the one hand, the rapid progress in these areas has enormous benefits for various sectors of our daily lives. On the other hand, concerns have been expressed frequently that non-state actors may exploit the very same advances to produce and deploy biological weapons directed against humans, plants, or livestock. So far, the reported cases of bioterrorism are relatively low. However, S&T development is an ongoing process. Novel advances could make the technology more accessible to nefarious actors and shape the threat landscape.

Numerous novel approaches that found their way into biotechnology include:

- the development of the CRISPR/Cas method, which has evolved to enable precise genome editing;
- the introduction of enzymatic DNA synthesis, which promises greater efficiency in the synthesis of longer sequences compared to the "conventional" chemical method;
- advances in DNA assembly methods;
- the development of a variety of bioinformatics tools (including those based on machine learning) to foster metabolic engineering, gene circuits design, genomics/proteomics analysis, structural modeling, computational determination of molecular properties, search for new chemical compounds, etc.;
- the rapid progress in the area of genome sequencing towards long-read sequencing.

Mapping progress in other converging areas, including applications in nanotechnology (e.g. design of in vivo delivery systems), additive manufacturing (e.g. prototyping, assembly of specific devices), robotics (e.g. automation of laboratory procedures), etc., is also important for a broader discussion of relevant S&T developments. Some of the applications in these areas are often referred to as the dual-use research of concern. However, an in-depth analysis is needed to answer the question of what impact they could have on biosecurity. Moreover, the same achievements also foster the development of vaccines, therapeutics, diagnostics, and attribution methods to counteract any possible BW attack.

In addition to the progress in S&T, further aspects might contribute to the change in the threat perception regarding the possibility of bioterrorism. These include:

- the availability of commercial services for DNA/RNA synthesis, for which there are currently no mandatory regulations;
- the constantly growing body of open-source literature with a dual-use character;
- the rapidly increasing amount of data in the open-access databases containing sequences of pathogenic microorganisms and structures of different toxins;
- the expanding DIY community in life sciences, etc.

Nevertheless, it should be pointed out that bioweapons production (from a bioagent to a BW) is a highly complex endeavor. The requirements for resources, facilities, sufficient know-how, and tacit knowledge will not be rendered obsolete by any of the developments mentioned above. The hurdles for BW production using biotechnological methods are still high. This might be the reason for the comparatively low number of documented cases of bioterrorism so far.

Science and Technology as a Factor in BW Terrorism (2/2)

Gunnar Jeremias, ZNF, University of Hamburg and CBWNet

The list of cases of bioterrorism is short. With the failed attempt by two doomsday believers under the name R.I.S.E. in Chicago in 1972, the contamination of salad bars with salmonella in 1984 in Dulles, Oregon, by the Bhagwan Shree Rajneesh cult and the failed anthrax attacks by the Aum Shinrikyo cult in Japan in 1993, bioterror seemed to be attractive to perpetrators with rather obscure backgrounds, at least in the past. Other examples, especially since the 1990s, include a number of unsuccessful attempts to poison people with ricin powder (several by right-wing extremists in the United States), as well as the 2018 Cologne terror attack, in which an Islamist couple attempted to use ricin by contaminating an explosive device with the poison. Since the Amerithrax case in 2001, there have been countless "white powder incidents" worldwide in which harmless powder was sent to authorities or individuals. In the Amerithrax case, which was most likely an inside job by an employee of the US biodefense program, 22 people were infected, 5 of whom died. And there was $500 million in damage, mostly due to the decontamination efforts of the postal system. However, it is not necessarily a terrorist attack, as it was not carried out with a political or religious background.

The low number of cases does not allow any predictions to be made for the future, but shows that either there has been little interest in such attacks to date and/or that the technical hurdles were too high. Even for the terrorist organizations that probably had the best prerequisites for a bioterrorist program in terms of size, degree of organization, and territorial control, namely Al Qaeda and ISIS, the evidence is "very thin" that they were active in this regard or even striving for operational capabilities. In contrast to biological weapons, ISIS and other groups in Syria/Iraq have instead produced and used chemical weapons (mustard gas, chlorine). The fact that the major (international) terrorist organizations are Islamist does not necessarily imply a preference for or fundamental rejection of biological weapons - their actions are motivated by political interests and not by religious beliefs about the categories of weapons that can be used. A protracted development of weapons that are feared but uncontrollable or at least complicated to use was obviously not an option so far.

One of the few attempts to predict bioterrorism was a survey conducted by Gronvall in 2016: 59 US biosecurity experts were asked to estimate the likelihood of a large-scale biological weapons attack (more than 100 sick people) in any country within the next ten years. Responses ranged from 1 percent to 100 percent probability, with a mean of 57%; in other words, no significance could be established for any value. Now, almost 10 years after the absence of a major bioterrorist attack, but with new technological developments, it would be interesting to survey the panel again. The questions of whether opportunity makes bioterrorists and what technical perspectives suit their interests remain unanswered for now.

With no further cases to date, multi-level governance remains necessary to minimize the threat. Governance efforts for containment and prevention include the following (non-exhaustive) activities: The BWC, which is clearly a multilateral arms control treaty and not primarily a counter-terrorism instrument, could however be at the center of the international policy debate (whereas the 1540 Committee may be better suited for this) and contribute by identifying and tracking emerging enabling technologies, particularly following the planned establishment of a Science and Technology Committee. Verification technologies that may be available in a future BWC verification mechanism could also be used in the BT context. The Panel could also be a forum for further development of awareness and education measures, including being an important reference point for biosafety programs. BWC and CWC could thus play a role in counterterrorism, but it seems prudent not to overburden these regimes with tasks for which they were not created. The most important arenas for governance will remain outside and will include export controls, which are primarily intended to prevent state abuse and to prevent bribery.

Bioterrorism Threat Perceptions and Responses at BWC Review Conferences

Elisabeth Hoffberger-Pippan, PRIF and CBWNet

Even though the BWC does not contain any reference to bioterrorism, the Convention is well-equipped to cover this issue as well. The broad terminology of Article IV, which obliges states parties to undertake national implementation measures, most certainly encompasses measures that are addressed at preventing criminal acts related to bioterrorism and, most importantly, to hold those accountable who have violated the law.

Currently, the BWC has 183 states parties. Since the inception of the Implementation Support Unit (ISU) at the Sixth Review Conference in 2006, 44 states parties have more or less regularly submitted compliance reports. The majority of states parties submitting such reports explicitly addressed issues related to (bio-)terrorism. To illustrate, in 2022, 20 states parties submitted reports, whereas 16 of those submitting reports have explicitly addressed bioterrorism (= 80 %). By contrast, in 2016, 24 States submitted reports and 14 referred explicitly to bioterrorism (= ~ 58 %). And in 2011, 33 States submitted reports and 16 of those States explicitly mentioned bioterrorism (= ~ 48 %). Thus, while the number of states parties submitting compliance reports decreased 27,27 % between 2011 and 2016, and 16,67 % between 2016 and 2022, the number of states parties explicitly referring to (bio-)terrorism has increased 9,85 % points between 2011 and 2016, and 21,67 % points between 2016 and 2022. The fact alone that some States have explicitly used the term (bio-)terrorism does not automatically mean that other States, which have not mentioned the term, have not undertaken measures at the national level which might have relevance for (bio-) terrorism. But the mere fact that BWC states parties more frequently use the term in their national compliance reports is at least indicative for the increased awareness that bioterrorism does play a role in the context of the BWC.

Even those States which have not explicitly mentioned bioterrorism in their BWC compliance reports might already have put in place (penal) legislation which might be relevant for bioterrorist crimes. One of the reasons why some States have submitted compliance reports without addressing explicitly bioterrorism might be that it is still contested whether states parties are indeed legally obliged to take measures, such as penal legislation, to counter bioterrorism. Some states parties might rather take the view that bioterrorism is a subject matter that falls squarely within the ambit of Security Council Resolution 1540 and should be exclusively addressed there. Furthermore, it is important to note that referring to compliance reports is only one measure of how to assess the response of BWC states parties to bioterrorism. However, the compliance reports show – at least – that the BWC certainly is an appropriate forum to address bioterrorism, especially with regard to national implementation measures.

To conclude, a threat perception seems to exist with regard to bioterrorism and the BWC. A small number of BWC states parties have submitted compliance reports, some of which are quite substantial and detailed. The vast majority of BWC states parties does not explicitly address bioterrorism in the compliance reports, however.

In light of these findings, it is thus recommended that BWC states parties continuously submit compliance reports, even if those reports do not entail new information. It makes it easier for NGOs, academia and civil society to monitor developments and analyze them accordingly. In addition, BWC states parties should explicitly address bioterrorism if such a threat perception exists. Last but not least, BWC states parties should close the gap between BWC and UN Security Council Resolution 1540(2004) and move towards complementarity and coherence.

CBWNet

Workshop Program

CBWNet expert workshop on

The Norms Prohibiting Chemical and Biological Weapons: Challenges from and Responses to an Evolving Terrorist Threat

Berlin, 1-2 February 2024

1 February 2024

14:30 – 15:45 Introduction to the Workshop

Welcome and tour de table

Terrorism as a challenge to the norms of the CBW prohibition regimes – *Alexander Kelle, IFSH Berlin Office & CBWNet*

Keynote speech:
The growing salience of terrorism and anti-terrorism efforts at the OPCW – *Ahmet Üzümcü, former OPCW Director-General and member, CBWNet Transfer Network*

15:45 – 16:15 Coffee break

16:15 – 17:30 The evolution of terrorism and counter-terrorism: targets, methods and tools (*chair: Elisabeth Hoffberger-Pippan, Peace Research Institute Frankfurt & CBWNet*)

A short history of terrorism and multilateral counter-terrorism – *Bernhard Blumenau, The Handa Centre for the Study of Terrorism and Political Violence, University of St. Andrews, UK*

18:30 Informal dinner

2 February 2024

9:00 – 10:30 Panel 2: Practitioners' perspectives on dealing with CBW terrorism (*chair: Alexander Kelle*)

OPCW involvement in the fight against global terrorism post-9 11 – *Ralf Trapp, Consultant CBWNet*

Investigating terrorist CW use: the experience of the OPCW-UN Joint Investigative Mechanism – *Stefan Mogl, Spiez Laboratory and member, CBWNet Transfer Network*

Addressing CW terrorism: the role of Interpol – Christos Eleftheriou, Chemical & Explosives Terrorism Prevention Unit, Interpol

10:30 – 11:00 Coffee break

11:00 – 12:30 Panel 3: CW terrorism (*chair: Anja Dahlmann, IFSH Berlin Office*)

CW terrorism threat perceptions and policy responses at CWC Review Conferences – *Alexander Kelle, IFSH & CBWNet*

An industry perspective on chemical terrorism – *Detlef Männig, Mannig Consulting and member, CBWNet Transfer Network*

12:30 – 13:30 Lunch break

13:30 – 15:00 Panel 4: BW terrorism (*chair: Kristoffer Burck, JLU Giessen & CBWNet*)

Science and technology as a factor in BW terrorism – *Anna Krin / Gunnar Jeremias, ZNF Hamburg & CBWNet*

Bioterrorism threat perceptions and policy responses at BWC Review Conferences – *Elisabeth Hoffberger-Pippan, Peace Research Institute Frankfurt & CBWNet*

15:00 – 15:30 Summary and Conclusions

Workshop ends

The CBW network for the comprehensive strengthening of norms against chemical and biological weapons (CBWNet)

The research project CBWNet is carried out jointly by the Berlin office of the Institute for Peace Research and Security Policy at the University of Hamburg (IFSH), the Chair for Public Law and International Law at the University of Gießen, the Peace Research Institute Frankfurt (PRIF) and the Carl Friedrich Weizsäcker-Centre for Science and Peace Research (ZNF) at the University of Hamburg. The joint project aims to identify options to comprehensively strengthen the norms against chemical and biological weapons (CBW).

These norms have increasingly been challenged in recent years, *inter alia* by the repeated use of chemical weapons in Syria. The project scrutinizes the forms and consequences of norm contestations within the CBW prohibition regimes from an interdisciplinary perspective. This includes a comprehensive analysis of the normative order of the regimes as well as an investigation of the possible consequences which technological developments, international security dynamics or terrorist threats might yield for the CBW prohibition regimes. Wherever research results point to challenges for or a weakening of CBW norms, the project partners will develop options and proposals to uphold or strengthen these norms and to enhance their resilience.

The joint research project is being funded by the Federal Ministry of Education and Research for four years (April 2022 until March 2026).

About this working paper:

The contributions to this working paper are based on presentations given by the authors at a CBWNet Expert Workshop on CBW terrorism in Berlin on 1 and 2 February 2024.

In order to make as many of the key points of the presentations as possible available to a wider audience, references in the form of footnotes or endnotes have not been included.

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