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Editorial

The contemporary world order has its origins in the manner in which the First World War unfolded in a fairly connected European Order. It was also a period when the modern usage of Chemical Warfare began with the attacks by the German forces on Ypres, Belgium. In this issue, we look back at Ypres with the desire to take the political, legal and strategic battle to comprehensively ban the production, stockpiling and usage of chemical weapons.

In this context, Kapil Patil connects Ypres with Syria and DPK Pillai's article looks at how the preparedness against chemical weapons should look into education and awareness as well. Article by Melissa and Michael makes a strong case for treating the efforts to hamper anti-polio campaign and increasing number of new cases of polio at par with bio-terrorism since it has regional implications.

Dr. Anshu Joshi's article summarises the forty years of the Biological Weapons Convention (BWC). Also in this issue, the book review by Sadaf Javed takes a look at secretive research on Chemical and Biological Weapons and its human and social costs of unethical research undertaken.

This issue also comprises other regular features like the Chemical and Biological News.

With our readers' feedback, we wish to publish issues in the future that focus on a subject of particular concern.

Contributions and feedback are welcome and can be addressed to: editorcbw@gmail.com

The Terrorism-Disease Nexus: India's Neighborhood Concerns

Ms. Melissa S Hersh and Mr. Michael Hopmeier

Melissa S Hersh is a Washington D.C.-based risk analyst and consultant, and a fellow of the Truman National Security Project. Michael Hopmeier is President of Unconventional Concepts, Inc., an engineering and policy consulting firm specializing in national security issues. Views expressed are their own.

Summary

The act of deliberately disrupting the disease prevention systems like vaccines (oral or injected), and incentivizing obstructionist behaviors, including, committing violence against healthcare workers, as well as sacrificing children to the disease and anointing them as martyrs should they succumb to illness or death can be labelled passive biological warfare (BW).

The lawyer[1] representing the Pakistani clinician[2] involved in a US national security plan to confirm Osama Bin Laden's identity in 2010, was killed in Peshawar last week. The formerly Taliban-linked, then Islamic State (IS) affiliated, and once again Taliban-allied (March 2015) Jamaat-ul-Ahrar group[3], has claimed responsibility for the murder as has Jundullah[4], a Taliban affiliate associated with Tehrik-i-Taliban Pakistan (TTP) and IS. Now more than ever, we are reminded of the terrorism-disease nexus[5].

While withholding vaccines may not be tantamount to active biological warfare (BW), it could be labelled as passive BW. More importantly, it is terrorism, by any definition. By deliberately disrupting the disease prevention systems like vaccines (oral or injected), and going so far as incentivizing obstructionist behaviors, including, committing violence against healthcare workers, as well as sacrificing children to the disease (in this case, Poliomyeletis or polio for short) and anointing them as martyrs should they succumb to illness or death are intentionally evoking disease or death. This insidious, passive form of BW does not require the need for manipulating pathogens to even mimic the effects of an endemic disease, polio, or to successfully weaponise and disperse polio, rather, by deliberately denying prevention measures, the disease is permitted to run its course unfettered. To date, there are no viable counter-measures to stop polio infection if it has begun. Further, the long lasting impact on the existing government, as represented by its inability to protect its citizens, is immeasurable.

The effects of preventing access of healthcare workers and supplies to unimmunized children due to assault, and thus denying

children a potentially life-saving intervention are no different than actively exposing children to polio as a weapon. The effects can be devastating, even more so when terrorist groups engaging in anti-vaccine practices such as Al Qaeda and Taliban affiliates, Al Shabaab, and Boko Haram are exploiting existing vulnerable national and regional public health infrastructure. In 2014 there were 89 polio-related killings reported[6]; 80 of those health care workers that were targeted and killed were in Pakistan, with others being from Nigeria.

Polio has been all but eradicated from the planet. However, its remaining endemic strongholds, Pakistan, Afghanistan, and Nigeria, are also rife with terrorism. In 2014 cases were also documented[7] in: Somalia; Equatorial Guinea; Iraq; Cameroon; Syrian Arab Republic; Ethiopia; South Sudan; and Madagascar. The likelihood for cross-border infection, particularly in contiguous nations that border anti-vaccine controlled areas and consequently, into regions with growing allegiances and affiliations with known anti-vaccine terrorist organizations poses a risk to eradication strides made over the last nearly 40 years. If polio is not effectively managed the Centers for Disease Control and Prevention[8] (CDC) in the United States suggest that, "... [a] resurgence of polio could paralyze more than 200,000 children worldwide every year within a decade."

As we recently have seen with Ebola, any high-consequence infectious disease outbreaks anywhere in the world pose a global threat. The strength of a country's public health infrastructure is not always the metric by which successful interventions are measured. Attacks against the public health infrastructure are attacks against a nation and its people. Failure of the public health infrastructure, for whatever reasons, is one existential threat that no nation can afford to ignore.

In so far as the crisis at hand is about power and who is wielding it, there is a need to identify who is best suited to be "in charge" of the evolving anti-vaccine crisis. In Pakistan, where the majority of the cases are, the government must identify the agency and individuals who most clearly possess the highly complex skill sets, training, resources and backgrounds needed to provide overall management of a crisis, not merely the health aspects of the crisis.[9]

India's concerns that this be accomplished sooner rather than later are in part fuelled by the declaration made in India in 2014, that the South-East Asia Regional Office of the World Health Organization (WHO-SEARO) was able to declare the region polio-free[10] since January 2011. And for India, Pakistan is only a bus ride away[11] and a similar risk also exists for Africa. And, while India has offered its 'full cooperation'[12], to date there has been no reportable progress. However, as the rise in polio cases are parallel to the adoption of anti-vaccine fatwas by Islamist terrorist organizations, incorporating cross-border assistance from the Indian government to the Pakistani government will likely be decided only once Pakistan has made internal management decisions on how to coordinate its response.

Efforts to issue arrest warrants by local administrators have proven somewhat effective, numbers of vaccine refusals by parents have dropped where punitive measures were put in place.[13] However, for a lasting effect, the Pakistani government will need to not only make legislative changes but also enforce them. And, herein lies the heart of the matter. Until there is recognition by the security apparatus in Pakistan, law enforcement or military, that polio is a threat to its national security, and that ensuring vaccination occurs even in terrorist-run strongholds. It is not enough to get security officials to agree that public health or in this

case, polio, is a threat, but to agree to treat it as such. By treating polio as a security threat, there should be active participation in threat reduction efforts. Consequently, rather than agreeing to send more health care workers into harm's way, security forces can administer vaccines.

Clearly, attacks against public health are a real threat, not just locally or even regionally, but against the entire world. To put the threat of public health to national security in context, consider the fact that more soldiers throughout history have died from infectious disease caught while in combat then all forms of military and enemy action combined. Designating the polio crisis in Pakistan as the result of passive BW or terrorism rather than merely a public health problem due to the endemic nature of polio in Pakistan may alter the agencies and individuals tapped to coordinate and implement the response. Regardless of who or what is the 'perpetrator', the impacts on global public health are the same. Until we wake up and truly realize the key and pivotal role that public health and disease prevention, we are indeed placing countries, regions and the world at risk.

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Beyond Forty Years of the BWC

Dr. Anshu Joshi

The author is a doctorate from Jawaharlal Nehru University and worked on issues related to terrorism, bio-terrorism and comprehensive bioweapon defence mechanism. The author worked as Editor and Faculty with Tata Consultancy Services, Hyderabad.

Summary

The 40th anniversary of Biological Weapons Convention (BWC) was convened recently in Geneva. Representatives from various nations and non-government organisations participated to discuss future challenges for the convention. Considering the same, the convention needs to be fortified with measures related to combating bio-terrorism, belligerent use of technology and collective efforts in combating outbreaks at global level to ensure holistic biological disarmament and security worldwide.

In shadow of many unprecedented terrorattacks, disastrous toll taken by Ebola across the globe and dreadful spread of Swine Flu in India, the 40th anniversary of Biological Weapons Convention (BWC) was convened on 30 March 2015 in the Council Chamber of the Palais des Nations in Geneva, the same place where the BWC was originally negotiated. Representatives from various countries, research institutes and non-government organisations participated to celebrate the anniversary of this famous multilateral treaty against biological weapons and discussed prospective future challenges and their probable solutions.

The event registered remarks from Michael Moller, Acting Director-General, United Nations Office at Geneva, Ambassador Mazlan Muhammad of Malaysia, Chairman of the 2015 BWC Meeting of States Parties, Mr. Mikhail Ulyanov, Ministry of Foreign Affairs, Russian Federation, Ambassador Robert A. Wood, representing the US, Ambassador Masood Khan from Pakistan among others. The event also included speeches from Angela Kane, Acting Director-General, United Nations Office at Geneva and the UN High Representative for Disarmament Affairs and Dr. McLeish, the Sussex Director of the Harvard Sussex Program along with Mr. Nicholas Sims, Emeritus Reader in International Relations, London School of Economics and Political Science and Dr. Iris Hunger, Robert Koch Institute. In the afternoon of 30 March, the Centre on Conflict, Development and Peacebuilding (CCDP) of the Graduate Institute of International and Development Studies, the Geneva Centre for Security Policy (GCSP) and the United Nations Institute for Disarmament Research (UNIDIR) convened an academic seminar to mark the anniversary.[1]

The BWC entered into force on 26 March 1975 to ban usage, development, production, stockpiling and transfer of biological weapon agents for hostile purpose. Currently 172 states parties and nine signatory states are a part of the convention. The BWC is known as the first multilateral disarmament treaty against biological weapons; however, it is not the very first treaty to ban usage of biological weapons. It is a result of prolonged efforts by the international community to establish a new instrument to supplement the 1925 Geneva Protocol, which prohibits use but not possession or development of chemical and biological weapons.[2] The BWC came in to existence to offer an all-inclusive ban against biological weapons. However, because of various shortcomings related to verification procedures, dual use dilemma and involvement of non-state actors (terrorist organisations), the convention still seems to struggle in fulfilling its core objective. Then, in view of the fact that cutting-edge technological advancements and terrorism may add to further challenges at a different level for the convention in ensuring biological disarmament and security, it becomes crucial to discuss its relevance and future.

The issues that were discussed during the event were indeed focussed on the same. While discussing the soul nature and purpose of the convention, Iris Hunger mentioned, "The BWC, fundamentally, is about preventing the most devious form of disease. It embodies a norm that is at least 40 years older than the BWC itself, the norm that human beings should not be subject to disease intentionally caused, should not be subject to biological warfare. This norm has survived the ups and downs of the BWC remarkably well, and we should make sure this continues for many decades to come. For this, it is important to refocus the BWC on what it is designed for: preventing biological warfare. The BWC is not a biosafety treaty, nor is it development assistance or an education treaty. Equally it is not an anti-terrorism treaty or a disaster assistance treaty or an ethics council. It is a disarmament treaty and we need to enable it to comprehensively fulfil its main purpose".[3]

Undeniably, despite its shortcomings, the BWC still remains the most preferred instrument of biological disarmament. As mentioned by Ambassador Wood, "While not yet universal, the BWC is the centrepiece of a global norm that possession and use of these weapons are unacceptable".[4] Nicholas Sims discussed the strengths as well as weaknesses of the convention during the event and suggested, "Nothing is more important than the efforts to find solutions to the problem of reassurance to develop a common understanding and effective action to remedy this main weakness of the convention".[5] Also, everyone understands the dual-use dilemma, the fact that certain technologies, data, agents and information along with implicit and explicit knowledge (irrespective of the reality that they are developed, produced, and distributed for the benefit of public health) could be misused for biological weapons development. Although governmental and nongovernmental experts have produced quite a few lists of 'dangerous' activities and agents, none of them is generally accepted internationally as guidance for control efforts. Even less agreed are the control measures themselves; one can think about continuous international on-site presence of observers, regular international project reviews, or international on-site inspections. An urgent task for the parties to the BWC is to develop and update a list of activities that may be conducted only under international scrutiny. Likewise, parties to the treaty need to prioritise an agreement on procedures for international oversight of these activities.[6]

The key speakers also shared their concerns related to the future of biological disarmament in general aligning with the future of the BWC. They reiterated the significance on confidence-building measures in order to ensure biological arms control. Apart from the involvement of state actors, terrorism and highly-advanced science and technology were also the focus areas of discussion. All these elements and areas of discussion indicated a crucial need of strengthening the convention.

Prior to this anniversary meet aimed at strengthening the convention, a Meeting of State Parties (MSP) was organised during 1-5 December 2014 in Geneva. In accordance with the decision of the seventh review conference of BWC, this meeting considered the work of the Meeting of Experts, held during 4-8 August 2014, on the three standing agenda items: strengthening cooperation and support mentioned under Article X of the convention, reviewing developments in the field of science and technology related to the convention and reinforcing national implementation of the convention. The biennial item of how to strengthen implementation of Article VII, to assist states which have been exposed to a danger as a result of a violation of the BWC, was also discussed.[7]

During the meet, states parties accepted that some of the developments in science and technology have potential for usage contrary to the provisions of the convention. Hence they agreed on the importance of facilitating the fullest possible exchange of dual-use technologies where their use is completely consistent with the peaceful object and purpose of the convention. The parties also discussed various means of strengthening cooperation and assistance under Article X of the convention which focusses on upholding the importance of the fullest possible exchange of equipment, materials and scientific and technological information for using biological and toxin agents for peaceful purposes. Parties also stressed on educating scientists and enhancing their awareness related to risks and benefits of life sciences and biotechnology in particular, and their role in strengthening biodefence. They agreed on creating and maintaining awareness of relevant advances and related dual-use issues, and keeping their national legal and regulatory frameworks up to date.[8] They also stressed on strengthening national institutions and exchanging best practices with relevant regional and sub-regional organisations to ensure complete and comprehensive implementation of the convention.

While addressing to the biennial item, strengthening Article VII, detailed procedures and mechanisms for the provision of assistance and cooperation by states parties were conferred. The core concern was to enhance mutual support and preparedness at global level to combat a biological outbreak. In this context, Ebola outbreak can be considered as an eye-opener in terms of our overall preparedness against any such occurrence. State parties restated the value of continuing discussions on strengthening Article VII and, thereby, strengthening their capacity to effectively provide assistance under this Article, taking into consideration lessons learnt from combating infectious disease.[9]

Basically, apart from its existing limitations, the convention, initially developed to ensure comprehensive biological disarmament, faces a few new significant challenges occurred due to immense advancements in science and technology and terrorism. Today, terrorist organisations pose the most alarming challenge of creating havoc using any unconventional means. On the other hand, easy access to sensitive scientific on the

internet complicates the situation further. The dilemma of using biological agents and related technologies meant for peaceful purposes for offensive purposes further defies the treaty in ensuring usage of biological agents for peaceable purposes only. Apart from addressing these challenges, the convention also needs to look at its role in creating public awareness about biological weapons. The convention also needs to be reinforced with stringent verification measures and enhanced mutual trust and cooperation among all parties, without which its sole aim would not be achievable.

All these challenges need to be addressed by the eighth review conference of BWC, scheduled for December, 2016. The UN Secretary General Ban Ki-moon mentioned in his address during the fortieth anniversary of the BWC, "The eighth Review Conference in 2016 is an opportunity to consolidate progress and consider how to adapt this landmark convention to the challenges posed by advances in science and technology, as well as potential risks posed by terrorists and other non-state actors. I encourage states parties to think creatively about how to build confidence in compliance with the convention".[10]

Although a substantial progress in terms of its acceptance at international level can be seen in these forty years, the BWC needs to be reviewed in the light of futuristic trends and challenges for biological disarmament and security. The convention needs to be fortified with measures related to combating bio-terrorism, belligerent use of science and technology and collective efforts in combating outbreaks, natural or deliberate, at global level. An explicit, effective and comprehensive BWC is the need of the hour, which can certainly be instrumental in ensuring holistic biological disarmament and security worldwide.

Endnotes:

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100 Years On: Strengthening the Norm against Chemical-Weapons Use

Mr. Kapil Patil

The author is a researcher at the Indian Pugwash Society, New Delhi.

Summary

During the World War I, the German forces used Chlorine Gas for the first time on April 22, 2015, killing thousands of French soldiers. This incident brought to fore the deadly consequences of the use of chemical weapons. After this even though not recognised universally, the norm against use of chemical weapons had become an important moral and legal constraint during the WWII years. The international community has made significant achievements towards banning the use of chemical weapons in armed conflicts ever since. This has been made possible due to successful enforcement of the Chemical Weapons Convention (CWC).

On 22nd April, 1915, during the First World War (WWI), German forces used Chlorine gas for the first time, killing thousands of French troops in the battlefields in Ypres, Belgium.[1] This incident introduced the era of weapons of mass destruction (WMDs) in the history of modern warfare. Since then, chemical agents have become the only WMDs to be used repeatedly in conflict situations. Subsequently, one hundred years later, the international community has made significant achievements towards banning the use of chemical weapons in armed conflicts. This has been made possible due to successful enforcement of the Chemical Weapons Convention (CWC) that seeks to ban the development, production, transfer, and use of chemical weapons.[2] Widely hailed as the most successful disarmament treaty in the history of humankind, the CWC embodies the norm against use of chemical weapons in existence for more than a century in various forms.[3] Since its entry into force in 1997, 190 states have joined the CWC and significant progress has been made towards the elimination of world's declared chemical weapons stockpile.

Nevertheless, the fact that the threat of use of chemical weapons is far from being resigned to history is a grim reminder in the centenary year of Ypres tragedy. When the threats of chemical weapons use were widely believed to have disappeared from the international scene, the reported use of chemical weapons in Syria in 2013 has once again served as a wake-up call to the international community about the dangers posed by these weapons. Not only has the use of chemical agents raised strong suspicions of Syrian military's involvement but more importantly it undermined the longstanding taboo against the use of chemical weapons.[4] Given the fact that the

normative proscription has played a pivotal role in banning the use of chemical weapons in armed conflicts, the Syrian crisis has once again underscored the need to reinvigorate and strengthen the normative bulwark against the use of chemical weapons.

Chemical Weapons in the Past: Norms-versus-Interests

The norm against use of poisonous substances in armed conflicts has been in place for more than a century now. As early as in 1899, the Hague Declaration, followed by the Hague Convention of 1907, banned the use of projectiles that diffused "asphyxiating or deleterious gases".[5] Although the use of poison gas as a potential military weapon was considered by European armies at the beginning of WWI, it was not deployed in large quantities in early stages of the campaign either by allied or central powers. When found deadlocked in trench warfare against French troops in Belgium, Germany considered unleashing poison gas on French troops. However, being a signatory to the Hague Convention, it was reluctant to use poisonous gas for breaking the military stalemate. Germany's decision to eventually use chemical weapons at Ypres in 1915 thus not only caught the world by surprise but resulted in all-out use of chemical weapons during the WWI, killing hundreds of thousands and leaving as many as one million injured. Such devastating use of chemical weapons in pursuit of limited military goals significantly bolstered the odium attached to chemical weapons and resulted in the adoption of Geneva Protocol in 1925, which broadened the prohibition beyond projectiles to any asphyxiating, poisonous or other gases.[6]

Although not recognised universally, the norm against the use of chemical weapons had become an important moral and legal constraint during the WWII years. As argued by scholars like Richard Price and Nina Tannenwald, the non-use of chemical weapons by both the Allied and the Axis powers had not been so much for the fear of mutual retaliation but more importantly due to legal and normative constraints attached to their use.[7] While the taboo against the use of chemical weapons did not restrain Italy from using them in Libya in 1930, in Ethiopia during 1935–1936, and by Japan against China during 1937-1945, it nonetheless played an important limiting role during the WWII.

The military significance of chemical weapons declined during Cold War years due to the invention of new categories of WMDs. Not only had it further enhanced the moral opprobrium against the use of chemical agents but also helped initiate diplomatic efforts to legally ban their production and use. Further, use of Agent Orange by the US army in Vietnam generated strong domestic public reaction and eventually forced the US administration to stop its use in Vietnam. Similarly, use chemical weapons by Saddam Hussein in the Iran-Iraq war (1980-88) and against destitute Kurdish minorities drew adverse international reactions and strengthened the international community's resolve against their use. The Iraq crisis provided an important stimulus to the international community to conclude negotiations on a comprehensive treaty to ban the production and use of chemical weapons. It led to the Chemical Weapons Convention that not only banned the use of chemical weapons but also their possession, production, and transfer. The CWC was opened for signature in 1993 and entered into force in 1997. This has further diminished the political and military utility of chemical weapons had for states which perceived them to be "poor man's atomic bomb".

Emerging Security Challenges & Chemical Weapons Taboo

The CWC's 190 member countries represent about 98 percent of the world's population and landmass, as well as 98 percent of its chemical industry.[8] Through the ratification, member states pledge to declare and destroy all the existing chemical weapon stockpiles. By the end of 2014, about 85% of the world's declared chemical arsenals had been destroyed and the OPCW expects a complete elimination of the remaining stocks by 2023.[9] However, the use of chemical weapons in Syria highlighted that the political expediency during armed struggles can potentially undermine the global norm against use of chemical weapons. Syria had long opposed joining CWC on the grounds that it would not give up its chemical weapons until Israel gave up its nuclear program and joined the Nuclear Non-proliferation Treaty. Egypt too has refused to join CWC on similar grounds.

In 2013, even if Syria buckled under international pressure and acceded to the CWC after the reported use of nerve agents, the international community should take a lesson and ensure that such incidents are not repeated in other parts of the world. The six countries that continue to stay outside the CWC are Egypt, Angola, South Sudan, North Korea, Israel and Myanmar.[10] As the CWC nears the universal status, completing chemical disarmament in the Middle East, held back due to intransigence of Israel and Egypt to join CWC, should be an urgent priority for the international community. Current turmoil in the Middle East is likely to persist until the prolonged territorial disputes and security concerns of Israel and Arab states are resolved satisfactorily through a regional peace process. Given the protracted nature of this process, the international community has an important stake in strengthening the norm against chemical weapons use to deter the potential users for the fear of strong international repercussions.

Furthermore, new developments such as resurgence of ISIS have created new urgency to achieve the universal chemical disarmament at the earliest. Driven by a deep-seated ethnic and racial hatred, ISIS is widely feared to use toxins for conducting mass-murders. The fact that CWC only covers state parties and has no control over terrorists and insurgent groups poses a serious problem now and for the future. While the technical means to address the limitations of CWC have a long way to go vis-a-vis the challenges posed by harmful non-state actors, state parties and the global civil society must reinforce the norms against chemical weapon use. Only a strong international commitment to the norm of non-use will strengthen the ban against this abominable category of WMDs.

Endnotes:

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Wrong Weapons in Wrong hands: Ensure compliance with readiness

Col. DPK Pillay, SC

The author is a doctoral student of Panjab University Chandigarh.

Summary

Chemical weapons can cause large scale death and destruction. To give an example, a pinhead size drop of nerve agent can kill an adult within minutes. In a country like India which has a large density of population, a large scale attack is almost impossible to prepare against. Chemical weapons are ideal for terror seekers because they are cheap and easily accessible. They are also easy to transport.

It is in human nature to take advantage of all available resources to destroy enemies. Poisoned arrows, arsenic, poisonous fumes, hot oils, burning sulphur and other materials have all been used in warfare. The first modern use of chemicals occurred on 22 April 1915 at Ypres in Belgium during World War I. During the entire period of war, large-scale use of chemical weapons was reported. The use of mustard gas, chlorine and phosgene led to over 90,000 deaths and a million other casualties.[1] The belligerents during World War II also prepared for the use of chemical weapons and both sides of the bloc during the Cold War continued to amass large stockpiles of chemical weapons sufficient to destroy all traces of organic life on earth several times over. In recent history, United States used Agent Orange in Vietnam; Iraq under Saddam Hussein used chemical weapons against its own people; a doomsday cult in Japan used Sarin in the 1990s, and more recently, the use of chemical weapons was reported during the Syrian conflict.

The potential for devastation and destruction due to use of chemical weapons prompted the Chemical Weapons Convention (CWC) which entered into force in April 1997 and it is the fastest growing international disarmament organization in history.[2] There are prohibited and non-prohibited chemicals under the terms of this Convention. The Organization for Prohibition of Chemical Weapons (OPCW) has developed an internationally unique, peer-reviewed, and certified analytical database, containing information on over 3,900 chemical weapons-related compounds[3]. Though Syria acceded to the treaty on 14 October 2013, chemical weapons continue to be used in its internal conflict, indicating a serious gap between the professed intention and ground realities. Between 16 and 30 March this year,

air dropped barrel bombs with chlorine killed over 200 unarmed civilian, including children, in Idlib.[4] Chlorine, a common industrial chemical, has allegedly been used in another recent attack as well. Under the provisions of the CWC, certain listed classes of chemicals are permitted under specifically prescribed circumstances. These are called non-prohibited purposes and allows production of chemicals for industrial, agricultural, research, medical, pharmaceutical, protective, or other peaceful purposes. While chlorine falls under non-prohibited items of manufacture and was thus outside the scope of the disarmament agreement, its use as a chemical weapon violates the CWC.

Chemical weapons can cause large scale death and destruction. To put matters in perspective, a pinhead size drop of nerve agent can kill an adult within minutes. In a country as densely populated as India, a large scale attack is almost impossible to prepare against. Chemical weapons are ideal for terror seekers because of the cost factor, easy availability and transportability. Chemical agents are easily available in the form of insecticides and industrial chemicals. With the help of freely available chemicals, toxins such as ricin can easily be synthesised by a skilled chemist with the precursors provided by a state sponsor of terrorism like Pakistan which has active programmes for Weapons of Mass Destruction (WMD). There should be no room for doubt that given its antecedents, Pakistan can be a willing conduit for such clandestine programmes for its many surrogate groups to inflict a devastating blow on India. Another source that should be a cause of worry should be the large stockpile of chemical weapons in Syria, discussed above, homeland to the Islamic State of Iraq and Levant (ISIL), the most recent and also violent as well as virulent of all known extremist organizations. In its methods and means, ISIL poses an extreme danger to humanity as a whole, and in case even a fraction of the chemical weapons arsenal of Syria falls into its hands, the results would be devastating. With organizations like Boko Haram and Al Shabaab offering allegiance, the danger becomes all the more transnational and potent. The rise in spate of attacks on school and college students by *jihadists* in Pakistan, Nigeria, Syria, and Kenya indicates a sense of desperation and an absolute bankruptcy of humanitarian values and principles. It is futile to expect the likes of ISIL and states that support them to abide by internationally accepted norms. Therefore, it is best to prepare for the worst case scenarios.

India has consciously chosen not to pursue chemical and biological weapons programmes. In October 2002, the then President of India, Dr. A.P.J. Abdul Kalam, who had also been chief of the Defence Research and Development Organisation (DRDO), stated that India would "not make biological weapons as it is cruel to human beings".[5] India also ratified the Biological and Toxin Weapons Convention (BTWC) on 15 July 1974 and has sought to explore biotechnology for peaceful purposes. In the past, India had manufacturing facilities and a considerable inventory of chemical weapons, all of which have been reported to have been destroyed following its obligations under the Chemical Weapon Conventions.[6] In India, the National Disaster Management Authority (NDMA) has prepared guidelines for a terrorist attack using chemical weapons.[7] A terrorist attack with chemical agents differs in the sense that the effects of such attacks will continue to linger long after the act and continue to cause panic and distress in the community. The armed forces of the country have Nuclear, Biological and Chemical (NBC) warfare cells or directorates

in the respective Services. The Defence Research and Development Establishment (DRDE) is the primary establishment for studies in toxicology and biochemical pharmacology.[8] It carries out the necessary research and development of antibodies against several chemical, bacterial and viral agents. In addition, research is carried out on antibodies against chemical agent poisoning and heavy metal toxicology. The DRDO is also responsible for design and development of protective clothing and equipment against chemical weapons attacks.

While the armed forces may be prepared for a conventional attack using nuclear chemical and biological weapons, India is not entirely secure given India's population density. The equipment, clothing and manpower required to be deployed to counter the consequences will be difficult to muster for such large numbers. NDMA has listed the immediate, short term (0-5 years) and long term (5-8 year) measures that need to be implemented to counter such threats.[9] The recommended measures include education and training as one of the elements of the short term plans. In August 2014, India collaborated with the OPCW in conducting a regional basic course in assistance and protection against chemical weapons. Such initiatives need to be taken further and given the propensity of terror groups to attack school and college students, measures must be taken to impart the necessary awareness and instill a sense of preparedness much like the training imparted in Japanese schools against earthquakes. The idea is three-fold:

(a) Instil long-term risk awareness and methods for risk mitigation in event of a chemical or biological attack,

(b) Provide training for life saving responses and methods to these students who can also transmit this knowledge to family members and others in their community,

(c) Prepare safe houses, shelters and medical response chambers in schools and colleges to prepare for the eventuality of use of such weapons.

Universities and colleges can also take the following steps to generate awareness:

(a) It has been found that the existing curricula and/or training at universities or research facilities do not mention the relevant international conventions against chemical and biological weapons. Under the University Grants Commission (UGC) guidelines, there are courses relating to environment studies, climate change and sustainable development at the undergraduate as well as postgraduate levels. There is a need to also introduce courses on chemical and biological weapons and toxins at these levels. Such courses will assist in compliance promotion and also help raise awareness of the dual use of chemicals.

(b) Any Convention is only as good as its reach and the extent of awareness of its provisions. In addition to educational programmes mentioned above, there is a need to increase awareness on the provisions and activities of OPCW / CWC as well as National Authorities of CWC on these weapons of mass destruction. To this end, seminars should be planned at various levels involving academics and other stakeholders like the industry, the armed forces, the NDMA, the Ministry of Home Affairs, the Ministry of Health and Family Welfare, State Governments, district administrations and non-governmental organisations. Such collaboration will also ensure pre-

disaster coordination, facilitate dissemination of information and enable a focused discussion on theory, general principles and practicalities of the problem, which is currently lacking. It will also help all stakeholders understand the following:

- Implications of the CWC and its contribution to global peace and security,
- Development of safety and security standards and counter measures,
- Evaluation of the OPCW verification system in view of the possible misuse of commercial and dual use chemicals,
- Technical safety practices, emergency drills and protection in case of attacks,
- The impact of advances in science and technology to mitigate the possible effects of an attack.

(c) The introduction of such syllabi may also help streamline the training of personnel required for OPCW for inspections and verifications. Currently this is the preserve of scientific community or trained personnel from establishments such as the armed forces and the DRDO. Such training will also offer international assignment opportunities for graduating students, viable careers in disaster management authorities and a reservoir of trained personnel in national emergencies.

(d) Universities and colleges may also enhance focus on capacity building for the peaceful applications of chemistry in areas which are relevant to the CWC. In doing so, they can prepare students for:

- Specific and analytical skills development courses in this field,
- Cater for information services and laboratory assistance to interested students,
- Offer specialised research projects and internship support in organisations engaged in such work.

International laws and conventions must be followed in letter and spirit by all parties. There is no doubt that when it comes to ensuring that the WMDs do not fall into the hands of non-state actors, effective laws and regulations are crucial.[10] States that are not party of these treaties are not bound by their provisions. As seen in Syria, such states can become a safe haven for non-state actors seeking to obtain or produce WMD. Given the turmoil Syria is in today, the complete destruction of chemical weapons held by Syria depends not only on declaring its actual stockpile of weapons, most of which are easy to transport and disperse, but also on effective tracking systems to secure that stockpile.

When the Soviet Union collapsed, all of the unaccounted nuclear weapons were all secured due to the diligent efforts by various actors. In the case of Syria, however, despite its being a signatory to the CWC, the continued use of chemical weapons last month indicates that the Syrian stockpile has not been secured. The United Nations Security Council (UNSC) has reaffirmed the necessity to prevent non-State actors from gaining access to nuclear, chemical and biological weapons and related materials and the world must join together with renewed resolved against proliferation.[11] And if all else fails we must be prepared to tackle the threat of the wrong weapons in wrong hands.

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NATIONAL AND INTERNATIONAL DEVELOPMENTS

Allegations of toxic chemical attacks in Syria

25 March 2015

Commenting on recent reports about alleged toxic chemical attacks in Syria, the OPCW Director-General, Ambassador Ahmet Üzümcü, said, "We have been monitoring the recent reports suggesting that toxic chemicals may have been used as weapons in the Idlib province of the Syrian Aran Republic. This matter is of serious concern".

Ambassador Üzümcü noted his decision to continue with the Fact Finding Mission, which is mandated to look into all serious allegations of use of toxic chemicals for hostile purposes in the Syrian Arab Republic. The continuation of the Mission's work has been endorsed by the OPCW Executive Council and United Nations Security Council resolution 2209 (2015).

http://www.opcw.org/news/article/allegations-of-toxic-chemical-attacks-in-syria/

Course for Analytical Chemists from Laboratories supporting Customs Service held in Warsaw, Poland

29 April 2015

The OPCW and the Institute of Industrial Organic Chemistry (Instytut Przemystu Organicznego (IPO)) organised the fourth Course for Analytical Chemists from Laboratories supporting Customs Service from 13-17 April 2015. Participants from 13 States Parties* attended the programme. The objective of the training programme was to assist qualified analytical chemists from laboratories that support, or plan to support customs services in acquiring further experience and practical knowledge of the analysis of chemicals related to the Chemical Weapons Convention. In addition, it facilitates the adoption of good laboratory practices for the implementation of the Convention.

The training programme structure was designed to further expose qualified analytical chemists and scientists to enhance their knowledge on the role of customs-service laboratories in implementation of Article XI of the Convention and promoting chemical safety in laboratory. The course provided sound knowledge in general aspects of the OPCW and the Convention; chemical structure and properties of scheduled chemicals; methods of separation and structure elucidation; and detection and analysis of scheduled chemicals at various concentration levels.

The IPO also provides basic training on the OPCW Central Analytical Database (OCAD) for the analysis of Scheduled Chemicals under the Chemical Weapons Convention. The feedback from the participants was very positive and they expect to apply the knowledge and experience gained from this course in line with their scope of work.

* Algeria, Burundi, China, Costa Rica, India, Kenya, Malaysia, Nigeria, Paraguay, Serbia, Sudan, Tunisia and United Arab Emirates.

http://www.opcw.org/news/article/course-for-analytical-chemists-from-laboratories-supporting-customs-service-held-in-warsaw-poland/

The Fourth Regional Training Course on Emergency Response to Chemical Incidents for Asian States Parties Held in Singapore

17 March 2015

The Government of Singapore and the OPCW jointly organised the Fourth basic training course on emergency response to chemical incidents for Asian States Parties. It was held with the support of the Singapore Customs and Civil Defence Forces from 9 to 12 March 2015. Twenty experts from 10 countries* were trained.

This basic training course is related to national and regional emergency response capacity building within the framework of Article X of the CWC for States Parties in the Asian region. The training course was held at the Civil Defence Academy of Singapore. The aim was to train participants in planning for, and building a support team in, civil protection, civil defence and decontamination operations, as well as responses to chemical weapon attacks and other incidents involving the release of toxic industrial chemicals.

This course was the first part of a tailored programme of training based on annual training cycles conducted at the regional level. In line with this approach to capacity building projects under Article X, it is expected that participants selected for this course will participate in advanced training to be held in the Republic of Korea in June 2015 and an exercise in Indonesia in November 2015.

The Technical Secretariat also conducted an outreach event for members of the Singapore Chemical Industry Council to underline the importance of the CWC and the role played by partnerships with chemical industry.

*Australia, Bhutan, China, Fiji, India, Iran, Malaysia, Philippines, Republic of Korea, Sri Lanka and 2 participants from Myanmar as observers.

http://www.opcw.org/news/article/the-fourth-regional-training-course-on-emergency-response-to-chemical-incidents-for-asian-states-p/

Fourth Advanced Regional Assistance and Protection Course on Chemical Emergency Response for GRULAC States Parties held in Argentina

30 April 2015

The Fourth Advanced Regional Assistance and Protection Course on Chemical Emergency Response for States Parties in Latin America and the Caribbean was held from 20 to 25 April in Buenos Aires, Argentina. The course was co-organised by the Technical Secretariat of the OPCW and the Argentine National Authority to the Chemical Weapons Convention, the Ministry of Foreign Affairs, with the support of the Ministry of Security, namely the Cadet School of the Federal Police. The course benefitted also from contributions made by instructors from Costa Rica and Spain Thirty three participants first responders from 17 States Parties in the Region attended the course*.

The training relates to the offer made by Argentina in line with paragraph 7 of Article X of the CWC and was the second stage of an Assistance and Protection full training cycle designed for the GRULAC region that begun in Brazil last March for the same group of participants.

Different scenarios of growing complexity provided for advanced training of the participants on the proper use of individual

and protective equipment which included SCBA, as well as containment, rescue and decontamination techniques. The course provided extensive training in the practice of the incident command system approach, aimed at the improvement of coordination and effectiveness of response during incidents with chemical warfare agents and toxic industrial chemicals.

The training also built on the continuous discussion and exchange of information and experiences that contributed to the strengthening of the team spirit of this new group of trainees.

*Argentina, Barbados, Brazil, Colombia, Costa Rica, Dominica, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Spain and St Lucia.

http://www.opcw.org/news/article/fourth-advanced-regional-assistance-and-protection-course-on-chemical-emergency-response-for-grulac/

Top-secret military warning on Ebola biological weapon terror threat

Porton Down memo marked 'UK secret UK eyes only' reveals scientists analysed use of virus by al-Qaida or Isis

Jamie Doward

21 February 2015

Scientists at the top-secret military research unit at Porton Down, Wiltshire, have been assessing the potential use of Ebola as a bioterrorism weapon, according to confidential documents.

A three-page memo, marked 'UK secret UK eyes only', reveals that the unit, where chemical, radiological and biological threats are analysed, was tasked with evaluating whether terrorist organisations such as al-Qaida and Islamic State (Isis) could use the deadly virus to attack western targets.

The heavily redacted document, which has been released under the Freedom of Information Act, reveals that the unit was asked last October to provide "guidance on the feasibility and potential impact of a non-state actor exploiting the Ebola outbreak in west Africa for bioterrorism".

It goes on to explain that non-state actor threat assessments are "provided by the joint terrorism analysis centre", while threats to "UK deployed forces are provided by defence intelligence". The memo outlines three possible scenarios under which terrorists might seek to exploit the Ebola outbreak, which so far has killed more than 9,000 people in the three most affected countries, Guinea, Sierra Leone and Liberia.

The first scenario outlined is completely redacted, illustrating the acute sensitivity about the issue. The second scenario is heavily blacked out but, according to the memo, "would be both logistically and technically challenging for a non-state group to undertake". It observes: "Clearly there are practical issues involved with such a scenario that of themselves are often not insurmountable but taken together add enormously to the complexity of successfully undertaking this attack."

A third, also heavily redacted, scenario "constitutes the most technically challenging of the scenarios considered here".

Concerns that terrorist groups might look to "weaponise" Ebola have been raised by several thinktanks and politicians. Last year Francisco Martinez, Spain's state secretary for security, claimed that Isis fighters were planning to carry out "lone wolf" attacks using biological weapons. Martinez said that his belief was informed by listening in to

conversations uncovered in secret chatrooms used by terrorist cells. The claim has since been played down by others.

Jeh Johnson, the US department of homeland security secretary, said last October that "we've seen no specific credible intelligence that Isis is attempting to use any sort of disease or virus to attack our homeland".

Dr Filippa Lentzos, a senior research fellow at King's College London and an expert on bioterrorism, said terrorists looking to use the virus as a weapon would encounter problems. "It doesn't spread quickly at all," she said. "Terrorists are usually after a bang and Ebola isn't going to give you that."

On average, a person infected with Ebola will infect two more people. In a developed country such as the UK transmission would be even more limited.

"People with Ebola are infectious only when they show symptoms," Lentzos said. "Could terrorists go to west Africa, get infected, then come back and sit on the tube? Sure, but they're not likely to be functional for very long. They're going to be very sick and you'll see that. So they would have only a very small window in which to operate. And in a country with a developed public health system like the UK, there would be plenty of chances to clamp down on an outbreak."

Other biological weapons would potentially be more attractive to terrorists, experts suggested. Unlike Ebola, which requires the transmission of body fluids, anthrax spores can be dried and milled down to form tiny particles that can be inhaled.

However, even the suggestion that Ebola could be weaponised made it a potentially powerful weapon for terrorists, Lentzos suggested. "If your aim is not to kill a lot of people, or even make them ill, but instead to frighten them and cause a huge level of societal disruption, then bioterrorism would do that. It elicits exceptionally high levels of fear, disgust and abhorrence."

The use of pathogens as a weapon has been tried before. Following the attacks in New York and Washington in 2001, five people died in the US after opening letters laced with anthrax. In the 1980s, a cult in Oregon spread salmonella on salad bars in restaurants in an attempt to keep voters from the polls so its preferred candidates would win.

"The risk of small-scale bioterrorism attacks is possible and very likely," Lentzos said.

Porton Down is known to have experimented with Ebola but a specific request for the laboratory to analyse the virus's potential use by "non-state agents" highlights the growing concern that terrorists are becoming increasingly inventive in their choice of weapons.

One scenario could see terrorists combining genes from different pathogens to synthetically create super pathogens that could spread disease far more effectively than Ebola. But Lentzos suggested this was unlikely. "It's pretty damn hard to make dangerous pathogens from scratch in the lab. Experts have a really hard time doing that. At this point I'm not sure that's what we need to worry about."

Lentzos said that focusing on the terrorist threat posed by Ebola risked losing sight of the bigger picture. "To beat Ebola we have to worry less about terrorism and more about public health. Disease knows no borders."

http://www.theguardian.com/uk-news/2015/feb/21/top-secret-ebola-biological-weapon-terror-warning-al-qaida-isis

Mers virus: What are the symptoms, what is it and where in the world has it affected?

by Alexander Ward

2 June, 2015

Last week, South Korea confirmed that the country had experienced two deaths from Middle East Respiratory Syndrome (Mers) after tests on a 58-year-old woman who died of acute respiratory failure showed she had been infected with the disease before her death.

A 71-year-old man who tested positive for the virus also died.South Korea has now reported 24 cases since last month, in most instances in people who have had contact with the original patient.

China also reported that it had placed one of the South Korean relatives of the original case in quarentine after he presented sympotoms of Mers at a Chinese hospital. Staff are said to have drawn lots at the hospital as to who will treat the patient.

What is Mers?

Middle East respiratory syndrome coronavirus (Mers) belongs to the same group of coronaviruses that includes SARS and the common cold.

The first fatality occurred in Saudi Arabia in 2012, the virus affects the respiratory system, attacking patients' lungs and breathing tubes.

The Centers for Disease Control and Prevention (CDC) have previously said that all reported cases have been linked to countries in and near the Arabian Peninsula.

South Korea has had a spate of cases in the last month and there have been 1,167 reported incidents of Mers worldwide, of which 479 have died from the disease.

The virus can affect anyone; reported cases have gone been as young as one-year-old and as late in life as 99.

People who are at an increased risk of catching the virus are those who have exposure to camels and healthcare personnel who do not follow recommended infection-control precautions.

According to the CDC the virus is particularly dangerous for people with diabetes, kidney failure, or chronic lung disease.

Most of the deaths which have occurred already have an underlying medical condition.

Could it spread?

Mers spreads through close contact between infected patients and those caring for or living with them.

The World Health Organisation has said that there are no known cases of Mers spreading throughout the community however, although there are some cases where transmission of the virus has occurred in hospital.

How can you catch it?

To catch the virus, a person would have to come into close contact with somebody who is already infected with Mers. That said, the CDC advises people not to drink raw camel milk and urine and not to eat undercooked meat – especially camel meat.

What are the symptoms?

Those infected tend to display symptoms between two and five days, although the virus can have an incubation period of up to 14 days.

When patients do present with symptoms, they are usually fever, shortness of breath and coughing. Some people also suffer from gastrointestinal symptoms including diarrhoea, nausea and vomiting.

http://www.independent.co.uk/news/world/asia/mers-virus-what-is-it-what-are-the-symptoms-and-where-has-it-affected-10291527.html

South Korea grapples to contain MERS as 1,369 in quarantine

by Madison Park, CNN

4 June, 2015

Hong Kong (CNN) The World Health Organization warned that the MERS outbreak in South Korea is likely to grow, as the number of people under quarantine crept up to 1,369 on Wednesday.

The Korean Centers for Disease Control and Prevention confirmed five new cases — increasing the number of people with the disease to 35. These new cases were contracted within hospitals.

So far, three people have died after contracting the respiratory virus in South Korea, the country's Health Ministry said Thursday, in the largest MERS outbreak outside Saudi Arabia.

The first case, concerning a man who returned to South Korea after traveling to Saudi Arabia, Qatar, the UAE and Bahrain, was reported on May 20. The person had not been ill during his travels, according to the World Health Organization.

More than 900 schools have shut to prevent the spread of the virus, according to South Korea's education ministry.

The extent of the outbreak in South Korea has taken many by surprise — mainly because the virus has not been shown to spread easily between humans and the health care system in the country is considered to be sophisticated and modern.

South Korean President Park Geun-hye acknowledged problems in the country's early response earlier this week.

"Initial reaction for new infectious diseases like MERS is very important, but there were some insufficiency in the initial response, including the judgment on its contagiousness," she said.

She convened an emergency MERS meeting on Wednesday.

MERS is in the same family of viruses as SARS (severe acute respiratory syndrome) as well as the common cold. However, MERS does not spread easily between humans — as far as scientists know at this point.

"So far, the virus has been circulating in humans for three years," said Dr. Leo Poon, a virology expert at the School of Public Health at the University of Hong Kong, who worked on the SARS outbreak more than a decade ago. "We found little transmission in human. We know there is human-to-human transmission, but it's not sustainable."

Then why is it spreading in South Korea?

Since MERS, short for Middle East respiratory syndrome, was first reported in Saudi Arabia in 2012, international cases have largely been confined to travelers bringing the virus back to other countries and infecting one or two others. There have been deaths in countries like Oman, Algeria, and Malaysia — but none of them had additional infections to the extent of South Korea.

"This is quite unusual. I think this is the only country, apart from those in the Middle East, that has such a number of cases," said Poon. "It's not entirely surprising. In the Middle East, people in Saudi Arabia had hospital outbreaks where a few people got infected. It's a similar situation at the moment."

In early 2013, 23 MERS cases in eastern Saudi Arabia were linked to a single outbreak extending through four health care facilities.

Similarly, the vast majority of the South Korean cases have been linked to infections from hospitals.

Another factor for the spread in South Korea could be the fact that family members often stay with patients in their hospital rooms to watch and care for their loved ones.

"With the hospital culture here, the family does a lot of the nursing. For general patients on the ward there are fewer nurses than we are accustomed to in the West," said Dr. John Linton of Yonsei University's Severance Hospital in Seoul. "They would have been in close proximity to other patients."

How did it start in South Korea?

The first patient, a 68-year-old man, had traveled to four Middle Eastern countries before returning to South Korea on May 4. During his flight, he did not have any symptoms.

As he started getting sick a week later, the Korean sought treatment at two clinics and two hospitals — "creating multiple opportunities for exposure among health care workers and other patients," according to the WHO. MERS was not suspected and health care workers did not treat the first patient in isolation.

As a result, the MERS cases in South Korea span patients from several health care facilities. Health officials have not identified the hospitals, but 22 of the current cases are related to those who were at what's being called "Facility B." That hospital has closed voluntarily.

"Given the number of clinics and hospitals that cared for the index case, further cases can be expected," the WHO stated in a situation report on Wednesday.

Some of the infected people occupied the same room as the first patient and others had been in the same ward for times ranging from five minutes to several hours, according to the WHO.

How does MERS spread?

Concern about the virus is gripping many in South Korea, with schools shutting and the increased use of face masks and hand sanitizers.

The virus acts like a cold and attacks the respiratory system, the Centers for Disease Control and Prevention has said. But symptoms, which include fever and a cough, are severe and can lead to pneumonia and kidney failure.

MERS spreads from close contact with an ill person, such as living or caring for them.

5 things to know about MERS

About three to four out of every 10 people reported with MERS have died. But the people who died often had underlying medical conditions that made them more vulnerable.

The two patients who died in South Korea had chronic obstructive pulmonary disease and heavy asthma.

As of Wednesday, there have been 1,179 confirmed cases of MERS reported to WHO since 2012, and at least 442 cases were fatal. Cases have been reported in 25 countries, with China and South Korea joining the ranks only last month, WHO said.

MERS has been linked to camels and it's possible that some people became infected after coming into contact with camels, but it's not completely clear.

There are no vaccines and no cures.

To prevent MERS, the CDC recommends everyday hygiene practices like hand-washing, covering coughs and sneezes, and avoiding personal contact with sick people.

http://edition.cnn.com/2015/06/03/world/south-korea-mers/

DISARMAMENT

First of 12 Chemical Weapon Production Facilities in Syria Destroyed

3 February 2015

The destruction of an underground structure in Syria that previously hosted a chemical weapon production facility – the first of twelve planned to be destroyed – was completed on 31 January 2015. OPCW inspectors verified and declared the structure as destroyed on the same day.

At the same time, destruction activities and preparatory work at the eleven remaining structures continue.

"I welcome the destruction of the first facility, which had been delayed due to some technical reasons. I am hopeful that remaining destruction activities will proceed according to the plan," said Director-General Ahmet Üzümcü.

98% of chemical weapons declared by the Syrian Arab Republic have so far been verified by the OPCW as destroyed. This includes 100% of sulfur mustard and methylphosphonyl difluoride – a precursor chemical for the nerve agent sarin – which were neutralised aboard the US Cape Ray.

Only 29 metric tones of Hydrogen fluoride remain to be destroyed at facilities in the United States and United Kingdom.

Progress towards destruction of effluent arising from sea-based destruction of sulfur mustard and methylphosphonyl difluoride continues to be made at facilities in Germany and Finland, respectively – 63% of 333,520 kg of sulfur effluents and 52% of 5,867,000 kg of fluorinated effluents have been destroyed.

The Declaration Assessment Team of the OPCW, whose mandate is to assist the Syrian authorities to complete their declaration, has undertaken its seventh visit to Syria and will submit its report at the next meeting of the Executive Council.

http://www.opcw.org/news/article/first-of-12-chemical-weapon-production-facilities-in-syria-destroyed/

OPCW and CTBTO Heads Meet To Strengthen Cooperation

23 February 2015

The Executive Secretary of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Lassina Zerbo, today met the Director General of the Organisation for the Prohibition of Chemical Weapons (OPCW), Ahmet Üzümcü, at the OPCW's headquarters in The Hague to discuss deepening the cooperation between both organisations.

"Our organisations are cornerstones of global disarmament and non-proliferation architecture, and it is vital that we learn from each other," said Director-General Üzümcü.

"We value the achievements of the 2013 Nobel Peace Prize winner in verification and are eager to share the experience gained from our own on-site inspection activities," said Executive Secretary Zerbo.

The OPCW and the CTBTO are both mandated to carry out inspections in their Member States: to verify compliance with the Chemical Weapons Convention (CWC) in the case of the OPCW, and to monitor compliance with the Comprehensive Nuclear-Test-Ban Treaty (CTBT), once the Treaty has entered into force.

While CWC and CTBT inspections differ in the technologies used and their operational parameters, there are important similarities which open avenues for closer cooperation and exchanges of best practice. These include procedures for training and deploying inspectors, use of satellite imagery and secure communications, and logistical aspects of inspections.

Both organisations have exchanged knowledge about inspection activities over recent years. CTBTO staff have participated as observers in a number of OPCW exercises and activities, and vice versa. The OPCW's Director for Verification, Philippe Denier, took part in the CTBTO's most recent on-site inspection exercise in Jordan in late 2014, the Integrated Field Exercise IFE14.

ttp://www.opcw.org/news/article/opcw-and-ctbto-heads-meet-to-strengthen-cooperation/

NEW DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

Huge chamber to test biological weapons testers debuts at Dugway

by Amy Joi O'Donoghue, Deseret News

19 Feburary, 2015

DUGWAY PROVING GROUND — It's unique in the world, the largest chamber constructed for this purpose and represents a step up in the nation's defense against deadly biological agents such as anthrax, plague or ricin.

With an official ribbon-cutting ceremony Thursday, the intricate, expensive system housed at Dugway Proving Ground is a $39 million investment for the U.S. Department of Defense and the culmination of a 2002 directive that ordered more biological warfare readiness for the country.

Shiny, complicated and strictly controlled for humidity, temperature, airspeed and for the "dissemination air" that is pushed into it, the Whole System Live Agent Test had its coming out party at the West Desert facility, offering people a rare — and one time chance — to step inside its walls before it ultimately plays host to all manner of biological weapons.

"We have never had a chamber large enough to do whole system testing," said Douglas Andersen, chief of the life sciences division at Dugway's West Desert System.

The chamber tests how well other biological agent detectors do the job they were designed to do.

Previously, biological agent detection systems had to be tested component by component to determine how efficiently they

functioned. Typical biological agent detection systems used by the military are about the size of refrigerator and this new chamber is big enough to accommodate two at the same time — so they can be compared side by side, as well as their ability to perform independently.

"We can do those tests and safely challenge or expose a real system to agent in the air and see if it will respond," Andersen said.

The system operates in a building that is strictly engineered at "negative" air pressure so no agent escapes. Air drives aersolized particles into the main chamber of Whole System Live Agent Test under an array of conditions the military can simulate. The Army can design a test to determine how a biological warfare detection device operates in smoke, for example, or how proficient it is under high humidity.

Its features have fancy names, such as Aerodynamic Particle Sizer or Ultraviolet Aerodynamic Particle Sizer, which Dugway's Wing Tsang said makes the system uniquely valuable from a detection standpoint — operators can actually manipulate the size of the particles of biological agents that enter the chamber.

"A few years back, no one could control aerosol size, and we have gone from no control to sudden precision," he said.

Trials of live agent introduced into the new chamber can be conducted under circumstances in which the aersolized particles are taken down to minute quantities — thus measuring a system's ability to react under extreme circumstances in which deadly agents are widely dispersed.

Dugway's commander, Col. Ronald Fizer, said it is impossible to overestimate the value of the chamber, which is slated to go live some time in the next several weeks.

"It is a huge deal," he said. "We have not had the ability to evaluate these systems in a live environment before. This allows us to have a high degree of confidence in our systems."

Both Fizer and Carmen J. Spencer, joint program executive officer for Chemical and Biological Defense, said it is paramount that biological agent detection systems operate at the highest efficiency given the evolving nature of global threats.

"The world is a far different place than it was 20 years ago," Spencer said. "There's an ever-increasing awareness of the potential of a biological threat against nation states by non-nation states."

Fizer said al-Qaida has made no secret of its desire to get its hands on biological agents and biological labs are high value targets for multiple terrorist cells.

"Before we didn't have a chamber that could test these systems. This gives us that readiness," he said.

http://www.deseretnews.com/article/865622316/Huge-chamber-to-test-biological-weapons-testers-debuts-at-Dugway.html?pg=all

Book Review

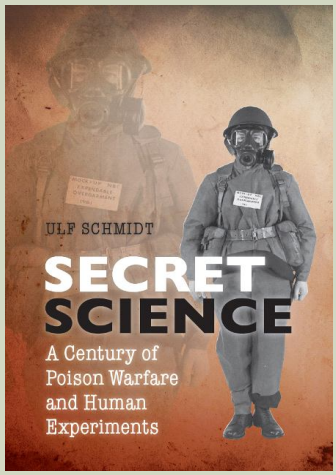
Secret Science: A Century of Poison Warfare and Human Experiments by Ulf Schmidt; Oxford University Press, Oxford, E-Book, 672 Pages, Price: £25.00

Ms. Sadaf Javed

The author is a researcher at the Observer Research Foundation, New Delhi.

Summary

The book discusses the political and cultural aspects of experimental scientists in some of the most secretive research facilities like Proton Down in Britan and Edgewood Arsenal in the United States. It also debates the notion of medical ethics and the practice of medical trials on humans.



Professor Ulf Schmidt's recent book, *Secret Science*, is a historical narrative of biological and chemical weapons and their use and misuse during 19th and 20th centuries around the world. The author has woven this book around the political and cultural milieu of experimental scientists in some of the most secretive research facilities like Proton Down in Britain and Edgewood Arsenal in the United States and documented the lives and sufferings of many servicemen exposed to toxic chemicals and gases there. The book raises a series of pertinent ethical questions about ownership and agency in medical ethics and national security in post-war European and British societies. It comprises of archival material including letters, photographs, documents and interviews of ex-servicemen, officials and scientists about various highly secretive warfare programmes.

The book starts with an interesting story of a young woman from North Europe who agreed to subject herself to a human experiment to study the image resolution of various artificially induced brain activities during an MRI scan. As part of the trial, she was supposed to inhale carbon monoxide through a gas mask and a free MRI image of her brain was offered as an incentive for her service. Here, Prof Schmidt argues that the kind of power relationship the two actors – subject and the scientist – entered into is one in which the subject lacks cognition. The rationale for agreeing to take part in such tests may even have been a wish for self-discovery, self-reflection, a longing for individual recognition and reward for many.

Today, a plethora of ethical guidelines backed up by national laws and regulations seek to protect human participation. This book traces the long and secret history of use of chemical

and biological weapons by former allied powers like the US, Britain and other European countries. It charts the ethical trajectory and history of chemical and biological weapons' use from its initial stages in response to Germany's first use of chemical weapons during the First World War to the present day international conventions to ban such weapons, including the 2013 Nobel Peace Prize to the Organisation for the Prohibition of Chemical Weapons (OPCW) for enforcing the Chemical Weapons Convention (CWC).

Secret Science largely covers the debate on medical ethics and questions the very concept of medical trials on humans and animals across nations and research cultures. The author argues that such trials have often caused deep physical and psychological damage to the subjects and the state has failed even to follow up with them. It also discusses whether the warfare trials were safe, ethical and justified, as many lives were lost during such experiments. The idea of 'consent' is raised high by the author, where he argues whether human body is just a subject and holds no credible status, to be informed about the damages the experiments is going to provide. The book deals with the complex dynamics of secret warfare research, national security and resource allocation by scientists, high-rank military officials and other government officials in order to invest more resources and money in such experimental research.

According to the author, a whole army of about 21,000 soldiers participated in secret experiments between 1939 and 1989. Lower rank soldiers, often used as 'guinea pigs', were offered incentives like free train passes, a day off, some extra pocket money. In many cases, argues the author, the veterans were misinformed, there was no concept of informed consent, and would rarely know about the lethal nerve agents and mistake it for common cold drug trials, leading to severe reactions including disability or even death.

This book comprises ten chapters and recalls many memories of chemical warfare including Ypres, Belgium in 1915, the first major chemical warfare attack in modern history where 5,000 Allied soldiers died, and many others including Natzweiler concentration camp in Germany. It also opens doors to Porton Down, a secretive military research facility established in Britain during the First World War. This facility had many experimental labs for testing chemical weapons. The famous 1953 case of Ronald Maddison, a wireless mechanic, is highlighted in the book, in context of warfare research on human subjects. In fact, throughout most of the twentieth century, the British government neither denied nor officially confirmed the existence of Porton Down.

Professor Schmidt's work offers the readers a detailed analysis of evolving field of military medical ethics, not only from a philosophical or ethical perspective, but also by providing a historical narrative of the evolution of the field of research over the last century. It discusses the ethics of military medicine, which were shaped not so much by established or emerging medical ethics standards but by the rule of law. It also highlights the widespread question of integrity and secrecy. The author argues, secrecy in military facilities, including Porton, was socially and temporally constructed and rarely, if ever, absolute. It also argues how the high rank officials, military men and scientists misused their power and status in order to guard themselves and the work done at facilities by prioritizing issues of national security over humanitarian obligations.

Importantly, it gives prominence to the role of memory; it has documented and brought to life largely forgotten 'medical memories' of servicemen involved in military

experiments. Therefore, this book can be used a reference in order to understand what an acceptable justification for the 'infringement of personal inviolability' for experimental subjects could be. It raises a series of important and exceedingly difficult questions in relation to the historiography and methodology of medical ethics.

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