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Editorial

Executive Editor

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The Preparatory Committee Meeting for the Eight Review Conference scheduled in November 2016, was concluded in April. The follow up meeting will take place in August 2016. Keeping this in focus, Animesh Roul in this issue of the CBW Magazine discusses what the important agendas are for the upcoming Review Conference. John Hart emphasizes on the preparations towards the Eighth Review Conference and argues the importance of maintaining the treaty norms.

Cindy Vestergaard in her article discusses the success of the three investigative mechanisms undertaken to explore the truth about the use of chemical weapons in Syria. North Korea's possession and probable use of chemical weapons against the United States and South Korea with the help of delivery platforms has been highlighted by Kapil Patil. Chandreyee Chakraborty traces the differences in Indian response towards WMD regimes.

This issue also comprises other regular features like the Book Review, Kaleidoscope and 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

Preparations for the Eighth Review Conference to the Biological and Toxin Weapons Convention

John Hart*

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Summary

The States Parties to the 1972 Biological and Toxin Weapons Convention are preparing for the Eighth Review Conference in November. Their focus remains on institutional capacity and exchange of views and information, rather than on possible specific compliance concerns. Consultations and proposals are reviewed. Treaty norms and appropriate capacity must be maintained.

* The views expressed are the author's and do not necessarily reflect those of SIPRI.

Numerous planning documents and policy statements are being generated in the lead-up to the Eighth Review Conference to the 1972 Biological and Toxin Weapons Convention (BTWC) for which Ambassador György Molnár of Hungary is the President-Designate. The Preparatory Committee (PrepCom) is being held in two sessions: 26-27 April and 8-12 August, while the Review Conference itself will take place on 7-25 November in Geneva. The treaty currently has 174 States Parties. Of the non-parties, eight are signatories.¹

The April session of the PrepCom elected the Review Conference officials and adopted the Review Conference agenda. The two PrepCom Vice Chairmen are Ambassador Michael Biontino of Germany and Ambassador Boujemâa Delmi of Algeria. During the Review Conference, they will serve as the Chairman of the Committee of the Whole (CoW) and the Chairman of the Drafting Committee, respectively. The Review Conference will also have 20 Vice-Presidents distributed geographically as follows: 10 from the Group of Non-Aligned Movement and Other States, 6 from the Western Group and 4 from the Eastern European Group. Geographically balanced workshops and consultations are being convened this year to help facilitate the process of ensuring a successful Review Conference outcome. Such an outcome will probably entail a fourth series of annual inter-sessional political and technical meetings (i.e., until the 9th Review Conference) with revised agenda items.

The criteria for a successful outcome include ensuring:

- (a) the principle of not harming the regime (perhaps inadvertently) is observed;

- (b) preparations are well managed (e.g., through constructive consultations among relevant actors, and the timely availability of relevant documents); and
- (c) the Review Conference outcome maintains and strengthens the relevance (perceived and actual) of the regime, including to the broader public, international actors and government communities.

Notable developments in the third inter-session process which ended in December 2015 include discussions and papers on compliance, including a joint Belgium-Luxembourg-Netherlands peer review system to assess national implementation of the Convention based, in turn, on a December 2013 pilot-peer review exercise hosted by France and involving the participation of experts from Canada, China, Germany, India, Mexico, Switzerland, the United Kingdom and the United States. The Benelux peer review proposal is being implemented in two phases: (a) a written consultation based on 2015 CBM submissions (Form A and Form E) of these states, and (b) an 'event' in which this information is discussed which is then followed by on-site visits to 'installations declared in Form A in the host country'.

The EU maintains that verification 'remains a central element of a complete and effective disarmament and non-proliferation regime'. It has also noted the importance of strengthening the operational capabilities of the UN Secretary-General's mechanism for investigating alleged chemical and/or biological weapon use by expanding the pool of qualified experts, as well as carrying out training, table-top and field exercises. The EU has also pledged to support implementation of Article X by inter alia supporting the development of the Cooperation and Assistance Database, the

relevant actors for the implementation of the World Health Organization's (WHO) International Health Regulations (IHR) (revised 2005), and the relevant goals of the G7 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction. The EU supports putting in place 'more frequent and focused assessments' of relevant science and technology developments which could, in principle, incorporate 'a standing science and technology advisory function' in the Implementation Support Unit (ISU). Finally, the EU supports a comprehensive review of confidence-building measure (CBM) formats, including moving the regime towards a position where annual CBM forms act as 'the regular declaration tool' which inform consideration of the Convention's 'implementation and compliance'. This implies that the parties should eventually make CBMs legally binding.

Russia has expressed continued support for a reconsideration of compliance issues that takes into consideration the work of the Ad Hoc Group of Governmental Experts to Identify and Examine Potential Verification Measures from a Scientific and Technical Standpoint (VEREX). In December 2015 Armenia, Belarus, China and Russia tabled a proposal for inclusion in the final document of the 8th Review Conference (The proposal does not include visits (i.e. routine inspections), which was one of the most difficult issues during negotiations on a protocol to strengthen compliance with the Convention between 1995 and 2001.) They proposed that an open-ended working group elaborate on a consensus basis 'appropriate measures and draft proposals' to strengthen the Convention as a legally binding instrument. Such a working group shall consider:

- (a) the incorporation of existing and potentially further enhanced confidence

building and transparency measures, as appropriate, into the regime;

- (b) measures to achieve effective national implementation of the Convention;
- (c) measures for considering the implications of developments in areas of science and technology relevant to the Convention and agreeing in that regard appropriate steps to enhance the effective implementation of the Convention;
- (d) measures for strengthening international cooperation for peaceful purposes in accordance with Article X of the Convention;
- (e) procedures and mechanisms for assistance and protection against biological weapons in accordance with Article VII of the Convention; and
- (f) mechanism for investigating alleged use of biological weapons (to be initiated by the affected State and conducted on its territory) pursuant to Article VI of the Convention.

In 2015 China proposed that the Review Conference develop a template for a biological scientists' code of conduct. China also recommended that a 'non-proliferation export control regime under the framework of the BWC' be incorporated into the international cooperation agenda at the Review Conference and that the resources of existing international regimes and organizations, including the 1540 Committee and the Australia Group, be fully utilised.

In 2015, the United States proposed that the Review Conference establish a Steering Group comprising of the Chairman, Vice-Chairmen and leaders of expert groups to

'liaise' with the ISU in order to assist it to prepare for further annual inter-sessional meetings. It also called for the parties to agree on the parameters or guidelines to inter-sessional annual meetings of the states parties, which should be able to take decisions (e.g. with respect to the implementation of the ISU Cooperation and Assistance Database). (The ISU has worked to establish a database with offers and requests for assistance in accordance with a decision by the Seventh Review Conference in 2011.)

Also in 2015, eighteen states parties provided views and proposals concerning implications of the spread of technology and disease outbreak, including the proposal that 'States Parties should agree to discuss the role of the BWC and the Implementation Support Unit in an investigation determining whether a disease outbreak' is naturally occurring or deliberate. The same year another grouping of states parties encouraged all the parties to submit comprehensive annual CBMs and to build 'an operational capability (i.e. through a select list of experts) that could be called upon to assist in responding to a biological incident, in the absence of a full-time inspectorate'. Finally, Switzerland outlined structural and cost elements employed at the international level for science and technology expert-led processes, in order to facilitate understanding and possible future action on strengthening the institutional capacity of the treaty regime.

There has been periodic interaction between actors supporting the BTWC and the Chemical Weapons Convention, respectively. Both treaties cover toxins. The Organisation for the Prohibition of Chemical Weapons (OPCW), including its Scientific Advisory Board (SAB), continues to monitor changes in the chemical industry that involve the use of biological and biologically-mediated

processes, as well as the modalities for how such developments can or should be incorporated into the treaty's routine declaration and verification system.

In 2015 the Director-General of the OPCW outlined procedures to implement the recommendations made by the SAB in its latest report on verification. While the science and technology (S&T) developments highlighted by the SAB are less relevant to the BTWC regime, a number of the *implementation strategies*—some of which are process-oriented, and *principles for measuring outcomes/results* could serve as a useful basis for informal consultations in the lead-up to the Review Conference (e.g., in the context of sampling and analysis of best practices, nomenclature standards, and peer review consultative strategies directly relevant to CBMs). At the April 2016 PrepCom Russia and other countries expressed support for the establishment of a BTWC 'scientific advisory committee.' Russia has also proposed making available biomedical units to help protect against biological threats (e.g., to investigate allegations of weapon use).

If the States Parties wish to agree a further inter-sessional process for 2017-2020, a short list of operational activities could be developed that are mainly focused on Article I and Article X as a basis for consultations with governments and other relevant actors.

Such consultations could be structured according to:

- (a) a general discussion and exchange of views reviewing basic questions such as:
 - i. What is the state of the treaty regime?
 - ii. What are preferred Review Conference outcomes?

- iii. What political cross-linkages are known or likely?

- iv. Are such linkages constructive? How can they be managed?

- (b) the balance and nature of Review Conference outcomes. For example, the balance between process or capacity-oriented activity versus specific outcomes that more closely accord to standard understandings of a 'decision';

- (c) exploration of the feasibility of focusing the planning process on 2-3 operationally-relevant activities that are of most relevance to Articles I and X.

The results could then inform prioritization and analysis with a view towards ensuring that the regime possesses appropriate operational capacity and that treaty norms are maintained.

Endnotes:

- 1 The signatories are: Central African Republic, Egypt, Haiti, Liberia, Nepal, Somalia, Syria, and Tanzania.

Investigating the use of Chemical Weapons in Syria

Cindy Vestergaard

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Global Prohibition Regimes: Theoretical Refinement and Empirical Analysis (GA13-26485S).

Summary

Since 2013, there have been three investigative mechanisms employed to examine allegations of the use of chemical weapons in Syria. Are we any closer to finding out whodunit?

Funding for this research provided by Czech Global Prohibitions Regime project.

Investigating the use of chemical weapons

The first inquiry into the use of chemical weapons (CW) in Syria was the United Nations Secretary-General's Mechanism (SGM) for Investigation of Alleged use of Chemical and Biological Weapons. Adopted by the UN General Assembly in 1987, and endorsed by the Security Council (Resolution 620) a year later, the SGM enables the Secretary-General to carry out investigations in response to any UN Member State reporting possible violations of the 1925 Protocol or other relevant rules of customary international law.

The SGM was triggered in March 2013 after Syria (a State Party to the Geneva Protocol) reported allegations of CW use in the Khan al-Asal area of the Aleppo Governorate, for which Syria's government and opposition blamed each other. A team from the Organisation for the Prohibition of Chemical Weapons (OPCW) and the World Health Organization (WHO) was assembled and remained on standby in Cyprus until the terms of reference between the UN and Syria were agreed on. The holdup was a difference of opinion on the scope of the investigation: the UN argued that all credible claims of CW use reported by other Member States should also be investigated while Syria argued that only the March 19 Khan al-Asal attacks should be examined. In the end, the SGM team was dispatched to Syria in August 2013 to investigate Khal al-Asal and two other incidents at Sheik Maqsood and Saraqueb.¹ Three days after their arrival, allegations of CW use in the Ghouta area of Damascus led the team to prioritise the most recent allegations.

In its first report issued on 16 September 2013,² the team concluded that chemical

weapons, specifically nerve agent sarin, had been used on a relatively large scale—marking the end of what had become the world’s longest reprieve from CW use in conflict in a century. The international response was swift and unprecedented; leading to Syria’s accession to the Chemical Weapons Convention (CWC) and the establishment of a joint mission of the UN and the OPCW which successfully removed all of Syria’s declared chemical weapons. This was no small feat to carry out during an active conflict and it was done exceptionally well: within 13 months of the Ghouta attacks, 96% of Syria’s declared stockpile had been destroyed.

The removal of Syria’s stocks however did not end allegations of CW use. In April 2014 as the UN and OPCW cooperated to remove Syria’s stockpiles, more allegations of CW use (this time chlorine) emerged. Unlike previous allegations Syria was now a State Party to the CWC, prompting the OPCW to establish a Fact-Finding Mission (FFM) to investigate. The FFM issued three reports concluding ‘with a high degree of confidence’ that chlorine gas had been used as a weapon against the villages of Talmenes (on 21 April 2014), Al Tamanah (29-30 April and 25-26 May 2014) and Kafr Zita (11 and 18 April 2014).

Although both the SGM and FFM concluded that chemical weapons had been repeatedly used in Syria’s ongoing conflict; neither was mandated to investigate blame. The SGM’s report did state that samples collected in the Ghouta area provided “clear and convincing evidence that surface-to-surface rockets containing the nerve agent Sarin were used.”³ Moreover, inspectors were able to calculate the trajectories of the rockets “with a sufficient degree of accuracy.”⁴ The rocket dimensions provided suggest they were adapted 330mm surface-to-surface artillery rockets which the Syrian military, not the

opposition, was believed to have possessed.⁵ The United States and France claimed the Syrian government was responsible while Syria and Russia pointed the finger at rebels.

Similarly, the FFM reports made mention of witness accounts of helicopters dropping barrel bombs containing chlorine. The United States and others noted that only the Bashar al-Assad regime had helicopters while Russia maintained that the regime’s helicopters were coincidentally flying in the area at the time.⁶ In an interview with the BBC in February 2015, Assad denied that government forces had used chlorine as a weapon and went further to say “We have bombs, missiles and bullets... There is [are] no barrel bombs, we don’t have barrels.”⁷

Investigating Whodunit

In August 2015, after almost two years of numerous allegations, investigations and UNSC resolutions stressing those responsible should be held accountable,⁸ the UNSC finally and unanimously called for an official inquiry to identify culpability. Resolution 2235 gave a one-year mandate to an OPCW-UN Joint Investigative Mechanism (JIM) to identify those involved in cases “where the OPCW FFM determines or has determined that a specific incident in [Syria] involved or likely involved the use of chemicals as weapons...”⁹. In other words, only incidents considered by the FFM are to be included in investigating blame. The large-scale use of sarin in the 2013 Ghouta attacks that had been confirmed by the SGM was excluded.

According to the OPCW’s first report on the JIM, the FFM reports mention 116 alleged incidents of CW use in Syria over the course of 2014 and 2015 of which 23 it confidently determined involved exposure to a chemical substance.¹⁰ From these, the OPCW narrowed the list down to six potential cases

for further investigation with a seventh added during the UNSC's meeting on the JIM report in February 2016.¹¹ The seven cases include the aforementioned incidences of chlorine use in the villages of Talmenes, Al Tamanah and Kafr Zita plus four others: Qmenas (16 March 2015), Sarmin (16 March 2015) and Binnish (23 March 2015) in the Idlib Governorate and Marea (21 August 2015) in the Aleppo Governorate.

The JIM is now in its second phase, conducting in-depth analysis of the cases listed above and will include field visits and witness interviews as well as case-relevant information provided by Member States and other sources. This phase will continue until the OPCW gathers sufficient information to enable it to report findings to the Security Council. The UNSC can decide to extend the JIM mandate when it expires based on the status of its findings at the time.

The fog of chemical warfare

The Syrian case has been the first to test the CWC's provisions, setting a precedent for how the UNSC responds to confirmed violations of the treaty's main prohibitions. It is a positive step that a 'whodunit' inquiry is finally in motion - a step that strengthens the provisions of the CWC, the world's only verifiable disarmament treaty. For the process to be wholly credible the SGM-confirmed Ghouta attacks need to be included. Whether or not the JIM is able to confidently determine culpability for the chlorine attacks, the failure to ascertain the whodunit of the sarin attacks will leave them shrouded in political tones. If judgement on those responsible for breaking the longest 'chemical peace' is left to individual capitals, the objective of a world free of chemical weapons may never be achieved since cases like Syria will recur.

Endnotes:

- ¹ Sheik Maqsoud on 13 April 2013 and Saraqeb on 29 April 2013. See: BBC News, "Syria Chemical Weapons Allegations," May 17, 2013, <http://www.bbc.co.uk/news/world-middle-east-22557347>.
- ² A/67/997-S/2013/553, Report of the United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic on the alleged use of chemical weapons in the Ghouta area of Damascus on 21 August 2013, 16 September 2013.
- ³ A/67/997-S/2013/553, Report of the United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic on the alleged use of chemical weapons in the Ghouta area of Damascus on 21 August 2013, 16 September 2013.
- ⁴ A/67/997-S/2013/553, Report of the United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic on the alleged use of chemical weapons in the Ghouta area of Damascus on 21 August 2013, 16 September 2013.
- ⁵ Syria chemical attack: What we know,' *BBC News*, 24 September 2013.
- ⁶ 'UN threatens force if chlorine used in Syria attacks,' *Aljazeera*, 7 March 2015.
- ⁷ 'Assad says Syria is informed on anti-IS air campaign,' *BBC News*, 10 February 2015.
- ⁸ S/RES/2118, 27 September 2013 and S/RES/2209 6 March 2015.
- ⁹ Paragraph 5, S/RES/2235, 7 August 2015.
- ¹⁰ S/2016/142, 'First report of the Organization for the Prohibition of Chemical Weapons-United Nations Joint Investigative Mechanism,' 12 February 2016.
- ¹¹ United Nations Press Release, Joint Investigative Mechanism Presents Its First Report to Security Council, 22 February 2016: <http://www.un.org/press/en/2016/dc3608.doc.htm>.

PrepCom: Setting the Stage for the 'Eighth' Review Conference of the Biological Weapons Convention

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Summary

In April 2016 the Preparatory Committee meeting for the Eighth Review Conference was concluded. This will be followed by another meeting in August 2016. Two major points were discussed during the April meeting, the issue of science and technology and effective inter-sessional process.

On April 26, 2016, the Preparatory Committee (PrepCom) meeting for the Eighth Review Conference (RevCon) of the Biological Weapons Convention (or BWC) jump-started the Convention's quinquennial review process which is scheduled to be held in Geneva from November 7 to 25 this year. The two-day PrepCom meeting in April, while setting the necessary procedural arrangements for the successful conduct of Eighth RevCon, focused on the 'general exchange of views' on matters of BWC and the organizational aspects of the forthcoming RevCon such as the Presidency, the distribution of posts of Chairs and Vice-Chairs and the draft Rules of Procedure. The second session of PrepCom meeting will reconvene again from August 8 to 12 this year, when the States Parties will deliberate all provisions of the Convention.

The first session of PrepCom meeting witnessed participation of at least 86 States Parties, one State neither party nor signatory to the Convention, one regional intergovernmental organization and eight non-governmental organizations. In addition, Ambassador Gyorgy Molnar of Hungary was elected as Chairman of the Preparatory Committee as well as nominated to act as President of the forthcoming Eighth Review Conference. Ambassador Michael Biontino of Germany and Ambassador Boudjemâa Delmi of Algeria were elected as Vice-Chairmen. There was also understanding among the various Regional Groups on the posts of Vice-Presidents of the Conference as well as Chairmen and Vice-Chairmen of the subsidiary bodies (e.g. 'Committee of the Whole', "Drafting committee" and "Credential committee"). At least 20 Vice Presidents were nominated for the Conference dominated by the Group of the

Non-Aligned Movement and Other States with 10, followed by the Western Group with 6.

There were 29 Statements presented at the PrepCom that included regional groups (Non Aligned Movement) represented by Iran, and other specific statements by State parties such as India, Finland, United States, Russia, UK, France, China, Switzerland, Indonesia, Norway, Italy, Australia, Ireland, Japan, Germany, Canada, Morocco, Mexico, Cuba, Pakistan, Armenia, Belarus, The Netherlands, Peru, Republic of Korea and the European Union. Iran also issued its official statement at the PrepCom.

While many of these statements made references to previous Working Papers (WPs) submitted at the BWC meetings the April PrepCom meeting, saw submission of at least 12 Working Papers. The Russian Federation has submitted two WPs on the Operationalisation of Mobile Biomedical Units to deliver protection against biological weapons, investigate their alleged use, and to suppress epidemics of various etiologies and on the establishment of a Scientific Advisory Committee. The US, Switzerland, and United Kingdom (and Northern Ireland) and the Nordic countries (Finland, Norway and Sweden submitted WPs focussing on the Science and technology review for the BWC. The US too submitted working papers on strengthening confidence building and consultative mechanisms under the Biological Weapons Convention. Another important WP was submitted by France, on the Specificities of the Response to Natural and Intentional Disease Outbreaks.

Two issues dominated the April PrepCom meeting: proposals relating to the issue of a science & technology review mechanism and a renewed call for a more effective inter-sessional process. However, the August meeting is anticipated to be more exciting

where the ISU is charged with preparing papers on topics like 'history and operation of the confidence-building measures' agreed and revised so far at the previous Review Conferences (2nd, 3rd and 7th RevCons), the financial implications of proposals for follow-up action after the Eighth Review Conference; the common understandings reached by the Meetings of States Parties (MSPs) during the last intersessional programmes (2012 to 2015), and the status of universalization of the Convention.

India's Policy towards WMD Weapons: Status and Trends

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Summary

India has always been a peace loving nation and have distant itself from unwanted wars. After the introduction of the weapons of mass destruction, India has followed an unique path to preserve its identity as a global power in the world arena. It has supported the convention on Chemical and Biological weapons.

Preventing the spread and buildup of nuclear weapons remains one of the highest priority international security challenges. Following the concerns over the spread of nuclear weapons, came the issue of chemical and biological weapons. These weapons of mass destruction have been an issue for a long time and still are one of the most talked about topics. This article gives an overview of India's policy towards nuclear, chemical, and biological weapons.

Over the last thirty years, India's position at the Review Conferences of CWC and BWC has evolved from that of a passive observer to an active negotiator. It was since the third Review Conference of BWC which coincided with the growth of the country's domestic biotechnology industry that India began to participate actively in the BWC. It has taken a proactive positions on many issues that posed possible challenges to the global biological disarmament regime.

On the nuclear front, India is, however, opposed to signing the Nuclear Non-proliferation Treaty (NPT) and the Comprehensive Test Ban Treaty (CTBT) for valid reasons. India's stand on CTBT was summed up former Foreign Secretary Shyam Saran in his address at the Brookings Institution in March, 2009, where he said: "..... India will not sign the CTBT unless the world moved categorically towards nuclear disarmament in a credible time frame." India had campaigned for improving a ban on nuclear weapons testing for a long period. In 1954, India initiated a global call at the UN Disarmament Commission for an end to nuclear testing and a freeze on fissile material production. Likewise, in 1978 and 1982, at the Special Sessions on Disarmament, India proposed measures for banning nuclear testing and in 1988 it introduced the Rajiv

Gandhi Action Plan for the time-bound elimination of nuclear weapons. These proposals were shaped by the belief that banning nuclear testing would be an irreversible step toward the elimination of all nuclear weapons within a specific time-frame. However, after co-sponsoring a resolution for a test ban treaty in November 1993, India took a different course and tried to block the treaty text that was negotiated at the Conference on Disarmament (CD). India opposed the treaty on the ground that it is silent on destruction of existing nuclear stockpiles. The treaty also does not contain any time-bound programme for destruction of nuclear weapons, thereby leaving nuclear disarmament solely at the discretion of nuclear weapons states.

On the contrary, India has stressed on the need to strengthen the implementation of the Biological Weapons Convention in the wake of challenges to international peace and security emanating from the threat posed by terrorists and non-state actors seeking access to biological toxins. India underlined the importance of the Chemical Weapons Convention (CWC) and the Biological Weapons Convention as examples of non-discriminatory treaties in the field of disarmament for the total elimination of specific type of weapons of mass destruction. India reaffirms that disarmament is a primary goal of the Chemical Weapons Convention and should remain the priority till the complete destruction of all chemical weapons is achieved.

On CTBT, India pointed out various reasons for its non-acceptance of the treaty. For instance, C. Raja Mohan noted that CTBT is, 'designed to preserve the hegemony of the nuclear weapons powers', 'put a cap on India's nuclear capability', override 'India's disarmament and security concerns', and subject it to the 'worst form of political

blackmail¹. In 1996 India was almost alone in opposing the CTBT. The Indian objection centred around two issues: a) the proposed treaty was not linked to any time-bound frame, which makes it an instrument of nonproliferation but not of disarmament. b) It allowed laboratory type tests or sub-critical tests, which mean that the five critical powers would be free to continue building their arsenals. Specifically New Delhi felt that the CTBT was insufficient a commitment from the nuclear weapon states under declared deadlines. It saw this as a discriminatory replication of the imbalance inherent in the NPT regime, in which nuclear weapon states are weakly obligated to disarm and non-nuclear weapon states are strongly obligated to remain non-nuclear. The lack of commitments by the nuclear weapon states to eliminate their nuclear weapons under a declared time-frame also compelled India to oppose Article XIV of the NPT, which stipulates the CTBT's entry into force after 44 "Annex 2" countries sign and ratify it.

Another obvious crux of India's argument against the CTBT was the perceived deteriorating security conditions in South Asia. By signing the CTBT, India would have foregone the right to test any nuclear devices, yet its primary adversary would have retained the power to develop its arsenal through simulation. The other adversary that is Pakistan is a prime ally of China, it was feared that China can help Pakistan clandestine transfer of technologies that would enable Pakistan to test its devices through computer simulation. Pointing to these loopholes, India's representative informed the UN General Assembly in September 9, 1995: ".....nuclear weapon states have agreed to a CTBT only after acquiring the know how to develop and refine their arsenals without the need for tests.....Developing new warheads or refining

existing ones after [the] CTBT is in place, using innovative technologies, would be.....contrary to the spirit of [the] CTBT.²

Following the 1998 tests, the international community continues to pressurize India to sign the treaty. But from India's point of view the following point need to be highlighted:

- India has already declared a moratorium on further testing after the 1998 tests.
- 'No First Use' of nuclear weapons has also been affirmed.
- Undertaking not to export nuclear weapon or nuclear weapon related materials to any other countries has been reiterated, unlike another nuclear weapon country which says something and does something else.

The debate regarding CTBT was revived once again in 1998-1999. In one of the parliamentary debates on 27 May 1998, Prime Minister Atal Bihari Vajpayee submitted a paper to the Indian Parliament entitled, "Evolution of India's Nuclear Policy", in which he elaborated India's future approach to the CTBT and nuclear testing as: "Subsequent to the tests [the] Government has already stated that India will now observe a voluntary moratorium and refrain from conducting underground nuclear test explosions. It has also indicated willingness to move towards a de-jure formalization of this declaration. The basic obligations[s] of the CTBT are thus met; to refrain from undertaking nuclear test explosions. This voluntary declaration is intended to convey to the international community the seriousness[s] of our intent for meaningful engagement. Subsequent decisions will be taken after assuring ourselves of the security needs of the country.³

During the second debate in the Parliament, on 15 December 1998, Vajpayee stated: "India is now engaged in discussions with our key interlocutors on a range of issues including the CTBT. We are prepared to bring these discussions to a successful conclusion so that the entry into force of the CTBT is not delayed beyond September, 1999. We expect that other countries . . . will also adhere to this Treaty without condition.⁴ At this time a possible deal was being finalized where India would sign the CTBT but won't ratify it. In exchange the United States would also acknowledge India's possession of a minimal nuclear deterrent. Also the sanctions on India would be removed. But the scenario dramatically changed when on 13 October 1999 the US Senate voted against ratification of the CTBT.

It, however, became apparent that United States was worried about the consequences of its ratification of the CTBT. The Ministry of External Affairs reiterated India's position on the CTBT as stated by Vajpayee in December 1998, adding that: "The situation regarding ratification of the CTBT, as well as the debate in the US Senate, clearly indicates that the CTBT is not a simple, uncomplicated issue. Among other things, it requires building a national consensus in the countries concerned, including India.⁵ Naturally, there came up a question, should India sign the CTBT when the US Administration itself was struggling to get it ratified.

The future of CTBT and NPT actually lays in the hand of United States and other nuclear weapons states. Unless the US ratifies the CTBT, the other nuclear weapon states, and especially China won't ratify it. If US President Barack Obama were to succeed in his stated objective of achieving ratification of the CTBT, then many observers believe

that China would follow suit. If that were to happen, then India's policy would come under renewed international pressure. It, however, appears unlikely as the US is moving is moving closer to next presidential election. Also developments in China and Pakistan will have an important bearing on the debate in India. There are no doubts that the Sino-Pakistan are one of the most determining factors in India's nuclear policy. India will watch closely for signs that these countries are continuing to modernize their arsenals and for evidence of technical collaboration in nuclear weapon-related fields.

Given such a scenario, it would be best for India not to commit itself to the CTBT at this juncture. India has unconditionally signed and ratified the Chemical Weapons Convention but is opposed to NPT due to its unequal nature. Until the world community itself sincerely follows the path of nuclear disarmament, it cannot expect India to submit itself unconditionally to the NPT regime. India is a developing economy with a high economic growth rate. Post 1998 it seemed that Indian position on NPT and CTBT had come to a full circle. And India became increasingly more confident about its position in the international community.

Endnotes:

- ¹ N. Ram, Riding the nuclear tiger, Left Word Books, 1999, p-92.
- ² Arundhati Ghose, Negotiating the CTBT: India's Security Concerns and Nuclear Disarmament, Published in the Journal of International Affairs, summer, 1997, 51, no. 1.0 @ The Trustees of Columbia University in the City of New York. <http://www.fas.org/news/india/1997/ctbtghose.htm>
- ³ PAPER LAID ON THE TABLE OF THE HOUSE ON EVOLUTION OF INDIA'S NUCLEAR POLICY, http://www.nti.org/media/pdfs/32_ea_india.pdf?_=1316627913

- ⁴ Press Release on India's position on nuclear issues/CTBT, New Delhi October 14, 1999 <http://www.indianembassy.org/page.php?id=1294>
- ⁵ State of the CTBT ,Kalpana Chittaranjan, Research Officer, IDSA. <http://www.idsa-india.org/an-jun-300.html>

North Korea and Prospects for Chemical Weapons Disarmament

Kapil Patil

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Summary

North Korea's refusal to join the chemical weapons convention (CWC) and its illicit transfer of chemical warfare suits to Syria in 2009 has raised serious proliferation and international security concerns. Pyongyang is world's third largest possessor of chemical weapons and seeks to use these weapons in the event of war with United States and Republic of Korea. However, the prospects for progress on Pyongyang's chemical weapons disarmament appear unlikely in the near future. This is mainly due to the impasse over DPRK's refusal to roll back its nuclear and missile programmes in return for economic aid and normalisation of relations. Global system is prepared and adept to tackle any such outbreak.

Since its entry into force, the Chemical Weapons Convention (CWC) has made significant progress towards universality with as many as 192 states acceding to the Convention by the end of 2015.¹ After Syria's decision to join the Convention and destroy its chemical weapons, there has been growing calls for states not party to the Convention to follow suit. However, efforts to achieve universal membership in the CWC are likely to face some serious last mile challenges from the hold-out states given their unwillingness to renounce chemical weapons for a variety of politico-military objectives. Among the four non-member states including Israel, Egypt, South Sudan and North Korea, the authoritarian regime in Pyongyang under Kim Jong Un, perhaps presents the most vexing diplomatic challenge. Pyongyang's continued belligerent acts, and its failure to respect obligations from previous agreements has brought negotiations on its Weapons of Mass Destruction (WMD) programmes to a standstill.

Although, North Korea reportedly claims that it does not possess chemical weapons, it is widely believed that Pyongyang is world's third largest possessor of chemical weapons. North Korea's WMD activities have presented the greatest proliferation challenge due to illicit transfers of sensitive nuclear and missile technologies to countries such as Pakistan, Iran, Egypt, Libya and Syria. In 2009, the South Korean as well as Greek authorities' interdicted cargos included chemical warfare protective suits destined for Syria, which mounted concerns over North Korea's chemical-weapons related proliferation activities.² Currently, as many as twenty-six different entities including personnel from North Korea are

sanctioned under various U.S. laws and executive orders.³

Despite the repeated entreaties and communications from the Organization for Prohibition of Chemical Weapons (OPCW), as well as the international community at large, the North Korean regime has remained defiant about joining the CWC.⁴ Also, according to the 2014 report of the OPCW, North Korea did not participate in any bilateral consultations that the OPCW has held so far with states that are not party to the Convention.⁵ Since the suspension of six-party talks in 2009, the North Korean regime has largely remained aloof to any diplomatic overtures for rolling back its WMD programmes in return for economic aid and normalisation of relations. On the contrary, the pressure tactics seem to have only emboldened the military regime to expand and pursue WMD programmes with greater resolve.

The Democratic People's Republic of Korea's (DPRK) chemical weapons programme is often dubbed as 'irrational' given the questionable military value attached to these weapons. Also the DPRK leadership's possible belief that chemical weapons are essential for its survival has been called into question, since the possession and use of chemical weapons by the Assad regime in Syria drew strong international reaction and only proved detrimental for the regime's survival.⁶ Notwithstanding such arguments, for North Korea's war-planners chemical weapons are of great military significance in launching early offensive breaking enemy defences and to overcome US- RoK allied forces in a potential conflict.⁷

The chemical weapons have traditionally been at the core of North Korea's military strategy that seeks to offset perceived conventional asymmetry through early deployment of these weapons in the event

of war with its Southern neighbour. The origins of chemical weapons in North Korea's military doctrine can be traced back to mid-1960 after the end of Korean War when the regime faced serious existential threats mainly, from the United States and other regional rivals. Since then the DPRK has consistently expanded and intensified the building of its chemical weapons production facilities and stockpiles.

Although, there are varying estimates of North Korea's current capabilities, it is widely reported that the DPRK possesses about 2500-5000 tons of stockpiles including mustard, phosgene, blood agents, sarin, tabun and V-agents (persistent nerve agents).⁸ According to reports, the DPRK is capable of producing most types of chemical weapons indigenously, and is estimated to be capable of producing up to 12,000 tons of Chemical Weapons at the maximum capacity.⁹ To launch chemical strikes, North Korea has acquired a multitude of delivery platforms including both short and medium range missiles and artillery guns.

Furthermore, North Korea's acquisition of nuclear weapons in 2006 appears to have little impact on war-fighting plans of its army which continues to emphasise quick offensive strikes using chemical weapons and other conventional capabilities.¹⁰ DPRK's tiny nuclear arsenal is incapable of providing the country any tangible deterrence against highly sophisticated US nuclear forces. The North Korean military, therefore, relies on deploying chemical weapons both for defensive as well as offensive purposes during conflicts with its neighbours. The nuclear weapons, nevertheless, provide the regime a much-needed strategic deterrent to ensure its survival.

Given such salience of nuclear weapons in DPRKs national objectives, it is near-impossible that the regime will agree into

giving up its nuclear arsenal. The DPRK's insistence that it be recognized as a nuclear-armed state has presented a serious challenge to the international community to pursue a de-nuclearisation dialogue with Pyongyang any further. At present, no policy consensus seems to be emerging on reviving talks with the DPRK. As diplomacy remains stalled and North Korea continuing to expand its military capabilities, deterring use of WMDs through threats of unacceptable retaliation remains the preferred policy of the United States and DPRK's regional rivals. Amidst this diplomatic impasse, the prospects for progress on chemical weapons disarmament, too, are unlikely in the near future.

Mitigating threats from DPRKs chemical arsenal, however, would require renewed diplomatic efforts to seek rapprochement with the estranged regime in Pyongyang. It is only through dialogue and realistic give-and-takes that, the international community can seek a meaningful closure to DRPK's chemical weapons programme. Negotiations with North Korea understandably, will require a sustained diplomatic effort over a period of time. The international community must, nevertheless, be willing to engage with Kim Jong Un regime in the interest of a world free of chemical weapons and warfare.

Endnotes:

- ¹ See, Organization for Prohibition of Chemical Weapons (OPCW), at : <https://www.opcw.org/about-opcw/>, accessed on May 23, 2016.
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- ³ U.S. Department of State, "Non-proliferation Sanctions", May 3, 2016, at: <http://www.state.gov/t/isn/226423.htm>, accessed on May 27, 2016.

- ⁴ In March 2014, the Director-General of OPCW addressed letters to the Foreign Ministers of the six non member states and urged their accession to the Convention at the earliest. See, Report of the OPCW on the Implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction in 2014, at: https://www.opcw.org/fileadmin/OPCW/CSP/C-20/en/c2004_e_.pdf, accessed on May 23, 2016.
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- ⁶ Antoine Bondaz (2013), "Why North Korea Should Dismantle Its Chemical Weapons Arsenal", *Carnegie Tsinghua*, November 27, 2013, at: <http://carnegietsinghua.org/publications/?fa=53712>, accessed on May 23, 2016.
- ⁷ Federation of American Scientists, "Doctrine – North Korea", at: <http://fas.org/nuke/guide/dprk/doctrine/>, accessed on May 26, 2016.
- ⁸ See, Chemical Weapons – North Korea, Nuclear Threat Initiative (NTI), at: <http://www.nti.org/learn/countries/north-korea/chemical/>, accessed on May 23, 2016.
- ⁹ Joseph S. Bermudez Jr. (2013), "North Korea's Chemical Warfare Capabilities", *38 North*, October 10, 2013, at: <http://38north.org/2013/10/jbermudez101013/>, accessed on May 23, 2016.
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Chemical Weapons are just as dangerous as ever!

Elaheh Pooyandeh

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Summary

This piece is based on personal experiences of a volunteer of the TPM. This article focuses on the role of the Iranian victims of chemical weapons in promoting a culture of peace and raising awareness on the consequences of the use of chemical weapons.

Personal experience of volunteering for the Oral History Project at the Tehran Peace Museum*

For many people the fear of being exposed to chemical weapons (CW) or living as a chemical weapon victim (CWV) are just some words on paper or very far concepts. That is what I have heard from many visitors of the Tehran Peace Museum. But it is not the same for many people of my country, Iran. Once in a while, Iranians hear that another CWV has passed away after years of suffering from the long term consequences of CW. But it doesn't mean that Iranians know all the facts, too.

I didn't know many things myself when I visited the Tehran Peace Museum (TPM) for the first time in May 2012. I didn't know that for the first time after WWI, the CW were used in large amounts¹ during the Iran-Iraq war², that the nerve agents were used in the battlefield for the first time during this war by Iraqi forces or that the first gas attacks against civilians happened against the people of Sardasht in Iran.³ I learnt all these facts in the TPM, not by reading the panels, but by talking to the volunteers who have devoted their lives to raise awareness on the consequences of the CW; the volunteers who are also the victims of these hideous weapons.

These volunteers, these CWV, are the unique feature of the Tehran Peace Museum. Their role is essential and that is why the Oral History Project of survivors of the CW started the TPM in 2014. In their first hand reflections, these survivors share their experiences and lives after being exposed to the CW as well as their message of peace and friendship for people around the world and their wish for a world free of CW.

Here, I want to share with you one of the stories from a dear friend of mine, Jahanshah Sadeghi ⁴ who I met for the first time in our first interview session for the Oral History Project. All I knew before that was this: Jahanshah was a nurse at Soomar Field Hospital when the hospital was attacked with chemical weapons. And then I met him for the interview. He was coughing very badly while answering the questions, he had to use his artificial eye drops after about an hour and he was talking about the darkest memory of his life.

Jahanshah was a nurse in Field Hospital 528 near Soomar. He had chosen this job because he loved to help others. It was his way of making the world a better place. He was married for two years before the attack and he felt that his life was complete after his first child was born. Though being far from his family because of serving in a war zone was not easy.

In December 1986, while the Iranian forces were preparing for a big operation, the Soomar Field Hospital was equipped and medical experts prepared to treat the incoming wounded soldiers.

On December 31 1986, the Hospital was full of wounded soldiers and the medical staff were all very busy. Hearing the explosion from conventional bombs was not something strange that day. But it was about noon when the lives of everyone in the Soomar Field Hospital changed forever. Iraqi airplanes dropped eight bombs on the hospital - mustard gas bombs.

While interviewing him, I could see the pain and sadness in Jahanshah, even after all these years. He could remember the many corpses of his fellow colleagues or wounded soldiers he had seen that day. No one was ready for such an attack. After about an hour, the symptoms started to appear,

severe vomiting, loss of sight, cough and difficulty in breathing and blisters on the skin. The survivors were transferred to other cities and then their life as victims started.

Jahanshah was in a very critical condition, so he was sent to Germany where his skin and lungs were treated. But the damage to his body especially to his lungs could not be completely cured and he was told he had to live with only 30% of a normal lung capacity from now on. This is how he lived the rest of his life.

I have been friends with many chemical weapon victims since I started volunteering at the TPM. Each one is special. What made Jahanshah special was his kindness. He was unwell and in pain, but he could not stop caring about the others. He was always sharing the good things he had, a good feeling, a smile, even a candy!

It was 15th March 2015 and I was in the TPM when I heard the news that he has passed away. I remember it didn't seem real and I couldn't react to the news until later that night when I wrote about him in my diary and cried.

Now when I think about him, what I like to remember is not his injury, but is the fact that he did his best to end the use of the CW. He spoke out, to people in the TPM, to officials and delegates to his friends. He believed that we need to teach our young people to understand one another, to love and to forgive and not resort to violence. We need to show the youth the consequences of the use of WMD and to do our best to abolish all kinds of these weapons.

Since his death, whenever I get disappointed and I doubt if we can ever succeed in eliminating chemical and nuclear weapons, I think of his passion. YES, we can. We can do it if we just continue working together all

around the world and show that the use of WMD is not accepted in public opinion anymore and a world free of them is possible. We just need to work harder.

- * The Tehran Peace Museum (TPM) was established by an Iranian NGO, Society for Chemical Weapons Victims Support) in 2005. With its Educational and art programmes, it is as much an interactive peace centre as a museum. It coordinates peace education programme and hosts conferences on the culture of peace, reconciliation, international humanitarian law, disarmament, and peace advocacy.

TPM is mostly run by volunteer members. The volunteer guides of the museum are victims of chemical weapons who are actively engaged in its activities and are raising awareness about the consequences of the use of the WMD by sharing their own stories. They also work closely with the young volunteers in other activities of the museum.

TPM is a member of the International network of Museums for Peace and also acts as the Iranian office of the Mayors for Peace.

Endnotes:

- ¹ In UNMOVIC working document, published on 6 March 2003, Iraq declared that it has used 1800 tonnes of mustard gas, 140 tonnes of tabun and over 600 tonnes of sarin during the Iran-Iraq war.
- ² The Iran-Iraq war (1980-1988) was the longest conventional war of the 20th century. It ended in August 1988 after both parties accepted UN Security Council Resolution 598 and agreed on a ceasefire.
- ³ On June 28, 1987 the city of Sardasht in North West Iran was bombarded with chemical weapons by Iraqi jets. Thousands of civilians were exposed to mustard gas and more than 4000 residents were sent to other cities for

treatment. Many of them, are still suffering from the consequences.

- ⁴ The original stories are written by Mrs. Elizabeth Lewis after several interview sessions with survivors. What I share here is short version combined with my own notes, memories and reflections. To read the complete stories as well as other interviews please refer to the TPM's website.

Chemical and Biological News

NATIONAL AND INTERNATIONAL DEVELOPMENTS

North Korea's nuclear weapons not its worst threat; Recent fourth nuclear device not the only WMD threat facing South Korea and its allies

Robert E. McCoy, April 11, 2016

The early January detonation of its fourth nuclear device by North Korea has stirred an already simmering pot. To continue the metaphor, when one adds in the apparently successful missile test (placing an object in earth orbit) and the reactive sanctions by the UN as well as the unilateral sanctions of some member states, the pot is now at a full boil. Now we learn that some Western analysts are admitting that Pyongyang may indeed have miniaturized its nuclear devices enough to fit atop its missiles of varying ranges.

Nations are worried – and rightfully so, for this adds yet another dimension to the arsenal of weapons at Kim Jong Un's disposal. The conventional wisdom is that Kim would not dare to employ his nukes for fear of retaliation that would surely spell the end of his regime. It is a valid – though not 100 percent guaranteed – argument if one considers only larger, strategic weapons. Tactical nukes present another problem. Used properly, they can be localized such that collateral damage can be restricted to a much smaller area.

Might Kim use smaller – tactical – nuclear weapons at some point? The probability of that occurring is far greater than the likelihood of his using larger ones; however, assigning a precise value to the odds of either

happening is extremely difficult. It is a worrisome development, one that analysts and pundits will be discussing for some time.

LOOK AT ALL WEAPONS

However, what few North Korea watchers ever mention are Pyongyang's other weapons of mass destruction. They are perhaps missing the biggest likely threat from NK. I refer to its stockpiles of biological and chemical agents. Given the meaningless red line drawn by the U.S. with regard to the use of chemical weapons in Syria – their use went unpunished – the North may conclude that using such tools of war – even though roundly condemned – is something it could get away with.

DELIVERY OF NON-NUCLEAR WEAPONS OF MASS DESTRUCTION IS EASIER THAN ONE MIGHT AT FIRST THINK

Delivery of non-nuclear weapons of mass destruction is easier than one might at first think. Take, for example, the small North Korean drones that have been found in the last several months crashed in the northern areas of South Korea. It would be easy to be scornful of such craft due to their small size and apparent flimsiness. But that would be failing to recognize the potential for the destruction and havoc that the drones could inflict.

Unfortunately, a short article on North Korean drones in a South Korean daily a few days ago did not receive the attention it deserved, even though the article itself was rather dismissive of their destructive possibilities. The South Korea Agency for Defense Development had tested the reconstructed drones that had crashed in South Korea. It determined that the North Korean drones were of low quality and could

accommodate a payload of only about 900 grams – call it two pounds – and therefore were not capable of delivering any threatening weapons. That is conveniently reassuring – and it is frighteningly wrong.

MISSING THE POINT

The estimated payload is likely too low, and certainly the North could improve the design so that larger loads could be carried. However, just for the sake of argument, how much damage could two pounds of a biological or chemical agent do? A lot! Imagine that amount being dropped on a military group, or in the middle of a town – serious medical issues and panic would ensue.

It was gratifying to see that an article in *NK News* shows thinking along these same lines. Even so, that article quoted the chief of the South Korean Special Disaster Prevention Center as saying, “In the worst-case scenario, the UAVs (unpiloted aerial vehicles, drones in other words) can be equipped with biological weapons.” Well, there is a significant problem with thinking that it would be the “worst-case scenario” – because that is exactly the case that should be expected. Such thinking needs to change: looking at it through Pyongyang’s eyes, it is the *best-case* scenario.

Another recent article decried the excessive hand wringing and posturing to increase the military budget in response to the latest crisis *du jour*. While the opinion that news about drones should not be used to whip the South Korean public into a panic or to substantiate unjustified defense spending is appropriate, the article also failed to grasp the significance of how drones can be used. In other words, once again, meaningful analysis was missing.

HITTING THE MARK

William Cohen, the U.S. Secretary of Defense under President Clinton, stated that a five-

pound bag of anthrax could possibly kill half the population of Washington, D.C. Two pounds therefore might wipe out 100,000 people in Seoul. To be sure, the dispersal conditions would have to be ideal, but you get the idea. Pandemonium would result and medical facilities would be overwhelmed. Although military members might have time to garb themselves with protective gear, that sort of defense is not available to civilians.

As for two pounds of sarin gas, according to the World Health Organization, a pinprick-sized droplet would kill a human. Now consider the chemical agent VX, which is 10 times more lethal. They would truly wreak havoc in any metropolitan area. That earlier cavalier dismissal of North Korea’s so-called flimsy drones that easily avoid radar detection doesn’t seem so reassuring now, does it?

MACHINE GUNS AND THE LIKE WILL NOT BRING DOWN DRONES DUE TO THE FACT THAT THEY ARE SUCH SMALL TARGETS

North Korea uses asymmetrical warfare for two reasons. This first is due to the fact that Pyongyang is so outclassed in conventional methodology that it must resort to other ways of achieving superiority. The second is because the West does such a poor job of preparing for the unusual or unconventional. Machine guns and the like will not bring down drones due to the fact that they are such small targets. The proof is that it has already been tried by the South Korean military with no apparent success.

WHO IS READY?

No one can prepare for every eventuality, for there are by far too many potentialities and the North is so resourceful. However, having said that, it is clear that we must do better. First is to brainstorm what things are *possible* – even “weird” stuff – without

regard for what is likely. The ponderers must be free to explore their imaginations, for only in this manner can all possible contingencies be identified. Only after – *after* – all potentialities have been listed, are they organized by degree of probability. It is at this point that preparation for the most likely or most damaging can begin.

It is time to start examining, putting the best minds to work regarding possibilities, and developing ways to counter and neutralize such asymmetrical threats. Some may call it out-of-the-box thinking, and others might refer to it as creative problem solving. In reality, it is only due diligence on the part of those who are responsible for the defense of South Korea.

<https://www.nknews.org/2016/04/north-koreas-nuclear-weapons-are-not-its-worst-threat/>

Report: Vaccines Are Biological Weapons Of Mass Disease

Sean Adl-Tabatabai, April 8, 2016

A US-based pharmaceutical company has distributed vaccines laced with the deadly live Avian Flu Virus to 18 countries, putting millions of lives at risk.

Baxter International Inc. have been accused by a Czech Republic laboratory of including the deadly virus in a recent shipment of vaccinations.

Libertyforlife.com reports:

When challenged, at first Baxter attempted to invoke trade secret laws (like the L-Bam Check Mate Apple Moth Spray issue). The facts were however irrefutable so Baxter changed their story and claimed to have distributed the Bio-WMD by ‘mistake’.

Under the BSL3 code of conduct adhered to by Baxter, it is impossible for live avian flu viruses to contaminate production vaccine materials that are shipped out to vendors around the world. The Baxter International’s development and distribution of this Biological Weapon of Mass Destruction is intentional and clearly planned to coordinate with the massive Barium laced Chemtrails that are designed to lower people’s immune systems.

In the late 1900’s Baxter was also guilty of lacing blood given to hemophiliacs with AIDS. In 2006 Bayer Corporation was also caught providing HIV contaminated medication to hemophiliacs. Internal documents prove the company knew the medication was laced with HIV so they removed it from the US market and dumped the deadly dose on European, Asian and Latin America. They knowingly distributed the deadly HIV concoction to thousands of individuals, mostly children. France at least sent government officials to prison for allowing the drug to be distributed. Documents show that the FDA colluded with Bayer to cover-up the scandal and allowed the deadly drug to be distributed globally. No Bayer executives ever faced arrest or prosecution in the United States.

Baxter mixed the deadly H5N1 virus with a mix of H3N2 seasonal flu viruses creating an extraordinary deadly super-airborne biological weapon. The mixing of viruses in laboratory terms is called ‘reassortment’. Reassortment is one of two ways pandemic viruses are created, especially when an animal strain is mixed with a human strain. The BWMD in the disguise of a regular Flu Vaccine was distributed to 18 Countries and is likely to have been distributed throughout the USA.

H5N1 has a 60% to 90% kill rate on humans.

The deadly mix by Baxter makes H5N1 airborne. Scientists developing and studying bio weapons are being murdered in the open. These psychopathically genocidal murderers who funded the Nazi and the Communist Holocausts, the owners of the Federal Reserve Bank, are likely to eliminate most of mankind, pursuant to their goals expressed on the GEORGIA GUIDE STONES. The NWO and our leaders intend to murder around 6 billion people, that's why they have been so brazen in their fleecing and criminal acts on Wall Street.

Prior to appointment as Secretary of War in the Nazi-like invasion of Iraq, Donald H. Rumsfeld was Chairman of the Board of Gilead Sciences the manufacturer of Tamiflu the bird flu drug of choice. Rumsfeld will profit extraordinarily from this next planned genocide. Other beneficiaries of the BWMD are Bilderberg members like George Shultz and Lodewijk J.R. de Vink. While testing their bird-flu biological weapon, for the first time in history, a virus spread not from west to east, but from east to west.

Mike Adams, the Health Ranger, NaturalNews Editor, summed up the situation: "Baxter is acting a whole lot like a biological terrorism organization these days, sending deadly viral samples around the world. If you mail an envelope full of anthrax to your Senator, you get arrested as a terrorist. So why is Baxter — which mailed samples of a far more deadly viral strain to labs around the world — getting away with saying, essentially, "Oops?" But there's a bigger question in all this: How could this company have accidentally mixed LIVE avian flu viruses (both H5N1 and H3N2, the human form) in this vaccine material?"

Truckers working for Homeland Security are paid \$5,000 per load to transport the bio

weapons and assured that they and their families will be allowed to move to military bases while the genocide takes place:

Ironically, people working for the NWO dimwits fail to observe that those on the inside, like the police men and fire fighters on 9/11, and the soldiers in Iraq, are the first get contaminated and the first to die. The goal is to wipe out 6 billion people, anyone who thinks they and their family will be spared is not just naive, they are morons who bring disaster on their neighbors, family and self.

Unlike normal seasonal influenza, where infection causes only mild respiratory symptoms in most healthy people, the disease caused by avian H5N1 follows an unusually aggressive clinical course, with rapid deterioration and high fatality. Primary viral pneumonia and multi-organ failure are common. It is significant that most cases have occurred in previously healthy children and young adults. H5N1 incubates longer than current human influenza viruses before causing symptoms, up to eight days in some cases. In household clusters of cases, the time between cases has generally ranged from two to five days but has been reported to take as long as 17 days.

Initial symptoms of H5N1 infection are more likely to include diarrhea, which can appear up to a week before any respiratory symptoms. That feature, combined with the detection of viral RNA in stool samples, suggests that the virus grows in the gastrointestinal tract. Lower respiratory tract symptoms such as shortness of breath appear early in the course of the illness, whereas upper respiratory symptoms such as rhinorrhea are less common.

According to experts, it is virtually impossible to make a 'mistake' and accidentally lace vaccinations with live Avian Bird Flu! Naturally, 'authorities' will

overlook this astonishing terrorist act the same way they overlooked the US invasion of Iraq; the government blowing up the World Trade Center and the handing out trillions of dollars to banksters who caused the depression and the World Wars.

OPPOSITE DR. HOROWITZ ANALYZES THE FLU GENOCIDE:

This unprecedented H1N1-H5N1 flu outbreak implicates the Anglo-American Vaccine Pipeline, says world leading consumer health protector, Dr. Leonard Horowitz

Consider the skyrocketing stock values of Novavax, Inc., precipitated by dozens of alleged flu deaths in Mexico. Then investigate the leading Anglo-American network of genetic engineers manipulating, mutating, and distributing these viruses. The evidence compels you, for the benefit of public health and safety to seriously consider, even decree, a conspiracy to commit genocide, according to this Harvard trained expert in emerging diseases.

Here, Dr. Horowitz urges an investigation of Dr. James S. Robertson, Englands leading bioengineer of flu viruses for the vaccine industry, and avid promoter of U.S. Government funding for lucrative biodefense contracts, along with collaborators at the US Centers for Disease Control & Prevention (CDC). These suspects helped Novavax, Inc., in Bethesda, Maryland, produce genetically-modified recombinants of the avian, swine, and Spanish flu viruses, H5N1 and H1N1, nearly identical to the unprecedented Mexican virus that is allegedly spreading to the United States at the time of this posting. The outbreak was precisely timed to promote the companys new research and huge vaccine stockpiling contracts.

Scientists at the U.S. Centers for Disease Control (CDC) are implicated through

collaborations and publications involving private contracts with Novavax, a company that obtains its biosimilars through CDC Influenza Branch director, Ruben O. Donis, and Dr. Rick Bright, previously working with Donis at the CDC, now Novavaxs Vice President of Global Influenza Programs.

Descriptions of this virus is pathognomonic, or diagnostic, of a virus that came from Robertsons circle of friends, Dr. Horowitz charges. No other group in the world takes H5N1 Asian flu infected chickens, brings them to Europe, extracts their DNA, combines their proteins with H1N1 viruses from the 1918 Spanish flu isolate, additionally mixes in swine flu genes from pigs, then reverse engineers them to infect humans. The end product could only have ended up in Mexico via the United States from Britain in care of the CDC. The CDC had to have sent them to Novavax, where Rick Brights team is now implicated in a conspiracy to commit genocide—the mass killing of people for profit.

HISTORY REPEATS ITSELF?

Evidence now shows that 1918 influenza pandemic, which killed up to 50 million people worldwide (more than those killed by the Black Death and all those killed in the war) following World War One, was intentionally started by injecting servicemen with “experimental” flu vaccines that actually contained live, “weaponized” flu material just like the material being distributed by Baxter today. The 1918 bio weapon consisted of an unusually severe and deadly Influenza A virus strain of subtype H1N1.

The 1918 flu originated with servicemen and began simultaneously in multiple cities, ‘spontaneously’ infected multiple cities all at once, including a military base in Kansas. The disease was first discovered at Fort

Riley, Kansas and Queens, New York, in 1918. In August 1918, a more virulent strain appeared simultaneously in Brest, France, in West Africa at Freetown, Sierra Leone, and in the U.S. at Boston, Massachusetts. The virus then spread to nearly every part of the globe in three waves lasting from March 1918 to June 1920.

The 1918 Flu was called “Spanish Flu”, primarily because the pandemic received greater press attention after it moved from France to Spain in November of 1918.

CAREFUL COORDINATION WITH CHEMTRAILS

By now, anyone listening to mainstream media knows you have to be a moron to believe anything the big five media companies or the government says. They are now attempting to claim that the Chemtrails they have secretly been gassing us with to lower our immunity with Barium in preparation for the Bird Flu Bio Weapons, are here to help offset flooding from global warming. When the ice melts in your cup, does your cup overflow? The vast volume of the Polar ice caps are floating, just like the ice in your cup. Global Warming is a hoax.

The problem is that we have a group of severely insane leaders who have absolutely no clue as to what they are doing in their mad rush to secure their Old World Order disguised as a New World Order. The NWO intends to exterminate the New Order of the Ages (NOA) embodied in the United States of America which was born out of the Renaissance and Reformation. NOA took power and sovereignty from the government, kings, queens and the Pope and handed sovereignty to the people. The question is whether NOA will survive this next flood.

The Pope, kings, queens and oligarchs have always wanted to destroy the USA. It looks like the dreams of the same people who gave us the holocausts in Germany, Russia, Cambodia, China, Africa and who gave us the World Wars, are about to come true.

<http://yournewswire.com/report-vaccines-are-biological-weapons-of-mass-disease/>

Animal testicle bombs are a dangerous step towards ISIS biological warfare, says expert

An Islamic State bomber discovered with a plastic bag full of excrement, animals testicles and explosives, is a chilling warning the terror group are planning for biological warfare, according to an expert.

Siobhan Mcfadyen, May 6, 2016

Mohamed Abrini was found with a rudimentary dirty bomb

Mohamed Abrini was said to have made the rudimentary bomb with the intention of spreading bacterial infection when he wreaked havoc in the worst terror attack in Belgian history.

The 31-year-old, who was also involved in last year’s Paris attacks, was identified as the “man in the hat” after going on the run following the suicide bombings which resulted in 32 deaths and 270 injuries at the airport and at the city’s Maelbeek subway station.

Now a leading expert says the animal testes bomb shows ISIS leaders are continually trying to develop terrifying biological weapons - even in their crudest form - to literally sicken the public.

Dr Amesh Adalja, a Senior Associate at the University of Pittsburgh Medical Center for Health Security, said: “The news that ISIS may have been interested in a biological weapon is not surprising, as terrorist groups from Al Qaeda and Aum Shinrikyo have expressed this same effort.

Abrini was identified as the ‘man in the hat’ involved in the Brussels attacks

“Biological weaponry is as old as civilisation and through history has moved from the very crude such as poisoning wells to the very sophisticated.

It is a dangerous step that demonstrates unequivocal interest in biological weapons: Dr. Amesh Adalja.

“Belgian reports that the suspect had plastic bag filled with animal excrement and testes argues that the potential capacity of this particular individual is towards the more basic end of the spectrum.

“Such crude preparations hearken back to ancient history when warriors would coat their spears and swords in animal excrement so as to heighten the chance of a post-traumatic infection occurring.

“Similarly, during the Vietnam War the Vietcong placed stakes that were laden with feces, called Punji sticks, in the paths of US troops with the intention of them being impaled and then infected with the fecal bacteria.

“These types of biological weapons are not, under ordinary circumstances, able to inflict wide scale harm as, for example, an aerosol release of anthrax could, but are still very effective in fomenting fear.

“However, creating such crude preparations cannot be ignored, as it is nonetheless a

dangerous step that demonstrates unequivocal interest in biological weapons.”

In February, British and American special forces trained in secret for a biological or chemical attack in the UK.

Experts have warned that ISIS are developing biological weapons

The special operatives undertook Chemical, Nuclear, Radiological and Biological (CBRN) training sanctioned by COBRA, Britain’s emergency cabinet response team chaired by David Cameron.

Belgian police, acting after the March terror attacks, conducted a number of raids in apartments across the city following the attacks and discovered explosive devices containing nails and an ISIS flag.

They also discovered Abrini had created a bomb using animal testes and fecal matter before he was finally apprehended in April.

A note circulated to police warned of the contents of the plastic bag so law enforcement officers were fully prepared to avoid infection while they were hunting Abrini, according to reports in Belgian media.

He had been on Europe’s most wanted list after he was spotted on CCTV traveling by car to Paris two days before the attacks on the French capital in November.

A known petty criminal, the dual Belgian and Moroccan national, grew up in Brussels but is believed to have traveled to Syria to undergo training.

Abrini is currently in police custody, after being charged over the attacks.

<http://www.express.co.uk/news/world/667874/isis-daesh-biological-warfare-dirty-bomb-animal-testicles-brussels>

Zika virus: expectant mothers advised to avoid Rio Olympics

PREGNANT WOMEN SHOULD ALSO 'THINK TWICE' ABOUT TRAVELLING TO PARTS OF THE US, INCLUDING FLORIDA, SAYS BRITISH SCIENTIST

May 29, 2016

Pregnant women and those trying for a baby should beware of the dangers posed by the Zika virus when planning trips this summer, a British expert has warned.

Mothers-to-be are advised to avoid the Olympic Games in Rio and even to "think twice" if travelling to certain parts of the US, including Florida.

The World Health Organisation on Sunday rejected calls from 150 of the world's leading scientists to reschedule the Olympics because of the ongoing threat from the virus.

The majority of those infected with Zika will have no symptoms, but for others it can cause a mild illness with symptoms including a rash, fever and headache.

Serious complications that arise from infection are not common, but the virus can cause microcephaly, where babies are born with abnormally small heads due to the fact their brains have not developed properly.

As the temperature rises in some parts of the world in the next few months, scientists have warned those most at risk to consider their travel plans.

Prof Jimmy Whitworth from the London School of Hygiene & Tropical Medicine said there could be a risk, later in the

summer, for those travelling to Disney World in Florida.

He told the Mail on Sunday that women who are pregnant or hoping to get pregnant "need to consider their plans and, if there is an alternative to going to those parts of the US, strongly consider it".

He added: "They should think twice and seek up-to-date expert advice."

As for the risk posed by those travelling to the Olympic Games, Jeremy Farrar, director of the Wellcome Trust, said it would be insufficient to cause a major impact on the overall spread of the virus.

He told the Observer: "The numbers travelling to and from Brazil for the games is likely to account for about 0.25% of world travel. That does not pose a sufficient risk of spreading the disease in my view.

"Mosquitoes in August are not nearly so active in Brazil as at other times of the year. Risks are therefore reduced."

His comments echo those already expressed by Jonathan Ball, professor of molecular virology at Nottingham University.

He said that while people needed to be careful when travelling, the risk from Olympic travel alone would be "a drop in the ocean" compared with routine trips and trade.

<http://www.theguardian.com/world/2016/may/29/zika-virus-expectant-mothers-advised-to-avoid-rio-olympics>

World Health Organization Rejects Call to Move Olympics Over Zika Fears

Daniel Politi, January 26, 2016.

The United Nations health agency says the 150 public health experts who wrote an open

letter calling for the Olympic Games in Rio de Janeiro to be moved or postponed because of the Zika virus are wrong. “Cancelling or changing the location of the 2016 Olympics will not significantly alter the international spread of Zika virus,” the World Health Organization said on Saturday. The WHO responded a day after the 150 public health experts said that moving forward with the Olympics in Rio de Janeiro would lead to “an unnecessary risk.”

The response by the WHO likely did not surprise those who wrote the open letter as they had warned that the global health organization suffers from a “conflict of interest” due to its partnership with the International Olympic Committee. That’s why the experts called on the WHO to “convene an independent group to advise it and the IOC in a transparent, evidence-based process in which science, public health, and the spirit of sport come first.”

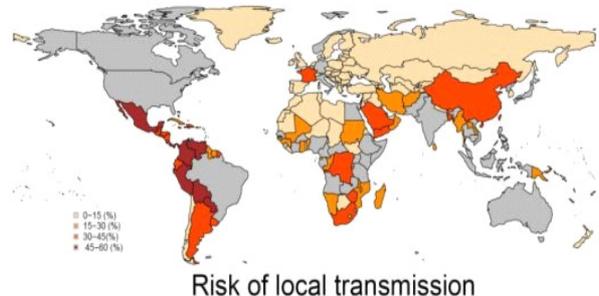
All that, however, is unnecessary, according to the WHO, which pointed out the virus has already spread. “Brazil is 1 of almost 60 countries and territories which to date report continuing transmission of Zika by mosquitoes,” the WHO said. “People continue to travel between these countries and territories for a variety of reasons.”

The Olympics has never been moved for a public health reason, although the Women’s World Cup was moved to the United States from China due to fears over the Sars epidemic, notes the BBC.

http://www.slate.com/blogs/the_slatest/2016/05/28/world_health_organization_rejects_call_to_move_olympics_over_zika_fears.html

Predicting the spread of the Zika virus

Hokkaido University, May 27, 2016



The risk is given as the percentage of observing local transmission by the end of 2016, colored by intensity (0-15, 15-30, 30-45 and 45-60 percent, respectively). The origin country Brazil and countries that have already experienced case importation prior to importation event in Brazil are colored by grey.

A new tool by Japan-based researchers predicts the risk of Zika virus importation and local transmission for 189 countries.

Countries that are well connected to/from Brazil have been at particularly high risk of importation, according to the analysis by a team of researchers from the University of Tokyo, Hokkaido University, and the Japan Science and Technology Agency.

However, subtropical and tropical countries with a history of dengue and other mosquito-borne diseases have the greatest risk of the virus spreading once it arrives in the country. This means many nations in South and Central America, as well as the Caribbean, face the highest risk of infection and should take measures to prevent mosquito bites, according to the study that was recently published in *Peer J*. France, southern parts of China and the United Arab Emirates also fall into this category having experienced previous outbreaks.

“We have shown that the predicted risk of local transmission was frequently seen in tropical and subtropical countries with dengue or chikungunya epidemic experience, while the risk of importation was more scattered around the world,” said Hiroshi Nishiura, a professor of hygiene at Hokkaido University.

The Zika virus was first found in Uganda in 1947, and then detected in 39 countries around the world, including the United States, India and Japan. In early 2015, a Zika virus outbreak in Brazil was soon followed by a high number of microcephaly cases, in which babies are born with abnormally small heads. The link between the two is not definitively understood, but is strongly suspected. Since the Brazil outbreak, Zika virus has been detected in an additional 39 countries, including in Europe, the U.K., South America and Asia.

Many researchers are working to anticipate the virus’s potential spread, especially given that it can be carried by lightly infected travelers and then passed onto others by mosquitos. Global concern and attention are elevated with thousands of visitors set to attend the Olympics in Rio de Janeiro this summer.

Professor Nishiura and his colleagues predicted the virus’ potential of importation and local transmission by the end of 2016 using a survival analysis model, information about airline transportation networks, and transmission data for dengue and chikungunya viruses, which are also transmitted by the same mosquito species. They collected Zika data up to January 31, 2016, and they note that new cases were confirmed in more countries shortly thereafter.

The authors recommend that a finer scale analysis be done to more accurately predict

the spread within regions. For example, models should incorporate ecological information about mosquitoes.

“Despite a clear need to improve predictions in the future, the present study successfully devised a simple global risk prediction of importation and local transmission,” Prof. Nishiura said. “Countries at low risk may focus on prevention among pregnant women who must travel to epidemic areas.”

<https://www.sciencedaily.com/releases/2016/05/160527090912.htm>

Eastern European States Pledge Support to OPCW Education and Outreach Efforts

May 19, 2016

Participants at the first Regional Meeting on Education and Outreach in Eastern Europe, which took place from 4 to 5 May in Vilnius, Lithuania.

Representatives of 21 Eastern European States expressed their commitment to support awareness-raising efforts of the Organisation for the Prohibition of Chemical Weapons (OPCW) during the first Regional Meeting on Education and Outreach in Eastern Europe, which took place from 4 to 5 May in Vilnius, Lithuania.

Forty-five participants from civil society, academia, non-governmental organisations and National Authorities of Eastern European States Parties to the Chemical Weapons Convention (CWC) focused on how to advance an education and outreach agenda related to the implementation of the Convention.

The meeting came shortly after the launch of the OPCW’s Advisory Board on Education and Outreach (ABEO). The body will offer

practical advice to the Organisation on possible strategies, tools and a portfolio of activities in line with global trends in education and outreach. The Vilnius audience received a briefing on this new development and pledged to support ABEO's work.

The participants learned about various public awareness approaches developed by the Organisation. After watching the OPCW documentary from the FIRES documentary films series titled "A Teacher's Mission", attendees praised it as an engaging tool to stimulate students' reflection on the role of ethics in science.

The Vilnius discussions highlighted the increasingly important role of education and outreach in the implementation of the CWC. Many participants presented their national experiences and good practices and underlined the need to expand the reach of the Convention at universities, among scientific communities and in industry to help foster the culture of responsible science worldwide.

The ideas that emerged at the Vilnius gathering will be considered by the Advisory Board and used to bring awareness about the work of the OPCW to various communities in Eastern Europe. One of Advisory Board's key aims is to create such connections and ensure synergies among the activities of many stakeholders.

<https://www.opcw.org/news/article/eastern-european-states-pledge-support-to-opcw-education-and-outreach-efforts/>

ISIS Terrorist Cell Dismantled in Morocco 'Planned to Use Biological Weapons'

February 19, 2016

Rabat – The terrorist that busted on Thursday, is a "real commando" that

planned terrorist attacks this Friday in Morocco, Director of the Central Bureau of Judicial Investigations (BCIJ), Abdelhak Khiame, said.

The ten-member terror cell, whose members pledged allegiance to the so-called Islamic State (ISIS), was planning attacks against public institutions and civil and military figures, Khiame said at a press briefing at the BCIJ headquarters in Salé (Rabat twin city).

What characterizes this cell is the nature of weapons brought from Libya, as they are made from toxic biological and chemical substances which could be used to make explosives, in addition to its recruitment of a French citizen and a 16-year-old man who received training to carry out a suicide car bomb attack, Khiame added.

He added that the cell members, who were active in the cities of Essaouira, Meknès and Sidi Kacem, and their leader (from Laayoune), received, after pledging allegiance to ISIS, several weapons from Libya, and military training near the southern city of Tan-Tan in order to carry out terrorist operations and undermine Morocco's security and stability.

Khiame underlined that the terror cell set up a training camp in Sehb El Harcha (20 km from Tan-Tan), adding that they chose this site because of its resemblance with the zones of ISIS in Syria and Iraq.

Most of the seized arms during this operation are made in Iraq and were smuggled into the Kingdom through Libya, he said, pointing out that the pressure on ISIS in Iraq and Syria has made the group thinking about exporting its activities to Libya, which suffers from instability, and collaborating its operations with other cells in the region through providing them with arms and money.

Among the seized weapons, there were four machine guns, three revolvers, an automatic pistol, a rifle, and important quantities of ammunition and thirteen teargas bombs, four expandable batons, an electric Taser, six plastic bottles containing explosives, foreign passport, four computers and mobile phones.

<http://www.moroccoworldnews.com/2016/02/180240/isis-terrorist-cell-dismantled-in-morocco-planned-to-use-biological-weapons/>

A new report claims that chemical weapons have been used at least 161 times in Syria's five-year civil war and caused almost 1,500 deaths

March 14, 2016

NEW YORK (AP) — As Syria marks five full years of civil war this month, a new report claims that chemical weapons have been used at least 161 times through the end of 2015 and caused 1,491 deaths. It says such attacks are increasing, with a high of at least 69 attacks last year, and 14,581 people have been injured in all.

The Syrian American Medical Society says its report released Monday is the most comprehensive listing of chemical weapons attacks in Syria so far. The U.S.-based nonprofit, which supports more than 1,700 workers at over 100 medical centers in Syria, says the list is based primarily on the reports of medical personnel who have treated victims, aided by NGOs and other local sources.

The organization is asking the 15-member U.N. Security Council and the international community to quickly identify perpetrators and hold them accountable through the International Criminal Court or other means. Much of the report's documentation has been

shared with the global chemical watchdog, the Organization for the Prohibition of Chemical Weapons.

Syria's government has been repeatedly accused by the United States and other Western countries of using chemical weapons on its own people, even after the Security Council in 2013 ordered the elimination of its chemical weapons program following an attack on a Damascus suburb that killed hundreds of civilians.

The council last year also condemned the use of toxic chemicals like chlorine after growing reports of barrel bombs filled with chlorine gas being dropped on opposition-held areas. Chlorine is widely available and not officially considered a warfare agent, but its use as a weapon is illegal. The new report notes at least 60 deaths from chlorine attacks.

The report also says 77 percent of the chemical weapons attacks it documented occurred after the Security Council's order in 2013, and 36 percent occurred after the council condemned the use of chlorine last year.

Syria's government denies using chemical weapons or toxic chemicals on its people. Reports also have surfaced in recent months that the Islamic State group has used toxic chemicals in Syria.

The new report does not assign blame for each chemical weapons attack. That task is for the Joint Investigative Mechanism established last year by the United Nations and the OPCW. It was expected to begin in-depth investigations of a handful of potential cases in Syria this month.

Houssam Alnahhas, a co-author of the report who documented attacks in Syria and now pursues medical studies in Turkey, told The Associated Press that he and fellow Syrians

are losing hope as the Security Council does nothing in response to repeated violations of its own resolutions.

He now saves documentation of any suspected attacks “for history, you know, so next generations will know that chemical agents were used against civilians and the world just watched people die.”

Both Alnahhas and Zaher Sahloul, the senior adviser and past president of the Syrian American Medical Society, said they’ve seen no indication that the current fragile cease-fire negotiated by the United States and Russia has stopped reports of possible chemical weapons attacks.

The report says SAMS has compiled an additional 133 reported chemical attacks during Syria’s civil war “that could not be fully substantiated.”

<http://www.usnews.com/news/world/articles/2016-03-14/161-chemical-weapons-attacks-in-syrias-war-new-report-says>

‘Almost 1,500 killed in chemical weapons attacks’ in Syria

Kareem Shaheen in Beirut, March 14, 2016

Nearly 1,500 people have been killed in chemical weapons attacks in Syria during the five-year civil war, according to a report that highlights the uninhibited ferocity of the conflict.

The attacks amount to a strategic policy to displace civilians in opposition-controlled territory, the report by the Syrian-American Medical Society (Sams) concludes.

The vast majority of the documented attacks and the ensuing civilian casualties were perpetrated by the government of Bashar al-Assad, it says.

“In response to chemical attacks in Syria, the international community sends us more antidotes,” Mohammed Tennari, a doctor in the rebel-held province of Idlib, is quoted as saying in the report. “This means that the world knows that chemical weapons will be used against us again and again.

“What we need most is not antidotes – what we need is protection, and to prevent another family from slowly suffocating together after being gassed in their home,” he added.

The report documents 161 chemical attacks in Syria, details of which were gathered from doctors operating on the ground in the areas that bore the brunt of chemical warfare, and which led to the deaths of 1,491 people and 14,581 injuries due to exposure to chemicals. More than a third of the attacks used chlorine gas, and the vast majority of those came after a UN security council resolution condemning its use.

A further 133 reported attacks could not be fully verified by the organisation, which works with about 100 health facilities in Syria.

The report’s release came as peace talks in Geneva brokered by the US and Russia begin almost five years to the day since protests against Assad erupted in the city of Deraa. The conflict has since led to the killing of almost 500,000 people by some accounts, and displaced half of the country’s population.

The most devastating chemical attack was carried out by the Assad government in August 2013 in the besieged Eastern Ghouta, a sprawling agricultural hinterland near Damascus. The attack used sarin gas and may have killed more than 1,000 civilians.

That incident prompted the brokering of a deal by major powers that dismantled much of Syria’s chemical weapons stockpiles, but

attacks using chlorine have since continued in the country. Moreover, Islamic State has also deployed chlorine and mustard agent in attacks on opposition and anti-Isis fighters.

Last year witnessed the greatest use of chemical agents in the war, with 69 documented attacks, despite the dismantling of much of Syria's stockpile, as the use of nerve agents such as sarin all but ceased, only to be replaced with widespread attacks using so-called "barrel bombs" laced with chlorine.

"Chemical attacks are used strategically to cause civilian displacement in Syria," the report says. "The fear caused by these silent and unpredictable weapons causes civilians to flee in larger numbers than in the aftermath of conventional attacks."

<http://www.theguardian.com/world/2016/mar/14/syria-chemical-weapons-attacks-almost-1500-killed-report-united-nations>

ISIS Carries out Chemical Weapon Attack On Syrian Army: State Tv

Jack Moore, May 4, 2016

The Islamic State militant group (ISIS) has attacked the forces of Syrian President Bashar al-Assad with chemical weapons at an airbase in eastern Syria, the state news agency SANA reported late Monday.

"Daesh (ISIS) terrorists attacked Deir Ezzor military airport with rockets carrying mustard gas, causing some people to suffocate," it said, without elaborating on how many Syrian soldiers had been killed in the attack.

A statement on Syria's state-owned Ikhbariyah television station also said that the group had fired mustard gas in its bid to

capture the military airbase south of Deir Ezzor city. The province is strategically important as it connects the group's fighters in Raqqa with its forces in Iraq.

ISIS has created a unit dedicated to the development of chemical weapons that consists of former Saddam-era engineers as well as foreign experts.

The militant group has previously used mustard gas and chlorine gas in weapons fired at Kurdish forces in northern Iraq and northern Syria and it has the capability to continue making small quantities of chlorine and mustard gas, according to CIA director John Brennan.

Last month, the radical Islamists conducted a gas attack on the northern Iraqi town of Taza, south of the city of Kirkuk, killing three children and wounding approximately 1,500 people. Many reported breathing problems and rashes from the agents used.

The chemical attacks have not been as deadly as the group's suicide bombings across the Middle East, but leave long-lasting physical and psychological damage.

In February, U.S. special forces captured the head of ISIS's chemical weapons unit, Sleiman Daoud al-Afari, a former chemical and biological weapons specialist at Saddam Hussein's Military Industrialization Authority, in a raid in northern Iraq.

The European Parliament released a report in December 2015 warning the European Union's member states to "prepare for the possibility" of an ISIS chemical attack on the continent.

<http://www.newsweek.com/isis-carries-out-chemical-weapon-attack-syrian-army-state-news-agency-444213>

Rumsfeld 'helped Iraq get chemical weapons'

William Lowther, May 23, 2016

US Defence Secretary Donald Rumsfeld helped Saddam Hussein build up his arsenal of deadly chemical and biological weapons, it was revealed last night.

As an envoy from President Reagan 19 years ago, he had a secret meeting with the Iraqi dictator and arranged enormous military assistance for his war with Iran.

The CIA had already warned that Iraq was using chemical weapons almost daily. But Mr Rumsfeld, at the time a successful executive in the pharmaceutical industry, still made it possible for Saddam to buy supplies from American firms.

They included viruses such as anthrax and bubonic plague, according to the Washington Post.

The extraordinary details have come to light because thousands of State Department documents dealing with the 1980-88 Iran-Iraq war have just been declassified and released under the Freedom of Information Act.

At the very least, it is highly embarrassing for 70-year-old Mr Rumsfeld, who is the most powerful and vocal of all the hawks surrounding President Bush.

He bitterly condemns Saddam as a ruthless and brutal monster and frequently backs up his words by citing the use of the very weapons which it now appears he helped to supply.

The question is: Why has he never said anything about his role in the negotiations?

'Donald Rumsfeld has some explaining to do,' a senior Pentagon official said last night, while Congressional sources said that a Senate Committee was considering opening hearings to investigate exactly what happened.

The documents could hardly have been released at a worse time for Mr Rumsfeld, who is building up troops in the Gulf in preparation for a war with Iraq that is generally expected to start in about a month.

They will also embarrass Tony Blair as he attempts to build international support for military action.

And they will cause a headache for the Foreign Office, because the news will be seen by Islamic countries as a prime example of American hypocrisy over the issue.

For years Middle Eastern countries have accused the US of double-talk over Iraq. They are bitterly critical that the American government helped arm Saddam during the 1980s in a war against Iran, which at that time Washington regarded as its biggest enemy in the region.

America's critics are now disgusted by the way the administration has performed a somersault, and now expects them to agree that Saddam's regime should be treated as a pariah.

This will make it even harder to persuade neighbouring states to offer Western troops bases and landing strips vital for such an onslaught.

But one thing was clear last night - President Bush will not let the embarrassment prevent him from forging ahead with his plans to attack Baghdad, and if that does happen Mr Blair will have no choice but to join him in the attack.

It was in late 1983 that Ronald Reagan made Mr Rumsfeld his envoy as the Iranians gained the upper hand in their war with Iraq.

Terrified that the Iranian Islamic revolution would spread through the Gulf and into Saudi Arabia - threatening US oil supplies - Mr Reagan sent Mr Rumsfeld to prop up Saddam and keep the Iranian militants within their own borders.

The State Department documents show that Mr Rumsfeld flew to Baghdad where he had a 90-minute meeting with Saddam followed by a much longer session with foreign minister Tariq Aziz.

‘It was a horrible mistake,’ former CIA military analyst Kenneth Pollack said last night.

‘We were warning at the time that Hussein was a very nasty character. We were constantly fighting the State Department.’

On November 1, 1983, a full month before Mr Rumsfeld’s visit to Baghdad, Secretary of State George Shultz was officially informed that the CIA had discovered Iraqi troops were resorting to ‘almost daily use of chemical weapons’ against the Iranians.

Nevertheless, Mr Rumsfeld arranged for the Iraqis to receive billions of pounds in loans to buy weapons and CIA Director William Casey used a Chilean front company to supply Iraq with cluster bombs.

According to the Washington Post, a Senate committee investigating the relationship between the US and Iraq discovered that in the mid-1980s - following the Rumsfeld visit - dozens of biological agents were shipped to Iraq under licence from the Commerce Department.

They included anthrax, subsequently identified by the Pentagon as a key

component of the Iraqi biological warfare programme.

The newspaper says: ‘The Commerce Department also approved the export of insecticides to Iraq, despite widespread suspicions that they were being used for chemical warfare.’

At the time of his meeting with Saddam, Mr Rumsfeld was working for Searle - a company which dealt only in medicinal pharmaceuticals.

Both he and Searle made all their money from the distribution of a cardiovascular drug.

Under no circumstances did he or Searle have any connection to the production of chemicals which would have been sold to Saddam.

And no one in the US has ever suggested that Mr Rumsfeld had any personal interest at stake in the Iraq meetings.

The Defence Secretary was making no comment last night.

<http://www.dailymail.co.uk/news/article-153210/Rumsfeld-helped-Iraq-chemical-weapons.html>

Terror Alert: ISIS testing chemical weapons on prisoners

Zen Adra, May 22, 2016

The Islamic State of Iraq and Syria (ISIS) is reportedly testing homegrown chemicals like chloride and mustard gas on prisoners they hold in a secret jail in the Nineveh governorate, northern Iraq. The claim was made by residents residing near the alleged prison in Al-Andalus district, who reported of their children suffering severe rashes, in addition to breathing difficulties. The terror

group has also relocated its chemical weapons laboratories to heavily-populated neighborhoods inside its stronghold of Mosul, in order to avoid being targeted by coalition airstrikes. Locals said that ISIS fighters have recently been using houses in the al-Mohandeseen neighborhood – once a wealthy Christian quarter now taken over by ISIS – to carry out chemical experiments. Dozens of dead rabbits and dogs were spotted in the nearby rubbish containers. The ISIS organization has seized chemical stockpiles from both Syria and Iraq and is now thought to be developing its own chemical weapons to attack its enemies. It is also widely believed that it is making use from the expertise of a considerable number of scientists who used to work for the Iraqi government under the reign of Saddam Hussein. The jihadi group has repeatedly launched chemical attacks against the Kurdish fighters in Syria and Iraq.

<https://www.almasdarnews.com/article/terror-alert-isis-testing-chemical-weapons-prisoners/> | *Al-Masdar News*

IRAQI OFFICIALS: ISIS Chemical weapons attack kill child, wound 600

The Islamic State of Iraq and Syria (ISIS) has launched two chemical attacks near the northern Iraqi city of Kirkuk, killing a 3-year-old girl, wounding some 600 people and causing hundreds more to flee, Iraqi officials said Saturday.

“What the Daesh terrorist gangs did in the city of Taza will not go unpunished,” Iraqi Prime Minister Haider al-Abadi said, using an alternative name for ISIS during a meeting with village elders in the small town of Taza on Saturday. “The perpetrators will pay dearly.”

Security and hospital officials say the latest attack took place early Saturday in Taza, which was also struck by a barrage of rockets carrying chemicals three days earlier.

Sameer Wais, whose daughter Fatima was killed in the attack, is a member of a Shiite militia fighting ISIS in Kirkuk province. He said he was on duty at the frontline when the attack occurred early in the morning, quickly ran home and said he could still smell the chemicals in the rocket.

“We took her to the clinic and they said that she needed to go to a hospital in Kirkuk. And that’s what we did, we brought her here to the hospital in Kirkuk,” he said.

Wais said his daughter appeared to be doing better the next day so they took her home. “But by midnight she started to get worse. Her face puffed up and her eyes bulged. Then she turned black and pieces of her skin started to come off,” he said.

By the next morning, Fatima had died, Wais said.

The hundreds of wounded are suffering from infected burns, suffocation and dehydration, said Helmi Hamdi, a nurse at the Taza hospital. He said eight people were transferred to Baghdad for treatment.

“There is fear and panic among the women and children,” said Adel Hussein, a local official in Taza. “They’re calling for the central government to save them.” Hussein said a German and an American forensics team arrived in the area to test for the presence of chemical agents.

U.S. and Iraqi officials said U.S. special forces captured the head of the ISIS unit trying to develop chemical weapons in a raid last month in northern Iraq.

ISIS CHEMICAL WEAPONS EXPERT CAPTURED

CBS News national security correspondent David Martin reported Delta Force commandos captured the Iraqi who had once worked for the regime of Saddam Hussein. After interrogating him, U.S. intelligence was able to identify a building in Mosul where mustard agent was manufactured and loaded into artillery shells.

Video released by the British Defense Ministry shows a building described as an ISIS weapons factory being destroyed by an airstrike last weekend.

By the Pentagon's count, ISIS has mounted a dozen chemical weapons attacks in Iraq and Syria, a fact confirmed by CIA Director John Brennan in a "60 Minutes" interview.

"We have a number of instances where ISIL has used chemical munitions on the battlefield," Brennan said.

CBS' Scott Pelley asked Brennan if ISIS has access to chemical artillery shells.

"There are reports that ISIS has access to chemical precursors and munitions that they can use," Brennan said.

CIA DIRECTOR ON ISIS'S ACCESS TO CHEMICAL WEAPONS

The day before the strike on the chemical weapons building, U.S. aircraft targeted a top ISIS commander, known by the alias Omar the Chechen, who the Pentagon considered to be the equivalent of the group's Secretary of Defense.

U.S. intelligence was trying to confirm if he was in fact killed.

The U.S.-led coalition said the chemicals ISIS has so far used include chlorine and a

low-grade sulfur mustard which is not very potent. "It's a legitimate threat. It's not a high threat. We're not, frankly, losing too much sleep over it," U.S. Army Col. Steve Warren told reporters Friday.

Experts also say the extremist group appears incapable of launching a large-scale chemical weapons' attack, which requires not only expertise, but also the proper equipment, materials and a supply-chain to produce enough of the chemical agent to pose a significant threat.

The coalition began targeting ISIS' chemical weapons infrastructure with airstrikes and special operations raids two months ago, Iraqi intelligence officials and a Western security official in Baghdad told the AP.

ISIS ATTACKS: A TIMELINE OF TERROR

Airstrikes are targeting laboratories and equipment, and further special forces raids targeting chemical weapons experts are planned, the officials said. They spoke on condition of anonymity because they were not authorized to brief reporters.

The extremist group is believed to have set up a special unit for chemical weapons research made up of Iraqi scientists who worked on weapons programs under Saddam Hussein as well as foreign experts.

The group is believed to have created limited amounts of mustard gas. Tests confirmed mustard gas was used in a town in Syria when ISIS was launching attacks there in August 2015. There have been other unverified reports of ISIS using chemical agents on battlefields in Syria and Iraq.

Separately, attacks across Baghdad Saturday killed 13 and wounded 27. The attacks were mostly carried out with homemade bombs placed along roads in the capital's southern and eastern neighborhoods. There were no

immediate claims of responsibility, but ISIS often claims responsibility for bomb attacks in the Iraq capital targeting civilians.

As the group has endured territorial losses in Iraq — most recently the city of Ramadi which was declared “fully liberated” by Iraqi and U.S. officials last month — they have stepped up insurgent style attacks in Baghdad and other areas far from the front lines.

Hamish De Bretton Gordon, a former British army officer and chemical weapons expert, says the use of chemical weapons by ISIS also appears to be linked to losses on the battlefield.

“As they get more and more pushed, we’re seeing them use it more and more often,” he said. “They are trying to prevent defeat.”

The mustard agent that ISIS is using is not very toxic, Gordon says, but “it has a huge physiological impact that far outweighs its physical impacts.”

Fatima’s father Wais said he was planning to return to the frontline with ISIS as soon as possible. “Now I will fight Daesh more than before, for Fatima.”

<http://www.cbsnews.com/news/iraqi-officials-isis-chemical-weapons-attacks-kill-child-wound-600/>

Iraqi Prime Minister vows revenge on Isis following chemical weapons attack; Investigators are now determining what type of chemicals were used

Will Worley, March 13, 2016

The Iraqi Prime Minister has vowed to punish Isis after the group launched two chemical weapons attacks in the last week.

A three year-old girl was killed and 600 people were wounded when rockets carrying chemical substances were used on the Iraqitown of Taza, close to the northern city of Kirkuk.

The wounded suffered from infected burns, suffocation and dehydration, according to local nurse, Helmi Hamdi.

Eight people have been transferred to Baghdad for further treatment and there have been reports that Iranian doctors have been dispatched to the town to assist the medical response.

“There is fear and panic among the women and children,” said Adel Hussein, a local official in Taza. “They’re calling for the central government to save them.”

In a meeting with village elders in Taza on Saturday, Iraqi Prime Minister, Haider al-Abadi, said: “What the Daesh [Isis] terrorist gangs did in the city of Taza will not go unpunished.”

“The perpetrators will pay dearly.”

The girl killed in the attack has been named as Fatima. Her father, Samir Wais, is a member of a Shia militia fighting Isis and was on the frontlines when the attack occurred.

“We took her to the clinic and they said that she needed to go to a hospital in Kirkuk. And that’s what we did, we brought her here to the hospital in Kirkuk,” said Mr Wais.

Fatima’s health appeared to improve, and her family brought her home. However, her condition began to deteriorate.

“By midnight she started to get worse. Her face puffed up and her eyes bulged. Then she turned black and pieces of her skin started to come off,” he said.

Fatima died the following morning.

“Now I will fight Daesh more than before, for Fatima,” Mr Wais said.

Her funeral was attended by hundreds of people; many carrying placards calling for government protection from further attacks.

While chlorine or mustard gas is suspected to have been used, forensics teams from Germany and America have begun work in the area to confirm the type of chemicals used.

The US has acknowledged the use of chemical weapons, including mustard gas, by Isis but is not overtly concerned by their use due to their low potency.

“It’s a legitimate threat,” US Army Colonel Steve Warren said.

However, he continued: “It’s not a high threat. We’re not, frankly, losing too much sleep over it.”

Chemical weapons have been a focus of the anti-Isis coalition efforts for the past two months. Air strikes and special forces raids have been used in an attempt to weaken the ability of Isis to develop or stockpile chemical weapons.

An American special forces unit also captured a “significant” Isis commander last month who was involved in the militant group’s development of chemical weapons.

The man, named in reports as Sleiman Daud al-Afari, is thought to have worked for the Military Industrialisation Authority under the regime of Saddam Hussein, specialising in unconventional weapons.

He allegedly told US officials the militant group had used powdered mustard gas and loaded it into artillery shells.

Some commentators have linked Isis’s use of chemical weapons with the group’s military failures.

Using gas “has a huge physiological impact that far outweighs its physical impacts,” said Hamish De Bretton Gordon, a British chemical weapons expert.

“As Isis get more and more pushed, we’re seeing them use it more and more often. They are trying to prevent defeat,” he added.

<http://www.independent.co.uk/news/world/middle-east/isis-iraq-chemical-weapons-prime-minister-revenge-attack-taza-kirkuk-a6927981.html>

DISARMAMENT

Russian Foreign Minister Calls for New Chemical Weapons Accord

Nick Cumming-Bruce, March 1, 2016

Russia’s foreign minister called on Tuesday for negotiations on a new international treaty to counter the “extremely urgent” threat of chemical warfare by terrorists, as exemplified by attacks by Islamic State forces in Syria and Iraq last year.

“Chemical terrorism is emerging not as an abstract threat but a grave reality of our time,” the minister, Sergey V. Lavrov, told diplomats attending United Nations-sponsored Conference on Disarmament talks in Geneva.

Militants from the Islamic State, also known as ISIS or ISIL, used artillery shells armed with a sophisticated chemical warfare agent, sulfur mustard, in the Syrian town of Marea in August 2015, he said, adding that there was a danger of similar attacks in Libya and Yemen.

Terrorist groups are reported to have acquired scientific and technical documents on the production of chemical weapons, seized chemical plants and engaged foreign specialists to help synthesize chemical warfare agents, Mr. Lavrov added.

Under pressure from Russia and the United States, Syria agreed to the destruction of its chemical weapons arsenal and production facilities under a program supervised by the Organization for the Prohibition of Chemical Weapons and completed in 2014. However, diplomats have questioned whether the Syrian government retained some weapons and whether others might have fallen into the hands of armed opposition groups.

Teams from the organization, which monitors compliance with the Chemical Weapons Convention, concluded that sulfur mustard had been used in fighting around Marea in August 2015 and that toxic chemicals, probably chlorine, had been used in an attack carried out in Idlib Province months earlier. Kurdish forces have also claimed that Islamic State forces used mortar shells armed with sulfur mustard during clashes in northern Iraq last summer.

Mr. Lavrov said that the existing Chemical Weapons Convention, which took effect in 1997, did not adequately address the problem of chemical terrorism and that it would be simpler to negotiate a new international instrument.

He proposed that the treaty be negotiated by the 65-member Conference on Disarmament forum, which completed negotiations on the Comprehensive Test Ban Treaty in 1996 but — as a result of internal rifts — has failed to agree on any measures since then. The new treaty could unify its members and break the deadlock, Mr. Lavrov said.

Because of an editing error, an earlier version of this article misidentified the event the diplomats were attending. It was the Conference on Disarmament, not peace talks.

http://www.nytimes.com/2016/03/02/world/europe/chemical-weapons-terrorist-groups-sergey-lavrov.html?rref=collection%2Ftimestopic%2FBiological%20and%20Chemical%20Warfare&_r=0

Chemical weapons: The day the first poison gas attack changed the face of warfare forever; Since 2005, an annual Day of Remembrance for all Victims of Chemical Warfare has been held on April 29

David Hughes, April 28, 2016

On 22 April 1915, less than nine months into the First World War, the German army unleashed a terrifying new weapon that changed the face of warfare forever.

At around 5pm, across a 6km front, troops released almost 6,000 metal cannisters – 168 tonnes – of poisonous chlorine gas towards trenches held by French and Algerian forces near the Belgian city of Ypres.

The results were devastating. A noxious yellow cloud enveloped the allied positions, and within moments 5,000 soldiers were dead, with another 10,000 injured, as the gas ate into their unprotected lungs.

Field Marshal Sir John French, Commander in Chief of the British force at Ypres, described the attack in his dispatches from the front line. “It was at first impossible for anyone to realise what had actually happened,” he wrote.

“The smoke and fumes hid everything from sight, and hundreds of men were thrown into

a comatose or dying condition, and within an hour the whole position had to be abandoned.”

Poisons and chemicals had been a part of war in some form for centuries, while tear gas had been employed by both French and German forces during the early months of the conflict. However, the use of poison gas in warfare had been prohibited by the Hague Conventions of 1899 and 1907.

Because of this, to Sir John French the Germans’ use of Chlorine was “a cynical and barbarous disregard of the well-known usages of civilised war”. But on 25 September 1915, less than three months after French’s dispatches were published, the British army launched their first such attack.

By the end of the war in 1918 the allies had used more tonnes of gas than the Germans. In total, chemical weapons killed nearly 100,000 people during the conflict, wounding an estimated one million.

As gas masks were distributed, which largely negated the effects of chlorine, the chemicals used became more sophisticated, first with phosgene and then mustard gas, which burned the skin as well as the lungs.

The horrific physical and psychological effects of this new type of warfare would form the basis for some of the most enduring, if harrowing, artistic works to emerge from the conflict.

John Singer Sargent’s 1919 painting “Gassed” remains one of the war’s most iconic images, while Wilfred Owen’s poem “Dulce et Decorum Est” depicts the panic of a chlorine attack: “Gas! GAS! Quick, Boys!”

The use of chemical and biological weapons was banned after the First World War. However, these first gas attacks had already helped to lay the foundation of a new type of indiscriminate, industrial killing.

Mustard gas was used by the Italians in Abyssinia in 1936 and, although neither side deployed gas in open combat during World War Two, gassing vans and the chambers of the Nazi concentration camps helped facilitate the mass-murder of the Holocaust.

Despite the ban being renewed in 1972 and 1993 the use of chemical weapons has persisted, from the mustard gas employed by Iraq during Saddam Hussein’s reign of terror to the alleged use of the nerve agent sarin during the civil war in Syria.

Isis have repeatedly been accused of employing chemical weapons, reportedly using mustard gas against Bashar al-Assad’s forces in battles at the crucial Deir ez-Zor airport in eastern Syria earlier this month.

In February James Clapper, the US Director of National Intelligence, cited ‘numerous allegations’ against the terror group to conclude that they are “using chemicals as a means of warfare”.

Since 2005, an annual Day of Remembrance for all Victims of Chemical Warfare has been held on April 29. The event, chosen because it marks the day the Chemical Weapons Convention was signed in 1997, is officially recognised by the UN.

The Organization for the Prohibition of Chemical Weapons assembled in Ypres last year to commemorate not just the 100th anniversary of the first attack in 1915, but all victims of chemical warfare since.

Buglers played the “Last Post” and Ahmet Uzumcu, the organisation’s Director General, laid a wreath at the Menin Gate Memorial to the missing

<http://www.independent.co.uk/news/world/politics/chemical-weapons-warfare-remembrance-day-poison-mustard-gas-first-world-war-ypres-isis-a7005416.html>

Destruction of Syrian chemical weapons completed

January 04, 2016

Veolia, the US firm contracted by the OPCW to dispose of part of the Syrian chemical weapons stockpile, has completed disposal of 75 cylinders of hydrogen fluoride at its facility in Texas.

This completes destruction of all chemical weapons declared by the Syrian Arab Republic. The need to devise a technical solution for treating a number of cylinders in a deteriorated and hazardous condition had delayed the disposal process.

Commenting on this development, the Director-General of the OPCW, Ambassador Ahmet Üzümcü, said: “This process closes an important chapter in the elimination of Syria’s chemical weapon programme as we continue efforts to clarify Syria’s declaration and address ongoing use of toxic chemicals as weapons in that country.”

<https://www.opcw.org/news/article/destruction-of-syrian-chemical-weapons-completed/>

NEW DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

ISIS Developing Plague Bio Weapon — Pentagon Believes ISIS Used Chemical Weapons

Amber William, February 19, 2016

I know it sounds crazy, but reliable reports claim that ISIS now is using chemical weapons, but worse than that, it has biological weapons under development at well-funded labs in Syria.

Director of National Intelligence James Clapper appeared before the Senate Armed

Services Committee yesterday and confirmed that ISIS not only has produced a chemical weapon, but has now used it.

According to former Navy Seal, Rob O’Neill – the man who shot Osama bin Laden – the new chemical weapon is an colorless, odorless blistering agent. He explained on Fox News this morning that this is just the tip of the iceberg and that even more deadly weapons are under development.

The Pentagon confirms to CBS News that it has deemed credible reports that ISIS used chemical weapons against Kurdish peshmerga fighters in Iraq. Chris Harmer, senior naval analyst for the Institute for the Study of War, explains the attack to CBSN’s Vladimir Duthiers.

THE BIOLOGICAL THREAT

Biological weapons are particularly attractive to governments and other organizations in developing nations due to their low production cost. In 1969 dollars, biological weapons only require a one-dollar expenditure to produce fifty percent casualties per square kilometer. In comparison, conventional weapons would require an expenditure of two thousand dollars, and nuclear weapons would cost eight hundred dollars to produce comparable results. Because of their low cost, it is easy for terrorist groups to buy them. The obtainment of biological agents is aided by wide availability, since academic institutions and pharmaceutical companies typically carry them.

When choosing a pathogen to use as a biological weapon, toxicity, ease of production, and stability must be considered. The United States determined toxicity levels of many pathogens in mice during its offensive biological weapons program in the 1950’s and 1960’s. Comparing those values with the quantity of the agent needed to

provide sufficient aerosol exposure in an area of one hundred kilometers, the effectiveness of an agent was calculated. To make an effective weapon, an agent had to be of adequate toxicity; otherwise, the amount needed to produce even one weapon would reach into the tons! Required amounts of effective toxins in weapons, on the other hand, are only measured in kilograms.

When using a biological warfare agent, there are several options for its dissemination. An explosive device, like a bomb or a missile, could be used, but there is a large probability that the agent would be deactivated by the blast. An attempt to place the agent in a food or water supply is another possibility. However, the large amount of toxin that would be needed to make the attack successful would be impractical. While its level of success is dependent upon optimal weather conditions, the most effective way to deliver a biological weapon agent is through aerosolization. Methods of delivering toxins in this manner include using agricultural crop-dusters, aerosol generators on boats, trucks or cars, or even, on a very small scale, a perfume atomizer.

For an agent to be prepared for aerosol delivery, it must fall within specific size parameters. To reach the inner areas of the lung, particles must be in a size range of 0.5-5.0 microns. If they are larger than this, they will be cleared from the lungs by respiratory mucus, and if they are smaller, they will simply float in and out of the lungs without settling. A toxin can only be used as a biological weapon if it can be manufactured to be within these specific size parameters.

Stability plays a large role in the effectiveness of aerosol toxins. While it may have high toxicity, the agent may simply be too unstable in air to be used. An agent must have the ability to be suspended in the

atmosphere for extended periods of time to be utilized as an efficient biological weapon. After evaluating all of the factors, many toxins exist that would be suitable for use in attacks. Anthrax, botulism, smallpox, ricin, and plague are a few of the most toxic agents that experts believe would be first used in biological warfare.

DEFENDING OURSELVES

Large-scale defense against biological attack is extremely difficult since most biological weapon strikes are covert. However, extensive research is underway to protect our country in the event of a biological attack. Detectors to measure the amounts of toxins in the air are being developed. Vaccines and antibiotics are being produced, and continuing research yields increasingly effective drugs. Programs to educate physicians and hospitals about the symptoms and treatment of persons infected by biological toxins are being developed. Municipal governments are being educated on the procedure for handling a localized epidemic. On a more personal note, you can help protect yourself from an attack by purchasing a gas mask, since biological weapon strikes are mainly aerosol. Be sure to have your gas mask leak-tested, and make sure that the mask fits you properly, forming an airtight seal about your face.

Due to moral and ethical reasons, the vast majority of governments have banned biological weapons development. In an attack, thousands of innocent civilians could be placed at risk, and the possibility of mass panic could cause the toxin to spread far beyond the initial area of attack, setting off a subsequent chain of infection. Tragically, ethical concerns have not hindered the development of advanced biological weapons by some countries and terrorist groups. Today, the world must hope that a large-scale biological attack from one a rogue group

does not occur, and prepare itself in case the worst does happen.

<http://beforeitsnews.com/self-sufficiency/2016/02/isis-developing-plague-bio-weapon-pentagon-believes-isis-used-chemical-weapons-2500876.html>

Isis chemical weapons: Russia says militants have developed dirty bombs as UN finds sarin evidence in Syria; The UN says blood sample tests show the use of ‘sarin or a sarin-like substance’ in Syria attacks reported to it by the regime

Adam Withnall, January 5, 2016

The Isis militant group is likely to be using chemical weapons against its enemies in Syria and Iraq, Russia has claimed, after evidence of exposure to deadly nerve agents was reported by the UN.

The Organisation for the Prohibition of Chemical Weapons said it was investigating 11 alleged chemical weapon attacks reported to it by the Syrian government, and that in at least one case blood samples suggested “exposure to sarin or a sarin-like substance”.

The UN watchdog did not specify when or where the attacks took place, but raised the concerns in its latest monthly report.

The Syrian government, widely held responsible for the deaths of hundreds when sarin-filled rockets were fired on residential areas of a Damascus suburb in 2013, says it has handed over all its chemical weapons stockpiles. The OPCW said the last shipment of those was destroyed in a bulletin on Monday.

Russia’s foreign ministry said the OPCW’s findings made it a “very high” probability Isis has developed its own nerve agents, and called for an urgent investigation.

The Syrian government has long blamed alleged chemical weapons attacks – including the 2013 atrocity – on rebels, despite Western claims the opposition groups lack the technology to develop them.

Isis, on the other hand, has captured former government stockpiles and laboratories and has access to the right experts to “aggressively pursue” a chemical weapons programme, Iraqi and US officials have said.

In his report, the OPCW chief Ahmet Uzumcu said the source of the sarin or sarin-like compound detected in tests was unclear, while the UN’s fact-finders “did not come across evidence that would shed more light on the specific nature or source of the exposure”.

“Further investigation would be necessary to determine when or under what circumstances such exposure might have occurred,” he said.

Mr Uzumcu’s report was attached by UN Secretary-General Ban Ki-moon in a letter dated 29 December to the 15-nation Security Council.

And in its response, Russia’s minister for non-proliferation and control of weapons said it tallied with “facts of the probable use of chemical weapons by Isis militants and in a broader sense by Islamic radicals”.

According to the state-owned Sputnik news outlet, Mikhail Ulyanov said: “Since facts are shown in one direction, then we believe the probability that the weapons are being used by militants is very high.”

Usually converted from a colourless liquid to a gas for use in rockets, sarin is regarded as a weapon of mass destruction and was banned by the UN Chemical Weapons Convention of 1993. It is 20 times more

deadly than cyanide, and can lead to death by asphyxiation within minutes.

Since the Syrian government agreed to destroy its stockpiles following the 2013 Damascus attack, the OPCW has recorded uses in Syria of more minor chemical weapons including chlorine and ammonia. Isis has previously been accused of using sulphur mustard in an attack in August that killed a baby.

And last month, online activists and opposition fighters accused the Assad regime of using chemical weapons in rocket and barrel bomb attacks on the rebel-held Damascus suburb of Muadhmiya, in which at least five people allegedly suffocated to death.

<http://www.independent.co.uk/news/world/middle-east/isis-chemical-weapons-russia-says-militants-have-developed-dirty-bombs-as-un-finds-sarin-evidence-in-a6797521.html>

ARMS CONTROL

OPCW Assists Paraguay in Enhancing Chemical Emergency Preparedness and Response

May 12, 2016

Fourty Paraguayan first responders acquired new skills in emergency preparedness and response during a training facilitated by the Assistance and Protection Branch of the Technical Secretariat of the Organisation for the Prohibition of Chemical Weapons (OPCW).

In his opening remarks on behalf of the participants, fire-fighter Commander Captain Christian Monges said, “We appreciate the opportunity to build up our skills during this training, and warmly

welcome the contribution of international institutions to boost our national response capacity to chemical warfare agents and toxic industrial chemicals”.

The participants represented the police, army, firefighting and emergency medical services. They participated in practical exercises in a variety of emergency response procedures. As many of those attending the course had already had some first responder experience from chemical incidents in Paraguay, they used the meeting as an opportunity to exchange lessons learned to improve their performance and increase coordination among national institutions in case of future incidents.

The training was a joint effort of Czech, Paraguayan and OPCW experts organised by the Instructor Development and Exchange Programme run by the OPCW’s Assistance and Protection Branch. It helped the first responders who were part of a national training provided by the OPCW to Paraguay a few years ago to refresh their skills and knowledge.

This effort to build capacity supports wider OPCW’s initiatives to strengthen emergency response capabilities and expand the network of first responders in the Latin American and Caribbean region.

<https://www.opcw.org/news/article/opcw-assists-paraguay-in-enhancing-chemical-emergency-preparedness-and-response/>

OPCW Convenes Inaugural Experts Group Meeting on Green Chemistry

April 21, 2016

The Organisation for the Prohibition of Chemical Weapons (OPCW) hosted the first

Expert Group Meeting on Green/Sustainable Chemistry Applications in Industries Involving Toxic Chemicals in The Hague on 15 April 2016. The group includes representatives from industry, academia, and international organisations from across the globe.

OPCW Director-General, Ambassador Ahmet Üzümcü, underlined the relevance of this Expert Group Meeting for the chemical weapons agenda by emphasising, “The promotion of peaceful uses of chemistry and a culture of safety and security among chemistry professionals is at the heart of the OPCW mandate.” The Director-General also expressed his hope to get as close as possible to eliminating the need for toxic chemicals used in industrial and other applications.

During this inaugural meeting, the participants presented their activities in the field of green chemistry, including scientific research as well as educational and capacity building initiatives. They shared thoughts on avenues of collaboration between science and industry and they debated the needs, feasibility and benefits of application of green chemistry in industry.

Participants expressed their appreciation for the OPCW engaging the issue of green chemistry. They also developed, for the OPCW’s consideration, recommendations on steps to further enrich collective efforts promoting chemical safety, security and sustainability, including by providing assistance to mitigate risks due to the use of toxic chemicals in industry.

<https://www.opcw.org/news/article/opcw-convenes-inaugural-experts-group-meeting-on-green-chemistry/>

Latin American and Caribbean Experts Receive Training in Chemical Safety and Security

April 29, 2016

The Organisation for the Prohibition of Chemical Weapons (OPCW) in cooperation with the National Authority of Brazil conducted a practical workshop on chemical safety and security for Latin American and Caribbean experts in São Paulo, Brazil from 18 to 20 April 2016.

The objective of this initiative is to increase the capacity of States Parties to the Chemical Weapons Convention (CWC) to address chemical safety and chemical security issues, while making use of Brazil’s experience in this field.

Participants included 38 experts from 16 countries (Angola, Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Panama, Paraguay, Peru, Saint Lucia, Spain and Venezuela). The group was diverse as it included government officials responsible for regulating chemical industry, chemical industry representatives, academics and chemists.

The programme covered a wide range of useful topics such as: Brazilian experience in safety management in chemical industries; industry outreach; chemical safety and security risk assessment for accident prevention and preparedness; simulation technologies applied to risk assessment; chemical safety and security hardware; identification and response to the threat of chemical weapons by the industry; and chemical security threats and mitigation strategies.

Participants shared information, experience and lessons-learned from chemical incidents in their countries.

The Brazilian chemical industry contributed meaningfully to making this training a success. The Brazilian chemical industry association (ABIQUIM) gave presentations, and Oxiteno chemical facility in Tremembé, São Paulo hosted a study visit to their premises.

<https://www.opcw.org/news/article/latin-american-and-caribbean-experts-receive-training-in-chemical-safety-and-security/>

Director-General Addresses Challenge of Chemical Terrorism at NATO Conference in Slovenia

May 11, 2016

The Director-General of the Organisation for the Prohibition of Chemical Weapons (OPCW) Ahmet Üzümcü addressed the NATO Conference on Weapons of Mass Destruction (WMD) Arms Control, Disarmament and Non-Proliferation where he spoke about some of the security challenges facing the OPCW.

The two-day conference attracted the participation of more than 100 senior officials from more than 50 NATO and partner nations. Representatives from several major international organisations also gathered for the event.

In his keynote speech [PDF - 93 KB], Director-General Üzümcü summarised the current status of OPCW activities in the Syrian Arab Republic, and addressed the Organisation's approach to countering chemical terrorism. While noting that the OPCW has achieved success in realising tangible disarmament achievements, he stated that prevention of the re-emergence

of chemical weapons stands among the Organisation's greatest future challenges.

His remarks further illustrated that the recent experiences drawn from OPCW activities in Syria and Iraq have equipped the Organisation with several new and innovative approaches. In particular, Ambassador Üzümcü highlighted that the activities of the Declaration Assessment Team, the Fact-Finding Missions, and the OPCW-UN Joint Investigative Mechanism have contributed to set a "new operational paradigm" for the OPCW's work.

He also underscored the value of partnerships to counter the development and use of chemical weapons by non-state actors.

"In recognition of the growing challenge of chemical terrorism, the OPCW's cooperation with NATO and other international and regional organisations is essential to hinder the ambitions of non-state actors that may wish to develop and use chemical weapons," the Director-General said.

The Twelfth Annual NATO Conference on WMD Arms Control, Disarmament and Non-proliferation took place from 9 to 10 May 2016 in Ljubljana, Slovenia.

During his visit to Ljubljana, the Director-General also met with Ms Darja Bavda•Kuret, State Secretary, Ministry of Foreign Affairs, Mr Miloš Bizjak, State Secretary, Ministry of Defence, and Mr Alojz Grabner, Director of the Chemicals Office of the Republic of Slovenia.

In his meetings with Slovene officials, the Director-General provided briefings on the latest developments regarding the OPCW's activities in Syria, and further expressed his appreciation for Slovenia's strong support for implementation of the Chemical Weapons Convention.

<https://www.opcw.org/news/article/director-general-addresses-challenge-of-chemical-terrorism-at-nato-conference-in-slovenia/>

US, South Korea training focuses on North's chemical weapons

Seth Robson, March 15, 2016

RODRIGUEZ RANGE, South Korea — North Korea might be threatening to use nuclear weapons to turn the U.S. and South Korea into a “sea of fire,” but a group of U.S. and Republic of Korea soldiers here are spending this week focusing on the rogue nation’s potential chemical weapons stockpile.

On Tuesday afternoon, ROK army K-200 tracked armored personnel carriers and U.S. Strykers rolled up to the edge of a mock village at this live-fire training area near the Demilitarized Zone.

Soon, squads of gas-mask-wearing troops were storming buildings and running through drills they would need to complete to secure North Korean chemical weapons in the event of war.

“The scenario is that this (mock village) is a chemical munitions facility,” said 1st Lt. Zak Knowles, a platoon leader with 1-2 Stryker Brigade Combat Team out of Fort Lewis, Wash. “The enemy has placed blocking positions to disrupt our route. One building is where they are making the chemical munitions; our objective is to secure the site.”

First Lt. Min Ku Park, 25, a platoon leader with the 137th Mechanized Battalion, 8th Infantry Division, of the Republic of Korea Army, said the gas masks and other protective gear that the troops wear to protect themselves was uncomfortable.

“Today we are just wearing the masks,” Park said. “It’s not as uncomfortable as when you have the boots and coveralls on.

Still, the U.S. and Korean troops performed well together during the exercise, he said.

“They are friendly, and they try hard to communicate even though there is a language barrier,” Park said of the 1-2 soldiers doing the chemical weapons training alongside his men.

The Fort Lewis unit is halfway through a Pacific Pathways deployment that has already taken a battalion of its troops and equipment to Thailand. The 1-2 SBCT, which brought 12 Strykers to Korea, will then head to the Philippines to take part in the annual Balikatan exercise.

Every one of 1-2 soldiers in Korea will have completed the chemical weapons mission training by the end of the week, said Knowles, 24, of Williamsburg, Va.

He said the soldiers understand the need for training, especially with fiery rhetoric coming out of North Korea. The exercise is part of large joint military drills between the U.S. and South Korean militaries. It’s being held at a particularly tense time on the peninsula.

The U.N. Security Council recently slapped new sanctions on Pyongyang for conducting a nuclear test and ballistic missile launch earlier this year. North Korea on Tuesday took a slap at the sanctions Tuesday when leader Kim Jong Un warned it soon would carry out another nuclear test and try out several types of ballistic missiles capable of carrying nuclear warheads.

The tension between the two sides is an issue for the U.S. soldiers, whose families back home are watching news reports about the situation on the peninsula, Knowles said. It

brings home the real threat in Korea to soldiers, but it's been a fact of life for years.

The first sergeant of the U.S. company training on Tuesday, Sean Rosenthal, 32, of Fort Worth, Texas, said he has plenty of experience conducting conventional raids thanks to four deployments to Iraq, but this is his first trip to Korea.

Part of Tuesday's chemical weapons training involved dealing with civilians on the battlefield.

During one scenario, the American and Korean soldiers went house to house in the village searching for chemical weapons. When they ran a role player acting as a civilian on the battlefield, one soldier detained and watched him closely while others searched the building.

Rosenthal said the raids are a novelty for many of his young soldiers, who have trained only for direct action.

"Going through the briefing and finding out what they have going on around here ... it's pretty crazy," Rosenthal said.

Spc. Elijah Dickson, 25, of Kingston, Tenn., a medic with 1-2, said soldiers headed into a region where there is a threat carry syringes loaded with antidotes to nerve agents with which they can inject themselves in an emergency.

If troops encounter chemical weapons on the battlefield, their priority is to complete the mission and deal with the consequences later. Medics can treat symptoms such as convulsions with Valium, he said.

However, the protective gear means there are limits to the treatment that can be provided. For example, you can't take a

pulse when someone's wearing a protective suit, he said.

<http://www.stripes.com/news/us-south-korea-training-focuses-on-north-s-chemical-weapons-1.399354>

**Dando, Malcolm,
(2015), *Neuroscience
and the Future of
Chemical-Biological
Weapons*, London,
Palgrave Macmillan ,
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Summary

The recent developments in the field of Neuroscience possess a scope for efficient delivery of Chemical and Biological Weapons. The book seeks to educate and create awareness on the weapons conventions and the role that the scientific community at large needs to play.



The weapons that affect the nervous system are so relevant among the defence community that the researches on those weapons which started post World War are still continuing. The latest use of chemical weapons (nerve agent sarin) in Syria is a shocking reminder of the existence and the damages it could do to humanity. Malcolm Dando's book *Neuroscience and the Future of Chemical-Biological Weapons* attempts to capture the potential of neuroscience in the weapons in making and advocates awareness to the readers of the uses and misuses. The author acknowledges the recent developments in the field of science and technology like nano-technology that has expanded the scope of research by promising efficient delivery mechanisms. The book focuses on the core theme that the author wants to drive home to the scientific community-Dual Use Research Concern (DURC): The research that could be used for beneficial proposes and at the same time misused for harmful purposes. The author interestingly notes that it is mostly the beneficial research of providing solutions for brain related disorders and mental illness that is carried forward for military purposes.

The book is divided into three parts; the past, present and the future of neuroscience. This has been discussed with the help of twelve chapters with relevance to the weapons conventions. The two major ongoing projects - One by the United States called the 'US BRAIN Initiative' and the other by the European Union called the 'The EU Human Brain Project' delineates the past from future. The author has enriched the content by quoting a number of researchers as well as various reports from the field of neuroscience.

The Part I of the book which covers four chapters that talks about the history of

neuroscience research, the chemical and biological weapons and its types, the summary of weapons convention and introduces the user about the DURC. Chapter I of the book introduces the user to the field of neuroscience and provides a brief introduction of the chemical weapons, biological weapons and toxins. Chapter II talks about structure and functions of the brain is the only purely technical chapter that stand out from others - explains how Neurotransmitters like noradrenaline and acetylcholine are manipulated to produce adverse effects in humans. It exposes the readers to how weapons that impact the nervous system could cause adverse effects. Chapter III introduces the readers to the non-proliferation regimes related to Chemical and Biological Weapons. It deliberates on three international agreements - the 1925 Geneva Protocol, the 1975 Biological and Toxin Weapons Convention (BTWC) and the 1997 Chemical Weapons Convention (CWC) with major focus on the latter two. Chapter IV introduces the challenges that neuroscience research faces in the form of DURC. Two major DURC experiments that find mention are the gain-of-function experiments and mouse pox experiment. Two reports relating to dual-use are discussed in detail - the Fink committee Report titled *Biotechnology Research in an Age of Terrorism* and The Lemon-Relman Report titled *Globalization, Biosecurity, and the Future of the Life Sciences*. The Fink Committee's first recommendation of 'Educating the scientific community' is what precisely the book is intending to do.

Part II of the book covers five chapters and discusses how modern advances in neuroscience could be misused. Chapter V of the book highlights the modern developments in civil neuroscience. The two current research projects that seek to explore the intricacies of the human brain

are explained in detail. The 'US BRAIN Initiative' seeks to understand how the brain produces a particular behaviour and 'The EU Human Brain Project' seeks to construct a supercomputer that could simulate a brain. Both the projects could be misused for malignant purposes and this is precisely what the author is concerned about. He notes that there is no mention of the Chemical and Biological Weapons convention and its possibility of misuse. Chapter VI examines the novel neuro-weapons and their concerns. The author is apprehensive of the increasing interest and development of non-lethal weapons and incapacitating chemical agents. Chapter VII is an add-on to the previous chapter where the author is concerned about the possible manipulation of human behaviour considering the advances taking place in the field of neuroscience. The chapter focuses on neuroparasitology where knowledge on malign manipulation of host behaviour by parasites could lead to advances in human behaviour manipulation. Chapter VIII deals about incapacitants, a continuation of what the author discussed in Chapter VI. The dual-use nature of such incapacitants are also discussed. Chapter IX talks about toxins and bioregulators and other mid-spectrum toxins and bioregulators which do not fall into either CWC or BTWC. The author also introduces the readers to the Australian Group regime which regulates toxins. Part II of the book discusses current research in the field of neuroscience and dwells less on weapons convention.

Part III of the book covers three chapters and dwells on how the conventions have catered with the scientific and technological developments and what it could offer in the future. Chapters X and XI examine how well the BTWC and CWC have incorporated the scientific developments like nanotechnology, bioregulators, peptides and have handled the dual use concerns. The author continues on the history of Chemical and Biological

Weapon conventions that was partly discussed in Part I of the book and discusses in detail of the five yearly Review Conferences including the latest 2013 third review conference of CWC and the 2011 Seventh Review Conference of BTWC. In analysing the Conventions the author identifies more scope for effective policies that could protect misuse. In the final Chapter XII, the author examines on how to tackle the problem of dual-use. He stresses on the increased role of neuroscientists in tackling the biosecurity problem and emphasises the significant role played by the scientific community that led the US to abandon its offensive biological weapons. The author identifies areas where the work is still incomplete - like the bringing Other Chemical Production Facilities under verification, restricting the interpretation of 'peaceful' uses of weapons under the General Purpose Criterion clause of CWC and BTWC. The author concludes the book with a few recommendations - Educating neuroscientists on dual use research, Careful publication of research to avoid misuse of the same, helping in policy-making by guiding the policy/decision-makers in creating an environment that does not unduly restrict research and at the same time impede possible misuse.

The book is enriching in content and well analysed. The literature review is comprehensive as it covers a lot of reports and includes the opinions of neuroscience researchers in the field. The content focuses on three major areas - neuroscience, chemical and biological weapon regimes and the dual-use nature of research. The author's approach to compartmentalise the content into Past, Present and Future overflows at a few places. Part I of the book is the only part which gives equal importance to all the three areas. The introduction of the Australia Group regime in Part II (Present), evaluating the regimes in Part III (Future),

explaining the technicalities of neurotransmitters in Part I (Past) is a disconnect in the flow of the book. The role played by neuroscientists to prevent misuse of research, though discussed in the concluding chapter, seems more generalised. It is to be acknowledged that the book, seeks to disseminate knowledge on the dual-use of neuroscience that the scientific community should be aware of, citing many reports, adds value to the literature.

The book contains rich source of information about neuroscience as well as the Weapon Convention regimes that any scholar working or researching in the field needs to know - be it scientists, policy makers, biologists or students of International Relations. The author who is a biologist and a practitioner in arms control and disarmament, has used his expertise in both the areas to write the book. The book is as a significant contribution to the existing literature on the given subject.

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