

EDITORIAL 3

INVITED ARTICLES 4

Accomplishments in the Elimination of Chemical Weapons - A Fact Sheet
Col. (Retd) H. R. Naidu Gade

COVER STORY 9

CWC and OPCW: Future Course and Challenges
Dr. Rajiv Nayan

COUNTRY PROFILE 13

Syrian Civil War and the Chemical Weapons Use
Dr. Swati Bute

OPINION 16

Ricin-laced Letter to Obama; Recurring threat calls for long term solutions
Mr. Sanjeev Kumar Shrivastav

KALEIDOSCOPE 19

Kenneth N. Waltz on NBC Weapons
Mr. Kapil Patil

CHEMICAL AND BIOLOGICAL NEWS 22

BOOK REVIEW 34

Weapons of Mass Destruction: The New Face of Warfare
Mr. Parveen Bhardwaj

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Weapons of Mass Destruction: The New Face of Warfare

Mr. Parveen Bhardwaj

Editorial

Executive Editor

Ajey Lele

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Avinash Anil Godbole

The last couple of months have witnessed major instances of chemical weapons use by disgruntled individuals and terrorist organizations. Reports of the use of chemical weapons in Syria have greatly disturbed the international community. In another shocking incident, letters containing ricin were sent to the US President Barack Obama. There have also been reports that the Taliban had used chemical agents to poison water sources of a girls' school in Afghanistan.

This issue of CBW is published in the backdrop of the recently concluded Third Review Conference of the Chemical Weapons Convention (CWC) (April 8 - 19, 2013). In this issue, H. R. Naidu Gade discusses the CWC's accomplishments towards a total elimination of chemical weapons. Rajiv Nayan brings out the possible challenges and the path ahead for the OPCW and CWC.

Sanjeev Shrivastav analyses the incident in which ricin laced letters were sent to the US President Obama.

The country profile section covers the Syrian war and the possible use of chemical weapons and the Kaleidoscope section analyses the late Kenneth Waltz's contribution to the debate on weapons of mass destruction including the chemical and biological weapons.

This issue also features other regular sections like Chemical and Biological News and Book Review.

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 or gunjsingh@gmail.com

Accomplishments in the Elimination of Chemical Weapons - A Fact Sheet*

Col. (Retd) H. R. Naidu Gade

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Summary

Chemical Weapons Convention (CWC) that was signed in January 1993 and came into force in 1997 could now be viewed as the most successful arms control mechanism. However, with eight countries still not signatory to the CWC and with approximately 25% of declared weapons stockpile remaining undestroyed as yet, the CWC is still a work in progress.

Introduction

1. The Chemical Weapons Convention (CWC) on 'the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction' was signed in January, 1993 in Paris. The Convention entered into force on 29 April 1997. The Convention is unique in nature as it provides for a stringent verification regime, provisions for challenge inspections in case of non compliance concerns and investigations of alleged use of Chemical Weapons (CW). The Organization for Prohibition of Chemical Weapons (OPCW) in The Netherlands is responsible for the effective implementation of CWC.

Key Components Of CWC

2. *Destruction of CW stock:* The most important obligation under the Convention is the destruction of all CW. This includes Chemical Warfare Agents (CWA), filled and unfilled chemical munitions, Old and Abandoned Chemical Weapons. Destruction of CW is the most expensive and time consuming aspect of the implementation of the Convention. Most of the destruction costs are generated by the investment in state-of-the-art technology to ensure that the risk to people and to the environment is kept to a minimum at every stage in the transportation and destruction of munitions, as well as during the removal and destruction of chemical agents. Destruction, therefore, has to be carried out at highly specialized facilities.
3. *Non Proliferation of Toxic Chemicals and their Precursors:* Each State Party shall adopt the necessary measures to

ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention.

4. *Assistance and Protection against CW*: Every State Party to the CWC has the right to request assistance from the OPCW in any of the following circumstances: a) the State Party considers CW to have been used against it, b) the State Party considers riot control agents to have been used against it as a method of warfare, or c) the State Party considers itself to be threatened by actions prohibited by the Convention taken by another country.
5. The Convention explicitly states that all States Parties have the right to conduct research into, develop, produce, acquire, transfer and use means of protection against chemical weapons.
6. The Convention envisages commitment to work together to promote the peaceful application and use of chemistry for the purposes of economic and technological development of countries.
7. *Universality Principle*: It aims that all countries in the world become parties to the CWC. Adherence to the CWC demonstrates a state's commitment to disarmament and international cooperation, and helps to reinforce its position in the mainstream of international politics.
8. *National Implementation Measures*: OPCW Secretariat helps the States

Parties to meet their obligations under Article VII of the Convention. This includes, establishing national authorities for effective liaison with the OPCW, taking the necessary steps to enact legislation, including penal legislation and to adopt administrative measures to implement the Convention, identifying declarable chemical industry and trade activities and submitting accurate declarations.

Status Of Implementation Of CWC

9. *Participation in CWC*: As of 01 May 2013, CWC's membership was as follows;
 - a. Number of State parties – 188 representing 98% of global population,
 - b. Number of signatory states that had not yet ratified the Convention – 2 (Israel and Myanmar),
 - c. Number of States that had neither signed nor acceded to the Convention – 6 (Egypt, DPR Korea, Syria, Somalia, South Sudan and Angola).
10. *Submission of Declarations*: Total of 180 of the 188 States Parties had submitted initial declarations to the OPCW. Seven states Parties (A State Party, Albania, India, Iraq, the Libyan Arab Jamahiriya, the Russian Federation and the United States of America) had between them declared as CW 71,196 metric tonnes of CWA and precursors, as well as 8,679,150 munitions and containers. In total, 5,382 industrial facilities and plant sites in 80 States Parties were declared in connection with the chemical-industry verification regime.
11. *Verifications of CW Stockpile*: Hundred percent of the declared CW stockpiles have been inventoried and verified. Since April, 1997, the OPCW has conducted 5,076 inspections on the territory of 86

- States Parties, including 2,677 inspections of CW related sites. 223 CW related sites have been inspected out of a total of 223 declared.
12. *CWA Destroyed*: A total of 55,939 metric tonnes, or 78.57%, of the world's declared stockpile of 71,196 metric tonnes of CWA have been verifiably destroyed. Albania, India and a State Party have completed destruction of their CW. A total of 3.95 million, or 45.56%, of the 8.67 million chemical munitions and containers covered by the CWC have been verifiably destroyed. Iraq is yet to commence destruction of its declared CW stock. A destruction deadline has yet to be established for Iraq, which acceded to the Convention in 2009. Three possessor States Parties, namely Libya, the Russian Federation, and the United States of America, have been unable to fully meet the final extended deadline of 29 April 2012 for the destruction of their CW stockpiles.
 13. In accordance with the 'Detailed Plan for the Destruction of Chemical Weapons Remaining After the Final Extended Deadline of 29 April 2012' submitted by these States Parties,
 - a. Libya plans the destruction of the remaining Category 1 CW by December, 2013, Category 2 CW by December, 2016 and Category 3 CW by May, 2013,
 - b. Russian Federation plans the destruction of remaining Category 1 CW by December, 2015
 - c. United States of America plans the destruction of the remaining Category 1 CW by September, 2023.
 14. *Declared and Destroyed/Converted CWPFFs*: Thirteen States Parties have declared CWPFFs. They include Bosnia and Herzegovina, China, France, India, the Islamic Republic of Iran, Iraq, Japan, the Libyan Arab Jamahiriya, the Russian Federation, Serbia, the United Kingdom of Great Britain and Northern Ireland, the United States of America, and another State Party.
 15. One hundred percent of the declared Chemical Weapons Production Facilities (CWPFFs) have been inactivated. All are subject to a verification regime of unprecedented stringency. 64 of the 70 CWPFFs declared to the OPCW by 13 States Party have been either destroyed (43) or converted for peaceful purposes (21). A total of 451 inspections were carried out on all the declared CWPFFs.
 16. *Declared and Verified Chemical Weapons Storage Facilities (CWSFs)*: Total of 468 inspections, at the 35 CWSFs of 7 States Parties, have been carried out.
 17. *Declared CWDFs (Operational & Under Construction)*: Thirty Five Chemical Weapons Destruction Facilities (CWDFs) belonging to 6 States parties were involved in the destruction of CW stockpiles. A total of 1562 continuous monitoring inspections were carried out at these facilities.
 18. *Declared and Destroyed ACWs/OCWs*: Since 1997, 114 inspections of 49 Old Chemical Weapons (OCW) sites in 15 states parties and 80 inspections of 34 Abandoned Chemical Weapons (ACW) sites in 3 states parties were undertaken.
 19. Fifteen States Parties had declared a total of 60,398 OCWs produced before

- 1925 and 71,822 OCWs produced between 1925 and 1946. About 20,000 pre-1925 OCWs and 18,000 OCWs produced between 1925 and 1946 are yet to be destroyed.
20. Destruction of 25,974 CW abandoned by Japan on the territory of China was verified as destroyed on the ongoing operations at the Abandoned Chemical Weapons Mobile Destruction Facility (ACW-MDF) at Nanjing, China. States Parties had achieved so far the destruction of 35,931 items of ACW.
 21. *Declaration of Riot Control Agents*: Of the 179 States Parties that had submitted initial declarations under Article III, 176 States Parties submitted information on riot control agents (RCAs). Of the 176 States Parties that provided information on their RCAs, 130 declared possession of RCAs, while 46 States Parties declared that they did not possess RCAs.
 22. *Declared and Inspectable Schedule Chemicals Facilities*: So far the OPCW has conducted 2399 inspections of 5382 industrial sites of a total of 5334 sites declared. It includes,
 - a. Schedule 1 Chemicals – 27 declared facilities.
 - b. Schedule 2 Chemicals – 481 declared facilities.
 - c. Schedule 3 Chemicals – 445 declared facilities.
 - d. DOC/PSF Chemicals – 4429 declared facilities.
 23. According to declared information, 80 States Parties maintained at least one declarable facility pursuant to Article VI of the Convention.
 24. *Challenge Inspections*: No challenge inspections were requested under the Convention as yet. It only reflects on the confidence of the member states on the implementation & verification regime of the CWC.
 25. *Investigations of Alleged Use of CW*: No requests have been received from States Parties for investigations of alleged use (IAU).
 26. *Assistance and Protection*: The OPCW Technical Secretariat organises courses aimed at providing training to first responders, government experts and emergency response units in building and developing national and regional capabilities and emergency response systems against the use, or threat of use, of chemical weapons. Over 2,200 participants have benefitted from these courses.
 27. Seventy Eight States Parties have pledged assistance under paragraph 7 of Article X. the number of States Parties that have provided information on national programmes related to protective purposes under paragraph 4 of Article X is 146. In all, 45 States have contributed to the Voluntary Fund for Assistance.
 28. *International Cooperation*: Since the operationalisation of CWC, International Cooperation programmes had 3,502 beneficiaries, including 315 analytical chemists, 265 Associate Programme participants, 1,966 Conference Support participants, 115 interns, 239 conferences, 92 laboratories, 437 research projects, and 73 transfers of used and functional equipment.
 29. The OPCW has developed an internationally unique, peer reviewed,

and certified analytical database, containing information on over 3,400 chemical weapons related compounds. This database is essential for onsite verification activities of OPCW inspection teams, and is also made available to States Parties.

30. *National Implementation Mechanisms:* Total of 186 of the 188 States Parties have designated or established their National Authorities. 141 States parties have submitted information on their legislative and administrative measures in accordance with Article VII of CWC. Only 91 States Parties have fully enacted legislation and/or adopted administrative measures to fully meet the obligations under the Convention.

31. Since 1997, nearly 3,000 participants, including more than 1,500 sponsored participants from all geographical regions have received support in the CWC's effective national implementation through OPCW meetings, workshops and training courses.

Conclusion

32. The success of the First International Disarmament Treaty, the CWC, is reflected in the fact that within 16 yrs of its Entry into Force, nearly 80% of the world's CW stockpile has been destroyed under strict international supervision. All the CWPFs were either inactivated/destroyed or converted for peaceful use. Effective measures have been put in place to prevent proliferation of toxic chemicals around the globe. No requests for Challenge Inspection or Alleged Use of CW have been received by the OPCW till date. The Third Review Conference of The States Parties held from 08-19 Apr 2013, noted with satisfaction that the

implementation of CWC makes a major contribution to international peace and security.

Endnotes:

* Based on information taken from sources available in the open domain.

CWC and OPCW: Future Course and Challenges*

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Summary

In the last few years, the Chemical Weapons Convention (CWC) originally designed to eliminate chemical weapons, has paid attention also towards economic and technological developments and assistance and protection against chemical weapons with the help of international cooperation and assistance.

* This is an abridged version of the paper presented in the Open Forum of the Chemical Weapons Convention Coalition at the Third Review Conference of the Chemical Weapons Convention, at the Organisation for Prohibition of Chemical Weapons in The Hague on April 12, 2013

The Third Review Conference of the Chemical Weapons Convention (CWC) was held from 8 to 19 April 2013 in The Hague. At this conference, member states as well as representatives of the Non-Governmental Organisations from across the world took stock of the functioning of the Convention in the last five years. Considered a model treaty, the CWC was designed to be a universal non-discriminatory, multilateral, disarmament treaty aimed at eliminating chemical weapons. While the real objective of the treaty was the elimination of chemical weapons and achieving chemical disarmament, it also paid attention to other aspects like economic and technological developments and assistance and protection against chemical weapons using the process now known as international cooperation and assistance. These provisions combined with different schedules of chemicals and the verification architecture made the CWC a unique tool for comprehensive security.

Destruction of Chemical Weapons:

While the hitherto utility of the CWC is beyond doubt, its future or for that matter the future of the Organisation for Prohibition of Chemical Weapons (OPCW) will depend on how fundamental objectives of the Convention are handled. The CWC is primarily a chemical disarmament treaty; other desired activities are secondary and dependent objectives of the treaty. If the very basic element of the treaty is compromised, it may send a wrong signal. Majority of the countries from around the world have destroyed their chemical weapons stockpile, but some others have not. Even the revised deadline has been missed. According to the OPCW figure of 28/02/2013, 55,939 metric tonnes of the world's declared stockpile of 71,196 metric tonnes of

chemical agent have been verifiably destroyed. It means only 78.57% of the declared stockpiles have been destroyed. Similarly, as of February 28, 2013, 3.95 of the 8.67 million chemical munitions and containers or only 45.56% of those covered by the CWC have been verifiably destroyed.

The CWC and OPCW have greatly contributed to norm building against chemical weapons. This norm building will be affected if the destruction plan by great powers is seen to be relegated to the background. On the very first day of the third review conference, the United Nations (UN) Secretary General stated, “as long as chemical weapons exist, so, too, does the risk of their use — by accident or design. There are no right hands for the wrong weapons”.¹ The OPCW is right in asserting in its statements that the process of destroying chemical weapons needs to be given the highest priority. An understanding on destruction of existing chemical stockpile has been arrived at. Hopefully, countries that have not destroyed their chemical weapons stockpiles yet would do it sooner; any failure to do so will raise a big question mark on the legitimacy of the CWC. In that scenario, the CWC will not be considered as disarmament but an arms control treaty. A CWC without complete elimination will plunge the entire global security regime into severe crisis. Non-weapon countries will lose faith in the international arrangements and treaties.

Moreover, the CWC has a post-destruction plan. The non-compliance with the destruction plan may have an impact on that plan. The best option for the future of the CWC and the OPCW is to adhere to what UN Secretary General mentioned; eliminate the entire stockpile before the next Review Conference and fully implement other obligations of the treaty. Only if that is achieved the CWC and OPCW have a future

in the twenty first century. In this regard, all the member countries may also have to take extra efforts in promoting universality so that the suspected or existing chemical stockpiles of non-member countries are also brought under the destruction plan.

Adapting to New Security Challenges

The OPCW will also have to address new security challenges. Now the treaty should build on its experience of the twenty first century. 9/11 has redefined the role of non state actors as sources of threats in the global security discourse. Interestingly, the CWC has the provisions to deal with many of the security issues that dominate the current security discourse, especially with reference to the Weapons of Mass Destruction (WMD). The most significant are security and safety aspects. Article X of the treaty has provision for ‘a databank containing freely available information concerning various means of protection against chemical weapons as well as such information as may be provided by States Parties.’ Article X has mechanisms for handling chemical terrorism and safety, multilaterally through an international organization. The OPCW and its technical secretariat may share its experience in this respect towards fighting other WMD threats. The international community is already in the process of setting up a databank to help nuclear forensics. One of the hindrances is locating the right agency for this purpose. The OPCW experience could be useful for them to deciding whether an international, regional or more specialized organization is best suited for the job.

Moreover, a multitude of new security challenges are driving a network of global security relationships. Countries are integrating traditional instruments and at times procedures. New mechanisms are being evolved. These mechanisms are

leading to new alignments—institutional and otherwise. There is more security interdependence and interconnectedness to handle emerging security challenges of the twenty first century. In case of the WMD and Chemical weapon threat, closer cooperation and interactions with different international organizations specialising on different security areas are coming together. The UNSC Resolution 1540 and its committee have emerged as an important agency for the task. A number of international organisations like Interpol and IAEA tend to participate in the OPCW meetings. Despite being relatively young, OPCW is an effective organisation. Now OPCW too has its institutional memory which it may share for an effective international engagement in the security realm.

After the destruction of the stockpile, the OPCW may focus more on implementation of international cooperation. As discussed, the Secretariat has the mandate under article XI and in fact it has been undertaking some cooperation activities at the international level right since 1997. It has worked to promote international cooperation in sponsoring chemical research, guaranteeing legal assistance, developing and improving laboratory capacity, specialised internships and training in CWC implementation and chemical safety management. A large number of member states have demanded implementation of article XI in the Third Review Conference as well. In future, OPCW may organise more result oriented meetings of member countries and their chemical industry associations, non-governmental organisations, regional and international institutions for national capacity building for the research, development, storage, production, and safe use of chemicals for peaceful purposes.

The future of the CWC and the OPCW will greatly depend also on how member

countries resolve some other divisive issues that tend to surface quite frequently. Of these, three are of critical and contemporary importance: Syria, Middle East as a WMD Free zone, and the fear of resurfacing. First, the Syrian case; as discussed, a new kind of problem is being witnessed in Syria. A section of the international community fears that the state might use chemical weapons against its citizens. Syria, a non-member, has asked the UN to investigate the allegation. The OPCW, along with World Health Organisation, has been given the fact-finding responsibility. Some member countries indicate the legal conundrum, and a few member countries want a non-member country like Syria to be kept out of discussions inside the OPCW but many others think otherwise. Apart from resolving the legal issue as raised for taking action on the UN request, member countries may have to bring in Syria in the CWC fold under the universality campaign. This raises the second divisive issue of Middle East as a WMD Free zone. This is a complex issue, but its resolution will help in the universalisation of the treaty. The third is the debate on the use of the phrase—non-proliferation or resurfacing. Non-proliferation is a phrase predominant in the nuclear realm to describe a pre-disarmament situation and is generally understood as a step towards or build up for disarmament. The use of the phrase for a post-disarmament situation seems to have confused some member states. Some other non-divisive phrases like resurfacing may solve the problem.

So, the future of the CWC and the OPCW could hinge on how member states address the principal objectives of the Convention and other priority areas. Agreement on the elimination of chemical weapons built the treaty and the failure or even the trust deficit may adversely affect its future. In addition, all that has been achieved so far might be lost in such scenario. After completing the task of disarmament, the OPCW as an

institution will certainly be required to fulfill other provisions of the CWC. The OPCW may assist member countries in addressing new security challenges. Destruction of chemical weapons requires a time frame under the Convention but international cooperation and trade in chemicals may continue forever, so the need for OPCW as a coordinating body. The consensus approach in the OPCW functioning is preferred for the health of the treaty and the OPCW.

Endnotes:

- ¹ United Nations (2013), Secretary general's Statement, Press Release, Secretary-General, SG/SM/14968, DC/3432, Available Online at <http://www.un.org/News/Press/docs/2013/sgsm14968.doc.htm>, Accessed 25 May 2013.

Syrian Civil War and the Chemical Weapons Use

Dr. Swati Bute

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Summary

Syria is in the middle of civil war since March, 2011. Recent reports of use of chemical weapons in Syria and US President Barack Obama's official statement on this issue has given a new turn to the Syrian conflict. Chemical Weapons (CW) usage and geopolitics of global interests complicate the issue. Achieving a sustainable solution will require serious and sustained efforts on part of all the actors involved in Syria.

US President Barack Obama's April 30, 2013 statement that the US would "...take military action against Syria if hard, effective evidence is found of use of chemical weapons and if Syria crosses the chemical weapons red line" has received global attention.¹ The Syrian civil war started in March 2011, initially with antigovernment street protests inspired by Arab spring in Tunisia, Egypt and Libya. However, it converted into more formal protests when the opposition took part in long uprising against the Ba'ath regime of President Basher Al-Assad in 2011-12.² Since then, more than 70,000 people have been killed and around one million Syrians are living in refugee camps in different neighboring countries.³ Syrian government has opposed foreign intervention in civil war and in the investigations of chemical weapons.

Recent reports on the alleged small-scale use of chemical weapons in Syrian war have given birth to speculations about the possibility of its use in the ongoing war. As of now, which side used these weapons is not clear as both are blaming each other for this. It was reported for the first time in December 2012 that chemical weapons were used in Syrian cities of Homs and Aleppo. Allegedly, the largest use of chemical weapons took place on March 19, 2013 in the area of Khan al-Asal, in which about 40 people were killed and more than 300 admitted for symptoms.⁴ However, doubts persist due to lack of verifiable evidence on chemical weapons usage. Experts say that allegations of chemical warfare are based on two types of evidence; video footage of alleged chemical attacks in Syrian hospitals and the soil and human tissue samples taken out of Syria and analysed by labs in the United States and Britain.⁵ While there are doubts about the reliability of the samples,

the US Defense Secretary Chuck Hagel has recently confirmed that there is some degree evidence of chemical weapons use.⁶

Officially, the Syrian government had never accepted possessing chemical weapons until July, 2012, when the spokesman of Syria's foreign ministry said, "Any stocks of (weapons of mass destruction) or any unconventional weapon that the Syrian Arab Republic possesses would never be used against civilians or against the Syrian people during this crisis at any circumstance, no matter how the crisis would evolve"⁷. It must be noted that Syria has neither signed the Chemical Weapons Convention (CWC)^{*} nor ratified the Biological and Toxin Weapons Convention (BTWC)^{**} and has never made a formal declaration of its stock.⁸ Syria is widely believed to possess large quantities of the highly toxic mustard gas and Sarin nerve agent and it is believed that Syria has attempted to develop more toxic and persistent agents such as VX gas.⁹ It was reported that poisonous gas Sarin was used on small scale in recent attacks in Syria. Patients had respiratory and neurological symptoms - respiratory, including shortness of breath, bronchospasm, a lot of secretion and respiratory failure requiring mechanical ventilation, and some neurological symptoms, confusion, and convulsions. Some of the victims reportedly went into coma.¹⁰

After the reports of chemical weapons attack in Syria, opposition forces in Syria and some Western countries blamed Assad government for attacks even as the Syrian government continued blaming rebels for these incidences. International bodies investigating the matter are also somewhat influenced by the ongoing political blame game; earlier, the UN independent commission of inquiry had denied Assad government's involvement in chemical attack by saying that 'its not Syrian

government but the rebels who used chemical weapons"¹¹. However, the very next day, UN commission changed the statement and said that it had "no conclusive proof that opposition rebel forces in the country had used the deadly nerve agent sarin"¹². The US doubted this claim and said, "Any chemical weapon use that has taken place in Syria was done by the Assad regime and that remains its position"¹³. It is important to note that some western and middle-east countries are supporting the rebels and providing them weapons. On the other hand, countries like Russia, Iran and China continue supporting to Basher's Government.

The involvement of militant groups in Syrian conflict and the associated fear of the spread of lethal weapons to al- Qaeda make the situation extremely complicated as well as volatile. Israel's willingness to use force, like the recent air attack on the Syrian military research center to stop weapon supply to Lebanon based militant group Hezbollah, on one hand and Iran's support and weapons supply to Hezbollah via Syria further compounds the situation. While the global powers jostle to prioritise their interests, with every passing day the toll of civilians deaths in Syria is mounting.

Endnotes:

1. Obama hints at potential military action in Syria, Hezbollah ready to intervene in support of Syria's Basher al-Assad, , The Associated Press, April 30, 2012, <http://www.cbc.ca/news/world/story/2013/04/30/obama-syria.html> Accessed on May 1, 2013
2. Syria profile, BBC News, May 1, 2013, <http://www.bbc.co.uk/news/world-middle-east-14703856> Accessed on May 3, 2013.
3. World seeks answers as Syria civil war evolves, Mariano Castillo and Fred Pleitgen, CNN, April 30, 2013, <http://edition.cnn.com/2013/04/30/world/meast/syria-civil-war/index.html>, accessed on May 1, 2013

4. What We Know about Chemical Weapons in Syria, Voa News, <http://www.voanews.com/content/what-we-know-about-chemical-weapons-in-syria/1653286.html>, Accessed on May 4, 2013
 5. Ibid
 6. Is the Syrian government using chemical weapons? By Jonathan Marcus, BBC diplomatic correspondent, BBC News, April 25, 2013, <http://www.bbc.co.uk/news/world-middle-east-22291805>, Accessed on May 1, 2013
 7. Syrian Official's Statement on W.M.D., NY Times, July 23, 2013, <http://thelede.blogs.nytimes.com/2012/07/23/syrian-officials-statement-on-w-m-d/?ref=middleeast>, ROBERT MACKEY Accessed on May 3, 2013
 8. Syria's chemical weapons stockpile and human impact, BBC News, 26 April 2013, <http://www.bbc.co.uk/news/world-middle-east-22307705>, Accessed on May 1, 2013
 9. Ibid
 10. What We Know about Chemical Weapons in Syria, Voa News, <http://www.voanews.com/content/what-we-know-about-chemical-weapons-in-syria/1653286.html>, Accessed on May 5, 2013
 11. Case Study of the Bhopal Incident, Environmental toxicology and human health – vol. I - *case study of the bhopal incident* - Paul Cullinan, <http://www.eolss.net/sample-chapters/c09/e4-12-02-04.pdf>, accessed on may 5, 2013
 12. U.N. has testimony that Syrian rebels used sarin gas: investigator, Reuters, May 5, 2013, <http://www.reuters.com/article/2013/05/05/us-syria-crisis-un-idUSBRE94409Z20130505>, Accessed on May 7, 2013
 13. No proof Syria rebels used chemical weapons, says UN, France 24.com, May 7, 2013, , <http://www.france24.com/en/20130506-un-no-proof-syrian-rebels-used-chemical-weapons>, Accessed on May 7, 2013
- * Organization for the Prohibition of Chemical Weapons, <http://www.opcw.org/chemical-weapons-convention/>, Accessed on May 5, 2013
- Chemical Weapons Convention (CWC) – The CWC aims to eliminate an entire category of weapons of mass destruction by prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by States Parties.
- ** The Biological and Toxin Weapons convention Website, <http://www.opbw.org/> Accessed on May 5, 2013
- Biological and Toxin Weapons Convention (BTWC) – Is a convention on the prohibition of the development, production and stockpiling of bacteriological (Biological) and toxin weapons and on their destruction.

Ricin-laced Letter to Obama; Recurring threat calls for long term solutions

Mr. Sanjeev Kumar Shrivastav

The author is a Researcher at IDSA, New Delhi.

Summary

The recent incident in which ricin laced letters were sent to President Obama highlights the ease with which ricin can be produced, obtained and used.

The Incident

In the United States, James Everett Dutschke, 41 year old martial arts instructor, was arrested by federal agents on April 27 from his home in Tupelo, Mississippi with charges of sending lethal ricin-laced letters to US President Barack Obama. Nearly a week before this arrest, as the United States was confronting the bomb blasts that took place during the Boston Marathon on April 15, three lethal ricin-laced letters were received at the White House. This was an uncanny reminder of 2001 as soon after 9/11, anthrax laced letters were received by some public officials and media houses in which five American citizens were killed and seventeen were sickened in incidents that are regarded as the worst biological attacks in the history of US.¹ A Statement from Public Information Office of the United States Capitol Police on April 16, 2013 said, “Earlier today the United States Capitol Police (USCP) was notified by the Senate mail handling facility that it received an envelope containing a white granular substance. The envelope was immediately quarantined by the facility’s personnel and USCP HAZMAT responded to the scene. Preliminary tests indicate the substance found was ricin”.² Meanwhile, Federal Bureau of Investigation (FBI) in a statement on April 17 said, “The envelope, addressed to the President, was immediately quarantined by U.S. Secret Service personnel, and a coordinated investigation with the FBI was initiated. It is important to note that operations at the White House have not been affected as a result of the investigation.”³

About Ricin

Before discussing the ongoing investigation, it would be essential to understand the

nature of ricin, a toxin with fatal implications even in extremely small doses.⁴ It is produced from the castor bean plant (Botanical name: *Ricinus communis*). According to studies, ricin acts as a ribosome inactivating protein which permanently damages those ribosomes which carry out protein synthesis in body cells. These ribosome inactivating proteins which are present in castor bean plant are lethal and poisoning by ricin may cause severe damages to major body organs. Ricin exposure may lead to severe allergic reactions as well and even a small amount of exposure could be fatal.⁵ The initial symptoms of ricin poisoning may appear within three to twelve hours from the exposure; these symptoms include coughing, stomach pains, fever etc. If ricin has been ingested, initial symptoms which occur within an hour, are stomach ache, gastroenteritis, bloody diarrhoea and vomiting etc. While, in case of inhalation, symptoms would include lung damages etc.⁶ According to the Organization of Prohibition of Chemical weapons, ricin has been placed under the schedule one of toxic chemicals.⁷

According to D.R. Franz and N.K. Jaax, ricin is suited to be an ideal agent for terrorism. This has been used for assassination purposes during cold war.⁸ It would be worth noting that a few incidents of ricin use have taken place in the recent years.⁹ In the light of the present event, recurrence of instances and the relative ease of preparing ricin laced material should be a larger cause of concern.

Ongoing Investigation

Regarding the recent incident, in a statement local field office of FBI and the office of the US attorney noted that suspect Dutschke has been charged with “knowingly developing, producing, stockpiling, transferring, acquiring, retaining and possessing a biological agent, toxin and

delivery system, for use as a weapon.” According to legal provisions, Dutschke will have to face a maximum penalty of life imprisonment, a fine of \$250,000 as well as five years of supervised release, if he is convicted. Initially while investigating this case, US authorities had made arrest of another individual named Paul Kevin Curtis, but later he was released as charges levelled against him were dismissed.¹⁰

Meanwhile, in an eight-page affidavit, FBI Special Agent Stephen Thomason said that Dutschke did online purchasing of castor bean seeds for the purpose of making ricin. As soon as, these seeds were delivered to Dutschke’s house, a publication on safe handling as well as storage of the ricin toxin was downloaded using his laptop. The FBI also recovered a contaminated dusk mask from a garbage bin near Dutschke’s former taekwondo studio; according to affidavit filed, traces of ricin were found on items recovered from this studio. According to FBI more tests may be required to establish that the identified granular material is ricin.¹¹

Concluding observations

The present incident shows the ease with which ricin can be produced using materials and equipment like coffee grinder found in every household. The repeated instances show the extent to which it remains attractive for its lethality and ease of production. In addition, unlike other weapons of mass destruction, ricin remains undetected in transit stage. Therefore more scientific research to enhance detection technique and more research to increase the effectiveness of preventive measures is the need of the hour. Since this threat remains global, international cooperation in research and investments in scientific and monetary capacity may yield best results in the larger human interests.

Endnotes:

- ¹ “Amerithrax or Anthrax Investigation”, Famous Cases and Criminals, Federal Bureau of Investigation (FBI), Available at <http://www.fbi.gov/about-us/history/famous-cases/anthrax-amerithrax/amerithrax-investigation> (Accessed on May 14, 2013)
- ² “2013 Ricin Investigation”, Public Information Office, United States Capitol Police, Washington, D.C, April 16, 2013 available at http://www.uscapitolpolice.gov/pressreleases/2013/pr_04-16-13.php (Accessed on May 7, 2013)
- ³ “FBI Response to Reports of Suspicious Letters Received at Mail Facilities”, National Press Releases, FBI National Press Office, Washington, D.C., April 17, 2013 available at <file:///C:/Users/idsa/Desktop/Ricin-%20C%20B%20W-%20A%20r%20t%20i%20c%20l%20e/FBI%20E%20%80%94%20FBI%20Response%20to%20Reports%20of%20Suspicious%20Letters%20Received%20at%20Mail%20Facilities.htm> (Accessed on May 7, 2013)
- ⁴ According to a study conducted by European Food and Safety Authority (EFSA), the median lethal dose (LD₅₀) of ricin is around 22 micrograms per kilogram (1.78 mg for an average adult, around 1D 228 of a standard aspirin tablet/0.4 g gross) in humans if exposure is from injection or inhalation. For more see, “Ricin (from *Ricinus communis*) as undesirable substances in animal feed, Scientific Opinion of the Panel on Contaminants in the Food Chain adopted on 10 June 2008”, European Food and Safety Authority (EFSA), *The EFSA Journal* (2008) 726, 1-38 available at <http://www.efsa.europa.eu/en/efsajournal/doc/726.pdf> (Accessed on May 6, 2013)
- ⁵ “RICIN : Biotoxin”, The Emergency Response Safety and Health Database, Centres for Disease Control and Prevention available at http://www.cdc.gov/niosh/ershdb/EmergencyResponseCard_29750002.html (Accessed on May 5, 2013)
- ⁶ Julia Layton, “What is Ricin?”, How Stuff Works?, available at <http://www.howstuffworks.com/question722.htm> (Accessed on May 5, 2013)
- ⁷ Schedule 1, Toxic chemicals, Organisation for the Prohibition of Chemical Weapons, available at [schedules-of-chemicals/schedule-1/](http://www.opcw.org/chemical-weapons-convention/annex-on-chemicals/b-schedules-of-chemicals/schedule-1/) (Accessed on May 10, 2013)
- ⁸ There have been several incidents involving ricin toxin. In 1978, Georgii Markov, a Bulgarian dissident, was assassinated allegedly using ricin by a Bulgarian secret service operative. For more see, D.R. Franz, N.K. Jaax, “Ricin toxin” in R. Zajtchuk, R.F. Bellamy (Eds.), *Textbook of military medicine: medical aspects of chemical and biological warfare*, TMM Publications, Washington, DC (1997), pp. 631–642 (Accessed on May 11, 2013)
- ⁹ While these incidents have taken place fairly regularly since October 2003, there has been no reported casualty because of ricin since the incident in 2001.
- ¹⁰ “US authorities charge man in ricin probe”, AFP, April 27, 2013 available at http://www.google.com/hostednews/afp/article/ALeqM5gqSF0Gi04m9-FS4ZmmLfZdz_2c7Q?docId=CNG.359bbf8b6c23801bedef3828d2a1196a.01 (Accessed on May 5, 2013)
- ¹¹ “FBI says lab tests link Mississippi man to ricin letters”, Reuters, April 30, 2013 available at <http://www.reuters.com/article/2013/04/30/us-usa-security-ricin-idUSBRE93T17F20130430> (Accessed on May 5, 2013)

Kenneth N. Waltz on NBC Weapons

Mr. Kapil Patil

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Summary

Kenneth N Waltz-R.I.P. (June 8, 1924-May 12, 2013).

The article is a collection of Kenneth N Waltz's views on NBC Weapons.

Kenneth N Waltz – a pioneer theorist of international relations – passed away on May 12, 2013 at the age of 88. He served as a member of the faculty at the University of California, Berkeley and Columbia University. Widely hailed for his foundational work in neo-realist school of international relations, Waltz's theorizing created a new paradigm which produced many other important works in the field. His monumental work '*Theory of International Politics*' outlined the key assumptions and approaches to the systematic study of international politics. He was equally revered for bringing the insights of neo-realists theory to bear upon some of important policy problems during the cold war and post cold war years. Waltz's views on issues like US involvement in Vietnam War, spread of nuclear weapons in the world, US invasion of Iraq and more recently on Iran's nuclear weapon programme have been widely argued and debated upon. He was a fierce critic of the Vietnam War and later opposed the so-called preemptive invasion of Iraq by US forces in 2003.

Waltz's views on WMD proliferation and especially the spread of nuclear weapons were radical; in an essay published in 1981, *The Spread of Nuclear Weapons: More May be Better*, Waltz argued, "Slow spread of nuclear weapons will promote peace and reinforce international stability."¹ He went on to outline in great detail why nuclear weapons enable peace and stability by stressing that "nuclear weapons make the cost of war seem frighteningly high and thus discourage states from starting any wars that might lead to the use of such weapons." He further explained that "states are unlikely to take great risks for minor gains and although war remains possible, the victory in war is too dangerous to fight for."²

Waltz strongly opposed the US invasion of Iraq in 2003. While rejecting the preemptive strategy of US forces in Iraq, Waltz asserted that, “we [US] have no reason to think that Saddam Hussein is about to (nuke) strike anybody - not anybody in the region, let alone Europe or the United States.”³ Waltz slammed the US State Department’s claim that Saddam Hussein might give away the nuclear weapons to the terrorists. Waltz cautioned that, “we don’t have to worry about Saddam Hussein doing that, because if any terrorist ever got weaponry that they could not well get from sources other than Iraq, we would say, ‘Saddam Hussein did it,’ and we’d slam him. He knows that.” Waltz also dispelled the worries that Saddam Hussein or the North Koran military junta will not be deterred once they acquire WMD capability. He believed that, rogue regimes have persistently made effort to acquire WMD capabilities to consolidate their regimes and they certainly would not want to share it with anybody.”⁴

Reiterating his reasoning on nuclear weapons in his famous recent essay in *Foreign Affairs*, *Why Iran Should Get the Bomb*, Waltz argued, “Tehran’s nuclear weapon capability would most likely restore stability to the Middle East region.” He pointed out that “The danger of a nuclear Iran has been grossly exaggerated” and “the debate surrounding it has been distorted by misplaced worries and fundamental misunderstandings of how states generally behave in the international system.”⁵ Waltz criticised the global anxiety about nuclear Iran by arguing that “(Calling) nuclear Iran a uniquely terrifying prospect, even an existential threat is typical of major powers, which have historically gotten riled up whenever another country has begun to develop a nuclear weapon of its own. Yet so far, every time another country has managed to shoulder its way into the nuclear club, the

other members have always changed tack and decided to live with it. In fact, by reducing imbalances in military power, new nuclear states generally produce more regional and international stability, not less.”⁶

Waltz was convinced about the deterrence value of WMDs like chemical and biological weapons in inter-state conflicts. He often cited the restraint exercised by Saddam Hussein in using chemicals and biological weapons in the Gulf War against US forces.⁷ Waltz explained the restraint exercised by states in non-use of chemical & biological weapons when he stated that, “WMDs make states cautious and ‘rogue states’ too have exercised restraint in the past.” He noted that “the weaker and the more endangered a state is, the less likely it is to engage in reckless behavior.”⁸

Scholars in Waltzian tradition too have explained the non-use of chemical and biological weapons despite many countries possessing the NBC capabilities including states that wish to use them covertly. Falkeranth et al. explained that the decision to use WMDs is determined solely by the risks calculations of potential aggressors.⁹ The restraint in state behaviour, as they argue, is guided by the logic of ‘threat of punishment’ which underlines the risks of retaliation in form of escalatory exchange of NBC weapons, which hold states back from using such weapons.¹⁰

Nevertheless, Waltz was skeptical that unlike nuclear weapons, the irregular groups and terrorists will be less deterred from using WMDs like biological and chemical weapons if they were to acquire it.¹¹ Waltz clearly understood the limitations of deterrence in case of non-state actors armed with chemical and bio-weapons when he observed that “deterrence does not cover this kind of situation”.¹²

Although Waltz was particularly optimistic about the role of nuclear weapons in global politics, his views about the utility of slow spread of nuclear weapons drew him widespread criticism. The rapid spread of WMDs remains a frightening prospect for the global non-proliferation community and the spread of WMDs and their use either by state or non-state actors is strongly controlled through set of global norms and institutions. While, the non-proliferation regime would continue to be a pre-eminent force in world politics for years to come, Waltz will be remembered most importantly for setting an alternate discourse on non-proliferation that brought him followers and foes in equal measure.

Endnotes:

- ¹ Kenneth N. Waltz (1981), "The Spread of Nuclear Weapons: More May Be Better", Adelphi Paper No. 171, London: The International Institute for Strategic Studies, URL: <https://www.mtholyoke.edu/acad/intrel/waltz1.htm>
- ² Ibid
- ³ Kenneth Waltz Interview: Conversations with History; Institute of International Studies, UC Berkeley, URL: <http://globetrotter.berkeley.edu/people3/Waltz/waltz-con6.html>
- ⁴ Ibid
- ⁵ Waltz, Kenneth N. (2012), "Why Iran Should Get the Bomb: Nuclear Balancing Would Mean Stability", Foreign Affairs, July/August 2012, URL: <http://www.foreignaffairs.com/articles/137731/kenneth-n-waltz/why-iran-should-get-thebomb>
- ⁶ ibid
- ⁷ See, Kenneth Waltz Interview
- ⁸ Waltz, Kenneth N. (1995), "Peace, Stability and Nuclear Weapons", University of California, Berkeley
- ⁹ Falkeranth, Newman and Thayer (2004), "Americas Achilles Heel Nuclear Biological and Chemical Terrorism and Covert Attack" in

Art, Robert J., and Waltz, Kenneth N. (Eds.), "The use of force: military power and international politics", Rowman and Littlefield: London, pp.463-468

- ¹⁰ Ibid
- ¹¹ Kenneth Waltz Interview,
- ¹² Kenneth Waltz Interview

Chemical and Biological News

DISARMAMENT

Libya Completes Destruction of Its Bulk Sulfur Mustard Stockpile

May 06, 2013

Libya has completed the destruction of sulfur mustard agent that was stored in bulk in transportation containers at the depot in Ruwagha, bringing the total amount of Category 1 chemical weapons destroyed by Libya to 22.3 metric tonnes (MT), or nearly 85% of the total declared stocks. Destruction of the remaining 8.82 MT of sulfur mustard that was stored in bulk at Ruwagha resumed on 20 April 2013 and by 4 May the facility completed the destruction under OPCW verification.

Libya also completed the destruction of its remaining Category 3 weapons, in accordance with the timeline it had set in its detailed plan for the destruction of the remaining chemical weapons. What remains now to be destroyed are about 2.45 MT of polymerised sulphur mustard and 1.6 MT of sulphur mustard loaded in projectiles, bombs and bomb cartridges, as well as 846 MT of precursor chemicals (Category 2). The destruction operations were conducted under continuous on-site monitoring by a team of OPCW inspectors

The OPCW Director-General, Ambassador Ahmet Üzümcü, announced the achievement of this destruction milestone in Libya, today in his opening address to the 72nd Session of the OPCW Executive Council: "I would like to congratulate Libya on this accomplishment. I should also like to thank Canada, Germany, and the United States of America for the assistance they provided, which facilitated the redeployment of the inspection team and resumption of destruction operations," he said.

Libya first began to destroy the bulk sulfur mustard in October 2010 but suspended the operation in early February 2011 when the neutralization unit malfunctioned. Due to the prevailing situation, Libya was unable to resume operations for more than two years. They remained committed to destroy the stockpile as soon as circumstances allowed. The government meanwhile took a number of precautionary measures to secure its remaining chemical weapons while the destruction facility at Ruwagha was repaired and maintained for use.

<http://www.opcw.org/news/article/libya-completes-destruction-of-its-bulk-sulfur-mustard-stockpile/>

Turkey sends team to screen for chemical weapons on Syria border

May 09, 2013

ISTANBUL (Reuters) - Turkey has sent a team of eight experts to the border with Syria to test wounded victims of the country's civil war for traces of chemical and biological weapons, the state-run Anatolian news agency said on Thursday.

Turkey started testing blood samples last week from Syrian casualties brought over the border for treatment to determine whether they were victims of a chemical weapons attack.

The civil defense team, equipped with a specialist vehicle which can detect evidence of chemical, biological and nuclear substances, has been stationed at the Cilvegozu border gate near the town of Reyhanli, Anatolian said.

Syrian President Bashar al-Assad's forces and opposing rebels have accused each other of using chemical weapons.

Britain said on Thursday it believed it was “very likely” that the Syrian government had used chemical weapons, but that it had “no evidence to date” that the rebels had used them.

Washington has long said it views the use of chemical weapons in Syria as a “red line”. But, wary of the false intelligence that was used to justify the 2003 war in Iraq, the United States says it wants proof before taking any action.

Turkey’s Star newspaper, which is close to the government, reported on Thursday that the forensic institute that has been testing the blood samples had found traces of ricin, a highly toxic substance which can be used as a chemical warfare agent.

Turkish officials have declined to confirm whether the tests have been completed or to comment on any results.

(Writing by Ece Toksabay; Editing by Nick Tattersall/Mark Heinrich)

<http://news.yahoo.com/turkey-sends-team-screen-chemical-weapons-syria-border-130441650.html>

Deputy Director-General visits Croatia during the 12th Regional Meeting of National Authorities in Eastern Europe

May 16, 2013

The OPCW Deputy Director-General, Ambassador Grace Asirwatham, paid a visit to the Republic of Croatia on 13 and 14 May 2013 and inaugurated, together with Dr Mrs. Vesna Batistiæ Kos, Assistant Minister in the Directorate-General for Multilateral Affairs and Global Issues of the Ministry of Foreign and European Affairs, the 12th Regional Meeting of National Authorities in Eastern Europe. The meeting was held in Zagreb.

In her opening statement, the Deputy Director-General stressed the importance of regional meetings as a forum for National Authorities to review and discuss issues relating to the practical implementation of the Chemical Weapons Convention (CWC), to share experiences and best practices, and to foster cooperation among States of the region. Mrs. Asirwatham commended the National Authorities of States in Eastern Europe for their efforts to strengthen the effective national implementation in the region and urged them to actively participate in the deliberations, in particular regarding new initiatives and approaches, technical tools and procedures, and practical information related to national implementation.

During the bilateral meeting with the Assistant Minister, the Deputy Director General briefed her on the outcomes of the recently concluded Third Review Conference. Mrs. Asirwatham also provided an overview of the current status of the implementation of the CWC and the ongoing work of the OPCW to achieve the objectives of the Convention. The discussion also covered activities conducted in the framework of the organisation’s programmes on International Cooperation and Assistance (ICA) in Croatia, and reiterated the importance of promoting cooperation among States of the region.

<http://www.opcw.org/news/article/deputy-director-general-visits-croatia-during-the-12th-regional-meeting-of-national-authorities-in/>

Assistance and Protection Course on Chemical Safety Management for African State Parties Held in India

April 18, 2013

The Assistance and Protection Training Course on Chemical Safety Management for African State Parties was held at The

Landmark Hotel and the Defence Research and Development Establishment (DRDE) in Gwalior from 1 to 5 April 2013. The course was co-organised by the OPCW and the Government of India.

The course is offered by the Indian Government under Article X of the Chemical Weapons Convention to help build capacity in assistance and protection against chemical weapons. The course was attended by 13 participants from 11 African State Parties* and 23 participants from India.

* Algeria, Ghana, Kenya, Lesotho (2), Liberia, Namibia, Nigeria, South Africa, Uganda, Zambia (2) and Zimbabwe.

<http://www.opcw.org/news/article/assistance-and-protection-course-on-chemical-safety-management-for-african-state-parties-held-in-ind/>

Workshops Organised in Luanda to Support Angola's Accession to the Chemical Weapons Convention

April 26, 2013

The OPCW co-organized two workshops in Luanda on 22 and 23 April 2013 that were designed to support Angola's accession to the Chemical Weapons Convention (CWC) and the Biological and Toxin Weapons Convention (BWC).

The Foreign Affairs Minister of Angola, H.E. Mr Georges Chikoti, opened the workshops by confirming his Government's intention to accede to both conventions, noting the importance that the Government of Angola attaches to international disarmament treaties.*

The two workshops shared similar agendas which covered the main articles of each Convention, CWC and BWC National Authorities, national implementation,

declarations and submission of confidence-building measures, international co-operation and assistance, and the accession processes.

The CWC workshop was a day of national awareness in national CWC implementation with more than 30 participants, including senior representatives from the ministries of Foreign Affairs, Industry, Interior, Defense, Justice, Transport, Commerce, Finance (Customs), Police, and the Humanitarian Demining and Humanitarian Assistance Commission(CNIDAH).

The OPCW Director of International Cooperation and Assistance, Mr. Mark Albon, expressed the OPCW's support to Foreign Minister Chikoti in helping Angola to fulfil its obligations under the CWC as soon as its instrument of ratification is signed.

<http://www.opcw.org/news/article/workshops-organised-in-luanda-to-support-angolas-accession-to-the-chemical-weapons-convention/>

NATIONAL AND INTERNATIONAL DEVELOPMENTS

Third Review Conference Concludes with Consensus Final Document and Political Declaration

April 19, 2013

The Third Review Conference of the Chemical Weapons Convention (CWC) successfully concluded today with the adoption by consensus of a two-part final document: A political declaration that confirms the "unequivocal commitment" of the States Parties to the global chemical weapons ban, and a comprehensive review of CWC implementation since the last Review Conference in 2008 that also maps out the OPCW's priorities for the coming five years. The final document will be made

available soon on the OPCW web site at <http://www.opcw.org/>

“I congratulate and thank the States Parties for their strong support for our continuing efforts to achieve a world that is free of chemical weapons,” said the OPCW Director-General, Ambassador Ahmet Üzümcü. “They have underlined their commitment that the OPCW remains a global repository of knowledge and expertise on implementing the Convention, and their determination to maintain the CWC as a bulwark against chemical weapons.”

The UN Secretary-General, Ban Ki-moon, delivered a speech to the opening session of the conference. The Foreign Minister of the Netherlands, Frans Timmermans, the Minister of Foreign Affairs and Vice-Prime Minister of Luxembourg, Jean Asselborn, and the Turkish Foreign Minister, Ahmet Davutođlu, also addressed the conference.

A number of other senior officials attended the opening days of the conference. They included Angela Kane, the UN High Representative for Disarmament Affairs, and high level officials from Canada, Germany, Iran, Iraq, Saudi Arabia, the United Kingdom, the United States and Yemen, among others. Video interviews with some of these senior officials can be viewed [here](#).

The political declaration reiterates the “deep concern” of States Parties that chemical weapons may have been used in the Syrian Arab Republic, underlining that “the use of chemical weapons by anyone under any circumstances would be reprehensible and completely contrary to the legal norms and standards of the international community.” The statement expresses support for close cooperation between the OPCW Director-General and Secretary-General of the United Nations.

Other highlights of the Review Conference political declaration:

- *Conviction* that, 16 years after its entry into force, the Convention has reinforced its role as the international norm against chemical weapons;
- *Unqualified commitment* to achieve the universality of the CWC, urgently calling upon the remaining States not Party to join the Convention without delay and precondition;
- *Determination* that the destruction of all existing chemical weapons be completed in the shortest time possible;
- *Commitment* to adopt the necessary measures to fully implement the Convention as a matter of priority, noting that 100 States Parties still need to adopt such measures;
- *Commitment* to foster international cooperation in the peaceful uses of chemistry, and to implement the CWC in a manner that avoids hampering economic and technological development;
- *Intention* to continue providing the OPCW the support it needs to fully implement the CWC and to deal more effectively with future opportunities and challenges; and
- *Desire* to improve interaction with chemical industry, the scientific community, academia and civil society organisations in promoting the goals of the CWC.

The Third Review Conference was well attended with delegates from 122 of the 188 States Parties, 8 international organizations and 3 States not Party, and was chaired by Ambassador Krzysztof Paturski of Poland.

In addition, there was an unprecedented level of attendance by civil society, with representatives of 47 NGOs who organised and participated in more than 10 side events exploring a variety of issues relevant to the conference. For the first time, NGO representatives were also permitted to address conference delegates in an informal plenary session.

<http://www.opcw.org/news/article/third-review-conference-concludes-with-consensus-final-document-and-political-declaration/>

Obama: There is ‘some evidence’ Syria’s Assad used chemical weapons

By John Newland, Staff Writer, NBC News

President Barack Obama said Tuesday that the United States has evidence that chemical weapons were used in Syria’s brutal civil war but that it remains unclear who used them.

In a White House press conference, Obama said there is “some evidence” that the regime of Syrian President Bashar Assad used the weapons, but urged against rushing to judgment, saying more facts must be known before any action taken.

NBC News’s Paul Goldman and Charlene Gubash contributed to this report.

For full report please check:

http://worldnews.nbcnews.com/_news/2013/04/30/17985682-obama-there-is-some-evidence-syrias-assad-used-chemical-weapons?lite

Israel says Syria used chemical weapons; Russia warns of ‘Iraqi scenario’

Greg Botelho and Elise Labott, CNN

April 24, 2013

(CNN) — Are Syrian forces using chemical weapons in their years-long fight to hold on to power?

That’s what the head of the Israel Defense Forces intelligence research and analysis division said Tuesday, becoming the latest to allege that Damascus was employing weapons banned under international law against its own people.

The claim further stoked the debate about the international community’s role in Syria, where the United Nations estimated this month that 70,000 people have been killed since the conflict flared in March 2011. U.S. President Barack Obama, for one, has said the Syrian government’s use of chemical weapons against its own people would be a “game changer” in how his and other nations address the crisis.

On Tuesday, his nation’s top diplomat said Tuesday that the United States does not know definitively that such chemical weapons had been deployed. In fact, U.S. Secretary of State John Kerry said, Israeli Prime Minister Benjamin Netanyahu also did not confirm the use of such weapons when the two spoke by phone earlier in the day.

CNN’s Elise Labott, Barbara Starr and Laura Smith-Spark contributed to this report.

For full report please check:

<http://edition.cnn.com/2013/04/23/world/meast/syria-civil-war>

Exclusive: U.S. to Bring Chemical Weapons Witnesses Out of Syria

*Josh Rogin
May 22, 2013*

With U.N. investigators unable to enter Syria, the State Department is working to bring evidence that the regime has used chemical weapons across the border into Turkey, reports Josh Rogin.

The State Department is working behind the scenes to identify medical professionals who

have evidence of chemical weapons use in Syria and is planning to help move them out of the country to meet with United Nations investigators in Turkey, officials tell *The Daily Beast*.

A Syrian man walks past destruction in the northern city of Aleppo on March 22, 2013. (Bulent Kilic/AFP/Getty)

The previously undisclosed effort was authorized by the White House, and is now being prepared by the State Department in conjunction with Syrian nongovernmental organizations they have been working with on the ground, two administration officials said. The U.N. team tasked with investigating alleged uses of chemical weapons inside Syria has not been able to enter the country because of a dispute over access with the regime of Bashar al-Assad, so the State Department is bringing the medical professionals and physiological samples taken from victims of the attacks to them.

Last month the White House acknowledged in a letter to Congress that the U.S. intelligence community had determined with various levels of confidence that chemical weapons—Sarin gas specifically—had been used in Syria on two occasions. But President Obama said following that disclosure that he couldn't confirm that his "red line" for Syria had been crossed because the chain of custody of the evidence could not be confirmed. While the administration said it was very likely that the regime was responsible, the Syrian government and the Russian government claim that in fact it was the rebels who have used Sarin as a weapon.

"We cannot have a situation in which chemical or biological weapons are falling into the hands of the wrong people," Obama told reporters in August. "We have been very clear to the Assad regime but also to other

players on the ground that a red line for us is, we start seeing a whole bunch of weapons moving around or being utilized." But his administration later seemed to roll back that standard, with an official telling *The New York Times* that the president's "red line" remark was "unscripted."

Now, as the Obama administration considers moving toward greater direct involvement in the Syrian conflict, there is a new push to confirm that chemical weapons were used in Syria by the regime.

"The administration is trying to bring international legitimacy to their claims," an administration official told *The Daily Beast*. "It provides additional pretext for greater political pressure on the regime."

For full report please check:

<http://www.thedailybeast.com/articles/2013/05/22/exclusive-u-s-to-bring-chemical-weapons-witnesses-out-of-syria.html>

Laaneots: North Korea's Real Threat is Chemical, Biological Weapons (3)

April 05, 2013

Despite all the attention being given to North Korea's nuclear capabilities, the dictatorship's chemical and biological weapons pose a far greater threat to the world, according to retired general Ants Laaneots.

North Korea has a single, 5-megawatt nuclear reactor that operated for 21 years before it was closed in 2007 due to international pressure, and its cooling system was destroyed in 2008, Estonia's former commander in chief told ETV.

Experts estimate that the country has produced 42-67 kilograms of plutonium,

which can be used to make 6-8 explosive nuclear devices, but American experts are confident that the country does not currently have the technology to compress the plutonium to install it in a warhead, Laaneots said.

“Much more dangerous are the large chemical resources that North Korea has.

For full report please check:

<http://news.err.ee/politics/4a68f27c-c5a5-4270-98fe-1ce8a384bd47>

Al Qaeda’s track record with chemical weapons

Peter Bergen, *CNN National Security Analyst*

May 7, 2013

Editor’s note: Peter Bergen is CNN’s national security analyst, a director at the New America Foundation and the author of “Manhunt: The Ten-Year Search for bin Laden — From 9/11 to Abbottabad,” the basis for the HBO documentary “Manhunt” that will be shown on CNN on May 10.

(CNN) — On Monday, a U.N. official said that Syrian rebels had likely used the nerve agent sarin.

Carla Del Ponte, the veteran war crimes prosecutor and a commissioner of the U.N. Independent International Commission of Inquiry for Syria, made this claim on a Swiss-Italian TV station.

Del Ponte explained, “Our investigators have been in neighboring countries interviewing victims, doctors and field hospitals and, according to their report of last week which I have seen, there are strong, concrete suspicions but not yet incontrovertible proof

of the use of sarin gas, from the way the victims were treated.”

Del Ponte added, “This was used on the part of the opposition, the rebels, not by the government authorities.”

The U.N. commission later pedaled back from Del Ponte’s statement, saying that it “has not reached conclusive findings as to the use of chemical weapons in Syria by any parties to the conflict.”

The context here, of course, is that President Barack Obama is under pressure to act in Syria because of his tough statement in August that the use of chemical or biological weapons in the Syrian conflict would cross a “red line.”

In the past few weeks, there have been multiple reports that Bashar al-Assad’s regime has deployed chemical weapons. (And after Del Ponte’s remarks were reported, a U.S. State Department official told CNN that the United States does not have information suggesting that rebels have “either the capability or the intent to deploy or use such weapons.” But, the source said, the “facts are not complete” and efforts to obtain more information are ongoing.)

But Del Ponte’s statement that the opposition is likely using chemical weapons raises an important issue: How plausible is the use of such weapons by any of the many armed factions that are fighting al-Assad’s regime?

The most effective Syrian opposition group is widely considered to be al-Nusra Front. The U.S. State Department says that al-Nusra Front is simply a cover name for al-Qaeda in Iraq, which has long operated in Iraq and neighboring Syria.

It is a worrisome fact that al Qaeda in Iraq is the only al Qaeda franchise ever to have actually used chemical weapons.

Al Qaeda in Iraq detonated a series of crude chlorine bombs in Iraq from late 2006 through mid-2007.

A study by the New America Foundation found a total of 16 chlorine gas bombings in Iraq, the last of which was in June 2007.

On October 21, 2006, al Qaeda in Iraq launched this campaign of chlorine bomb attacks by detonating a car loaded with mortars and chlorine tanks in Ramadi, wounding three Iraqi police officers and a civilian.

Such attacks sickened many hundreds of Iraqis, but the victims who died in these assaults did so from the blast of the bombs rather than from inhaling chlorine.

U.S. and Iraqi troops successfully killed or captured many of the people in al Qaeda in Iraq who were building the chlorine-laced bombs and captured much of the group's stockpiled chlorine.

Charles Faddis, who headed the CIA's operations against al Qaeda in Iraq's chlorine bomb network, told me in 2010: "There was a lot of effort to secure the chlorine, to get a hold of the tanks, to track these guys down (who were responsible for building the chlorine bombs), to kill them or capture them. Meanwhile, the attacks are not being particularly successful. The people are dying in the blast, but fortunately nobody is dying from chlorine."

There is no evidence that al Qaeda in Iraq stopped its campaign of chlorine bombing because of any qualms about the use of such weapons.

Chlorine gas was used by both sides during World War I but was banned by the Geneva Protocol, along with the use of other poison gases, after the end of the war.

The use of such weapons has been a matter of some debate within the leadership of al Qaeda.

In documents found by the U.S. Navy SEALs who raided Osama bin Laden's compound two years ago in Abbottabad, Pakistan, there was a letter written by bin Laden five days before he was killed in which he urged his followers in Yemen who were considering using "poison" to be "careful of doing it without enough study of all aspects, including political and media reaction."

As we consider the conflicting reports of the use of chemical weapons that have emerged from Syria over the past weeks, it is worth recalling that the al Qaeda affiliate in Syria has in the past used crude chemical weapons on multiple occasions in neighboring Iraq.

Also al Qaeda's leaders such as bin Laden have pushed back on the use of such weapons only insofar as their use might damage the image of al Qaeda in the eyes of the Muslim public, not because of international norms that the use of these weapons is beyond the pale.

<http://edition.cnn.com/2013/05/06/opinion/bergen-chemical-weapons-syria/>

Mississippi man linked to ricin letters charged with biological weapons use

*Robbie Ward TUPELO, Mississippi
April 27, 2013*

(Reuters) - A Mississippi martial arts instructor was charged on Saturday with attempting to use a biological weapon after a ricin-laced letter was sent to

President Barack Obama earlier this month, the U.S. Department of Justice said.

Everett Dutschke, 41, was arrested at his Tupelo home shortly after midnight by FBI agents following searches of the residence and a former business as part of the ricin letter investigation.

He was later charged with “developing ... and possessing” ricin and “attempting” to use it “as a weapon,” according to a joint statement by the U.S. attorney for the northern district of Mississippi and the head of the FBI’s Mississippi office.

Ricin is a highly lethal poison made from castor beans.

If convicted, Dutschke faces maximum possible penalties of life imprisonment and a \$250,000 fine.

His arrest came several days after U.S. prosecutors dropped charges in the case on Tuesday against another Mississippi man, Kevin Curtis, who was released from jail after a search of his home revealed no incriminating evidence.

Dutschke’s name first surfaced when Curtis’ attorney suggested in a court hearing that her client had been framed by someone, and mentioned a running feud between Dutschke and Curtis.

Saturday’s announcement did not specify if Dutschke was being charged in relation to the ricin letters, but it noted that the investigation had been conducted by several federal agencies including the U. S. Postal Inspection Service and U.S. Capitol Police.

Dutschke’s attorney, Lori Basham, did not return calls seeking comment, but she told Reuters earlier in the week that her client denied having anything to do with the ricin letters.

Dutschke is expected to appear in U.S. District Court in Oxford, Mississippi, on Monday.

Federal agents initially targeted Curtis, an Elvis impersonator, in their efforts to find who sent the letters laced with ricin.

Letters addressed to Obama and Senator Roger Wicker, a Mississippi Republican, were retrieved last week at off-site mail facilities before reaching their intended victims. A Mississippi state judge also received a ricin-laced letter.

Discovery of the letters fueled more national anxiety in the days after the bombing at the Boston Marathon.

(Additional reporting by Emily Lane in Jackson, Mississippi, Marilyn W. Thompson and Susan Cornwell in Washington; Writing by David Adams; Editing by Sandra Maler and Peter Cooney)

For full report please check:

<http://www.reuters.com/article/2013/04/27/us-usa-security-ricin-arrest-idUSBRE93Q07420130427>

Gas attack fears as 74 Afghan school girls examined for poisoning

April 22, 2013

As many as 74 school girls in Afghanistan’s far north have fallen sick after smelling gas in the air, and are being examined for possible poisoning. Some of them remain in a critical condition in hospital raising fears the school was attacked.

Local officials said the girls became ill after noting a gas smell in the air at their school, Bibi Maryam, in the Taluqan, the capital of the Takhar Province, about 250 kilometers north of the Afghan capital Kabul.

The girls were taken to hospital and although most were released after being treated, some are still in a critical condition, Dr. Jamil Frotan, the head of the hospital, told Reuters on Sunday evening.

“We have already sent samples of their blood to the Ministry of Public Health and it will soon become clear what the reason for their illness was,” Frotan said.

Sulaiman Moradi, The Takhar governor’s spokesman, said “enemies of the government and the country” were to blame and said the aim was to stop the girls going to school.

No one has claimed responsibility for the attack, but there have been numerous substantiated cases of mass poisonings of schoolgirls by elements of Afghanistan’s ultra conservative society who remain opposed to female education. The Taliban are just one section of a highly conservative society sharing such beliefs.

The suspected poisoning comes three days after more than a dozen students fell ill at another girl’s high school in Talugan. The incident also remains unexplained.

Four poisoning attacks in girls’ schools in Takhar between May and June last year, prompted local officials to order the head teachers to stay at school until late, to test the water for contaminants and for staff to search the grounds for suspicious looking objects.

Takhar has been a hotbed of criminal activity and militancy since 2009, with the Taliban and the Islamic Movement of Uzbekistan highly active in the province.

Since the Taliban were ousted in 2001 females have returned to schools especially in Kabul.

Afghan women have won back basic rights in education, voting and employment since 2001, but fears remain that these gains could be traded away as western forces prepare to leave the country in 2014 and the Afghan government seeks peace talks with the Taliban.

<http://rt.com/news/afghan-girls-school-gassed-218/>

DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

RTA could lessen dangers of chemical, biological warfare

May 9, 2013

Defense Advanced Research Projects Agency

For more than 50 years, researchers have been studying exactly how aspirin affects the human body. Despite thousands of publications on the topic, our understanding is still incomplete.

Meanwhile, novel chemical and biological weapons have historically been mass produced within a year of discovery. Using current methods and technologies, researchers would require decades of study to gain a robust understanding of how new threat agents exert effects on human biological systems.

That capability gap leaves U.S. forces vulnerable, so DARPA’s new five-year program, Rapid Threat Assessment, sets an aggressive new goal for researchers: develop methods and technologies that can, within 30 days of exposure, map the complete molecular mechanism through which a threat agent alters biochemical processes in human cells. The developed technologies

must identify the cellular components and mechanistic events that take place over a range of times, from the milliseconds immediately following exposure to the threat agent, to the days over which alterations in gene and protein expression might occur. The molecular mechanism must also account for molecular translocations and interactions that cross the cell membrane, cytoplasm and nucleus.

“Understanding the molecular mechanism of a given threat agent would provide researchers the framework with which to develop medical countermeasures and mitigate threats,” said Barry Pallotta, DARPA program manager. “If the RTA program is successful, potential adversaries would have to reassess the cost-benefit analysis of using chemical or biological weapons against U.S. forces that have credible medical defenses.”

Threat agents, drugs, chemicals and biologics interfere with normal cell function by interacting with one or more molecules associated with the cell membrane, cytoplasm or nucleus.

Since a human cell may contain up to 30,000 different molecules functioning together in complex, dynamic networks, the molecular mechanism of a given threat agent might involve hundreds of molecules and interactions. The technologies sought by RTA would identify the molecular targets of threat agents and the complex interactions that follow.

“Introducing a threat agent into a cell sets off a chain of interactions that propagate throughout the cell much like the pattern of ripples that result from throwing a pebble into a pond,” said Pallotta.

“Unfortunately, current research tends to be highly specialized, examining effects on very

specific proteins or lipids and so on, which is why a drug like morphine is still being studied almost 200 years after its introduction. For this reason, DARPA is demanding a comprehensive approach that identifies all of the affected components and interactions at once against a background of inherent complexity.”

To help navigate this complexity, program performers will have to discover the series of events in the molecular mechanism at time intervals from initial introduction of a threat agent to a period of several days of exposure. This could be accomplished by freezing cells at various points in time to capture interactions as they unfold. This approach will help researchers discover the actual sequence of molecular events initiated by the threat agent.

While providing a framework for the development of medical countermeasures to chemical and biological weapons, successful RTA technologies would also be readily applicable to drug development and treatments for disease. In both cases, detailed knowledge of molecular mechanism is one of the ingredients that enable new drugs to win approval or diseases to be treated.

DARPA hopes to pair technologies developed during the RTA program with its Microphysiological Systems program, which is building “human-on-a-chip” technology. By introducing threat agents or proposed countermeasures to the human-on-a-chip system, researchers could observe which human cell types are affected, and use RTA technologies to elucidate the specific molecular mechanisms in the affected cells.

http://www.fortcampbellcourier.com/news/article_fa9c06d4-b8eb-11e2-a657-0019bb2963f4.html

Could smallpox really be turned into a biological weapon by terrorists?

*Tamara Hinson
April 08, 2013*

It killed the Egyptian pharaoh Ramses V in 1145 BC, Tsar Peter II of Russia in 1730 and more than 300m people in the 20th century.

Smallpox originates from thousands of years ago and was officially eradicated at the end of the 1970s, but the infectious disease has only recently been downgraded as a potential terror threat.

It emerged last month that the British government quietly decided that the possibility of terrorists using the virus in a biological attack was too far-fetched.

It led to criticism from the science community that former prime minister Tony Blair had wasted millions of pounds in preparing for a threat which seemed unlikely to materialise.

He spent £79m on smallpox vaccines in 2002, a controversial move given that

It was a purchase which was heavily criticised, not least for the fact that £32m of that money went to a company owned by Labour donor Paul Drayson.

By 2005, the Department of Health had vaccinated 516 volunteers – including 147 doctors, 164 nurses and 100 ambulance staff – who would, in theory, have been able to deal with any suspected or confirmed case of smallpox.

However, reports published in 2006 and 2011 suggest that the vaccination programme had floundered and that many of those vaccinated had not been

revaccinated, which was necessary to maintain their immunity.

In papers leaked last month which revealed the terror threat downgrade, ministers said that preparations were too expensive, ‘unwieldy’ and not ‘proportionate’.

For full report please check:

<http://metro.co.uk/2013/04/08/could-smallpox-really-be-turned-into-a-biological-weapon-by-terrorists-3585028/>

Weapons of Mass Destruction: The New Face of Warfare

Chitra Lele (2013),

Pentagon Press,

ISBN: 978-81-8274-709-8,

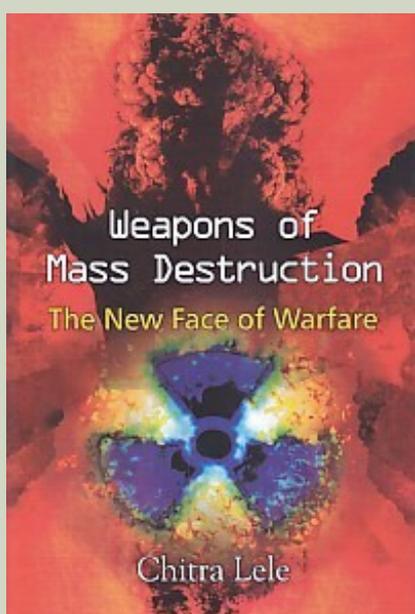
Price: Rs. 795, Pages: 181.

Mr. Parveen Bhardwaj

The author is a Research Intern at IDSA, New Delhi.

Summary

The book discusses and highlights the technological perspectives on the WMD debates.



In the recent times world has seen a marked geopolitical shift of power due to exponential rise of some of the emerging economies leading. In order to be perceived as competitive in such order, a country has to be economically as well as militarily strong so as to be able to project its power when necessary. Due to the technological advancement that was accompanied by perception battles on capacity, the post Cold War era saw significant increase in arms race as possession of Weapon of Mass Destruction (WMD) became near synonymous with deterrence. However, the need for deterrence was soon overpowered by ambitions of hegemony and various states started using WMD as a means of projection of power. The upsurge in the number and sophistication of WMD has altered the security equilibrium of the world; the situation has become much more complex due to the use of WMD by non-state actors. The pertinent issue of WMD and the ensuing debates are the basis of Chitra Lele's timely and comprehensive book *Weapon of Mass Destruction: The new Face of Warfare*.

The author primarily takes a technological perspective of the WMD debate and explains the technical aspects of these weapons in due detail. The book is divided into five parts which draw upon various aspects of history, technology and international security policy agenda. The part one talks about history, various jargons of WMDs and international treaties and protocols. The subsequent parts deal with nuclear, radiological, chemical and biological weapons, each separately, and discuss their types, delivery system, component or chemical use, and various effects and responses. In the new phase of cutting edge technologies, the WMD threat is exceedingly complicated. Acknowledging this issue, the book thoroughly highlights the

vital futuristic ideas that might give a new makeover to the existing WMD by essentially discussing topics like use of nanotechnology, artificial intelligence, cyber weapons like digital warfare and economic warfare. It also raises important concerns with reference to dual-use potential technology such as cyber terrorism and robotics and its impact on the future course of WMD.

Each type of weapon technology is explained in detail focusing on complicated build ups to delivery platforms in a very lucid manner. This gives the reader a concrete idea of technological evolution which can multiply the existing threat. In the last part, the author discusses the dynamics of bio and chemical weapons by fundamentally emphasising various agents that contribute to these kinds of weapons and their potential to be used not only as weapons but also as agents for agro terrorism. This apprehension is indeed an important contemporary issue for global security. Overall, the book is highly readable and is a significant addition to the knowledge and understanding of WMD. There are other important economic, social and political determinants of the WMD debate, the incorporation of which could have made this book more useful to the reader. However, at the end of every part the author has raised many pertinent questions, the answer to which could help shape further research on this subject. Since a full blown nuclear war between the world powers is unlikely, it would have been interesting to know more about inchoate and uncertain risks of WMD if they were to fall into the hands of non-state actors and about possible stand-offs between nuclear-armed regional powers that would decide the future of WMD in such cases.

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