CBW Magazine

Journal on Chemical and Biological Weapons

Volume 2 Number 1 October-December 2008

ISSN: 0974-0619

Institute for Defence Studies and Analyses

CBW Magazine

Journal on Chemical and Biological Weapons

Volume 2 Number 1 October-December 2008

ISSN: 0974-0619

idsa

Institute for Defence Studies and Analyses

Editorial

While the nation battles the worst ever war on terror in homeland, a personal loss to every Indian, the importance of preparedness in the wake of terror strikes gets focussed once again.

In this issue Ali Ahmed extrapolates the underlying principles of India's CBW policy. The intricacies of the Anthrax attack investigation is brought out by Pankaj Jha. Monalisa, in an update on the recent meeting of experts (MX), highlights the concerns and challenges ahead of the Biological Weapons Convention (BWC) regime.

From this issue we are starting a new feature Kaleidoscope that provides information on various national/international organisations linked with chemical and biological issues.

This issue also features other regular sections like country profile, chemical and biological news and book review.

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

India's Response to CBW attack

Ali Ahmed

The author is Research Fellow, IDSA, New Delhi.

A cardinal principle of India's nuclear doctrine is No First Use (NFU). In case the CBW attack is by a non-nuclear weapon state, there would appear to be a contradiction. 'However', it can be inferred that nuclear weapons could be used against a non-nuclear weapon state in the circumstance of a 'major' CBW attack by it. This feature of India's nuclear doctrine has been registered in the Army doctrine released in 2004. Use of CBW by states is the least likely threat. In India's case both potential adversaries are nuclear states.

A cardinal principle of India's nuclear doctrine is No First Use (NFU). It is articulated in a press release of January 4, 2003 on the review of operationalisation of India's nuclear doctrine by the Cabinet Committee on Security. NFU finds prominent mention in the doctrine featuring immediately after Minimum Credible Deterrent as the second point thus: "A posture of 'No First Use': nuclear weapons will only be used in retaliation against a nuclear attack on Indian territory or on Indian forces anywhere." However, further down the press release as the sixth point in the doctrine, is India's intent of nuclear retaliation even against attacks with chemical and biological weapons (CBW). This is phrased as under:

"However, in the event of a major attack against India, or Indian forces anywhere, by biological or chemical weapons, India will retain the option of retaliating with nuclear weapons."

In addition, this intent also impacts the point immediately preceding it in the doctrine, namely: "Non-use of nuclear weapons against non-nuclear weapon states." The implications of India's declaration of resorting to nuclear retaliation against a 'major attack' with chemical and biological weapons on NFU and non-use against non-nuclear weapon states require deliberation.

First an understanding of India's doctrine in this respect needs to be attempted. This is necessitated by the extremely succinct manner the doctrine has been phrased, unlike its predecessor the Draft Nuclear Doctrine. India's nuclear posture can be said to be one of 'assured retaliation'. Nuclear retaliation would also be a response 'option' in case of a 'major' CBW attack. In effect, CBW attacks not amounting to a 'major' level would not draw a nuclear response. Even in case of a major CBW attack, India would not reflexively resort to nuclear retaliation, but doing so has explicitly been ruled in as a response 'option'.

In case the CBW attack is by a non-nuclear weapon state, there would appear to be a contradiction. On the one hand India has stated that it would not resort to nuclear weapons against a non-nuclear weapon state; while on the other hand it says it would do so should it face a major CBW attack from such a state. Since the point on nuclear retaliation against CBW attacks follows the one on no nuclear use against a non-nuclear weapon state and begins with 'However', it can be inferred that nuclear weapons could be used against a non-nuclear weapon state in the circumstance of a 'major' CBW attack by it.

Having clarified the postulates of the doctrine, a look at the background is in order. The response to CBW attacks featured prominently in the run up to Iraq War I when President George Bush Sr. attempted to deter CBW use by Iraq through promising nuclear retaliation in case it did so. Iraq's earlier use of chemical weapons in the Iran-Iraq conflict had led to apprehension in the coalition of its likely use in the forthcoming conflict over its occupation of Kuwait. In the event, Iraq did not use chemical weapons. This cannot however be attributed to successful operation of deterrence since it would first require to be proved that Saddam had intended to do so but was deterred by the timely threat by Bush. The likelihood of Iraq's resort to chemical weapons can be said to have been extremely minimal, if at all, and this was very likely not of the order as to merit a nuclear threat. That a nuclear threat was nevertheless resorted to by the superpower indicates the Information War dimension of the conflict in which Iraq was to first be built into a 'threat' of appropriate dimension as to call for the kind of build up and retribution witnessed in the Gulf in Iraq War I.

The US has since gone on to incorporate this aspect in its nuclear posture. It's National Security Strategy released on September 17, 2002 has it that, "the United States will continue to make clear that it reserves the right to respond with overwhelming force—including through resort to all of our options—to the use of weapons of mass destruction (WMD) against the United States, our forces abroad, and friends and allies." The influence of this formulation can be discerned in the Indian doctrine that came out only a few months later. The elements in the US formulation are present in the Indian version less the aspect of extended deterrence covering 'allies' that is understandably omitted.

This feature of India's nuclear doctrine has been registered in the Army doctrine released in 2004. The relevant portion states: "India reserves the right to retaliate with nuclear weapons in case of a strike against her by adversaries with nuclear, chemical or biological weapons." The Army doctrine in not mentioning 'major attack' conveys the wrong impression that India would retaliate with nuclear weapons to a CBW strike. This not being the case would require reconciliation within the doctrine branch of the Army headquarters in the next edition of its doctrine.

The Army doctrine in discussing the threat underplays it: "International conventions... have banned the use of biological and chemical weapons. However, their use by adversaries and non-state actors cannot be ruled out." It avers that our forces must be prepared for operations in a biological and chemical weapons environment and towards this end, "both, active and passive defensive measures are being instituted to cater to this requirement." It can be inferred that the threat exists. Why this should be so with respect to 'adversaries' – both China and Pakistan have ratified the CWC - is not certain; but that being potential adversaries they cannot be trusted to fulfill their obligations is the presumable reason. Whatever the reason, the Army has rightly instituted active and passive measures; this despite being under the impression that India's response would be nuclear. Perhaps such measures include intelligence and targeting as 'active' measures and camouflage, dispersion and monitoring as 'passive' measures, among other military actions. This is explicable and does not divert overly from conventional war-fighting tasks. But given the seeming low level of perceived threat as evidenced by the Army doctrine, is the case for Indian intent to resort to nuclear weapons to deter such threats justified?Let's look at the threat perception. Use of CBW by states is the least likely threat. There are several reasons for this. The experience of the First World War dampens state resort to CBW. This would lay them open to retaliation in kind. The logistics of the exercise are considerable and defence measures against retaliation that would ensue are equally daunting. CBW are two edged. The attacking state would fall afoul of international opinion. It would render its soldiers exposed to like use by the adversary and this would not be helpful to morale. India's potential adversaries have the requisite conventional capability to reckon with India and therefore would not require resorting to CBW.

A state most likely to use CBW is one that would like to redress nuclear asymmetry in some

fashion – chemical weapons being known as 'the poor man's atom bomb'. In India's case both potential adversaries are nuclear states. The other neighbours are also chemical weapons convention CWC signatories. There is no conflict scenario with such states in which either CBW figures in their calculations or a nuclear deterrent threat in India's. Therefore there is little sense in the inclusion of the clause in question in the nuclear doctrine.

The non-state CBW threat mentioned in the Army doctrine is not impossible to envisage, given the levels of evil and desperation of terrorists. However, in an in-conflict scenario, attributing such an act to state sponsorship would not be possible to sustain. Worse is that knowing Indian intent,terrorists could launch such an attack in the hope that it provokes India to contemplate a nuclear response; thereby playing into their hands. In any case, such an attack can never be of the level of a 'major attack' and the Indian Army has declared it is capable of meeting the threat. In a peace time scenario, the threat of nuclear retaliation is a non-starter. Lastly, the inclusion of the phrase 'Indian forces anywhere' in the clause in question requires considering. In a conflict situation, even if on enemy territory, they are in any case covered by the deterrent threat. The conflict areas this phrase is possibly intended to cover are on peacekeeping duty or as part of possible future coalition operations outside of UN auspices. The apparent suggestion is that the utility of nuclear weapons is expanding beyond the consensus on politically acceptable dimensions of national security. On this score, this phrase compels a revisit. There is therefore no plausible scenario for Indian recourse to the nuclear option in response to a CBW threat. This begs the question of why it has been referred to in the doctrine in first place. The logic given in defence of the clause on release of the doctrine was that India having recently acceded to CWC and disarmed itself of CBW required to have a robust deterrent against their use against it. Having seen the counter argument against its inclusion, the recommendation here is that this clause could be deleted at the next review of the nuclear doctrine.

More importantly, the clause has a diluting effect on NFU and the guarantee extended by India to non-nuclear weapon states. This impacts the credibility of the doctrine. Since the bedrock of nuclear doctrine is it credibility, any aspect that detracts from the same requires review. The release of the doctrine witnessed credible adverse comment on this aspect. The same odium of a qualified NFU that is attributed to China in some writings would also attach to Indian NFU. For instance, it is believed that China has qualified its NFU in stating that it is not applicable to its territory, interpreted in Indian circles to include Indian territory claimed by China. This is said to dilute China's NFU. A like impact obtains on Indian pledge of NFU by the qualification, proved above as unnecessary in any case. Our pledge to non-nuclear states is to enhance our status as a responsible nuclear power. This qualification of the pledge impacts the stature being sought.

Therefore, to conclude, it is recommended that the doctrinal clause be reviewed – a surprising inclusion to begin with. Not being a doctrinal pillar of the order of 'minimum credible deterrence', 'NFU' and 'assured retaliation', there is no harm in India taking on board the problems pointed out since 2004 in refreshing its nuclear doctrine.

Anthrax Case: The Mystery Remains

Dr. Pankaj Kumar Jha

The author is Associate Fellow, IDSA, New Delhi.

The overall anthrax episode has somehow addressed the grief of the victims of anthrax attack in the US but the shoddy investigations and the foreclosure of the investigations have raised few questions which needed to be addressed like what was the main motive of the accused and who were the actual perpetrators of such an attack. The anthrax case of US in the post 9/11 phase has raised the issue of the protection of biological agents programme and the scientists involved in such clandestine operations.

In early August 2008 most of the US newspapers were highlighting the 'suicide' of the marked man suspected for his involvement in the spread of anthrax through letters in 2001. The FBI has stated that as the suspected scientist knew that he was likely to be indicted and charged with the spread of anthrax, he committed suicide. The chemical which was found in his blood during the post-mortem report was Tylenol, which caused his liver failure over several days. While investigations were launched against many suspected scientists including Steven Hatfill, one of the colleagues of Ivins and even the name of Dr. Philip Zack was listed under 'suspected' category. But this investigation has many threads attached to it. While investigations were launched it was revealed that the anthrax laced letter send to the Capitol Hills offices contained chemical additive known as bentonite and the presence of bentonite in the anthrax was compelling evidence that Iraq was responsible for the attack as 'bentonite' was a trademark of Iraqi Leader Saddam Hussein's biological weapons program'. It was also speculated that in such form of attack there was a significant role of a state or the anthrax spores were stolen from the former Soviet Union Programme.'[1]

Subsequently even stories appeared in US media that it was attempt by Ivins to test the effectiveness of anthrax. On the other hand few suggested that it was a commercial ploy gone bad. It was stated that in March 2000, Ivins and other army specialists filed to patent a method of making a genetically engineered anthrax vaccine. The patent was awarded in May 2002. In the wake of anthrax attacks, the US government contracted with the California Company VaxGen to manufacture 75 million doses of the vaccine at a total cost of $ 87 million. Vaxgen's chief executive said his company was licensed to use the manufacturing method created by Ivins and other army specialists. Although it is common for scientists working for government laboratories and private corporations to apply for patents to protect inventions developed while on the job, it is relatively uncommon for those individuals to benefit personally from products developed and sold as a result of those patents[2]. Even the chief executive of the company endorsed the same view.

On the one hand while the death of Ivins has resulted in the investigating agency like FBI not able to reach any concrete results while on the other hand the FBI spent years attempting to prove that Steven J. Hatfill, a researcher at the same laboratory, had committed the anthrax attacks before agreeing last month to a US$ 5.8 million out-of-court settlement of his privacy lawsuit. Ivins had come under scrutiny of FBI agents after eliminating the other suspects. His house and office was searched and his co-workers were interviewed about his access to anthrax powder and his odd behaviour. But there were questions raised about the lack of solid evidence to indict Ivins. This makes the whole investigations murkier. The whole episode also has one more angle of the victims' version.

The victims and the accused did not get the required hearing and the case was closed abruptly. The announcement came within a fortnight of the death of Ivins. The victims felt that not proper investigation was made into the case and as was expected there is a spurt in law suits for compensation because it has now been confirmed that the anthrax strain was leaked from the bio defence laboratory of US security establishment. National Security experts had said that they have long suspected the anthrax outbreak could be traced to the country's own bio-defence programme because of the nature of the spores and the way the letters had been prepared. Elisa D. Harris, ex member of National Security Council, stated that it is critical to identify the source of the material and how the security measures at US facilities lapsed, where the anthrax was processed and how many persons were involved. This showed that a country like US which has always championed against the weapons of mass destruction could not secure its own labs from the internal sabotage. This exemplifies the role of the security agencies and the scientists who have become vulnerable to the external influences and so there is a need for proper mitigation of such attacks and full investigations, so that conclusive results could be procured and the concerns of the victims could be addressed.

The overall anthrax episode has somehow addressed the grief of the victims of anthrax attack in the US but the shoddy investigations and the foreclosure of the investigations have raised few questions like what was the motive of the accused and who were the actual perpetrators of such an attack. Many victims and their kin have raised the issue of improper briefing by the FBI officials and how there are questions which needed to be answered. Above all these things one thing is important that the full case file of the anthrax case would be an interesting reading without any prejudice.

The anthrax case of US in the post 9/11 phase has raised the issue of the protection of biological agents programme and the scientists involved in such clandestine operations. On the one hand while US case does seem to have been resolved but this has also opened up a Pandora's Box of ideas which can threaten the whole city and even psychologically cripple the whole system as has happened in the US during those attacks. But this case has typecast the post investigation scenario as the victor, the vanquished and the victim.

References:

1 Glenn Greenwald on US govt anthrax scientist's suicide at http://www.boingboing.net/2008/08/01/glenn-greenwald-on-u.html (Accessed 24.10.2008).

2 Scientist set to discuss Plea Bargain in deadly attacks commits suicide , at http://www.washingtonpost.com/wp-dyn/content/story/2008/08/01/T2008080101023.html?sid=ST2008080101023&pos=list(Accessed22.9.2008).

3 Apparent suicide in anthrax case at http://www.latimes.com/news/nationworld/nation/la-na-anthrax1-2008aug01,0,2864223.story (Accessed 15.9.2008).

4 Judge holds reporter in contempt in anthrax case at http://www.usatoday.com/news/nation/2008-02-19-reporter-anthrax_N.htm (Accessed 23.10.2008).

5 Analyzing the Anthrax Attacks (2005-2008 Edition) at http://www.anthraxinvestigation.com/ (Accessed 31.10.2008).

6 EXCLUSIVE: How the FBI Botched the Anthrax Case at http://abcnews.go.com/Blotter/story?id=5276220(Accessed 13.10.2008).

7 F.B.I. Presents Anthrax Case, Saying Scientist Acted Alone at http://www.nytimes.com/2008/08/07/washington/07anthrax.

html?ref=nationalspecial3# (Accessed 3.10.2008).

8 U.S. officials declare researcher is anthrax killer at http://www.cnn.com/2008/CRIME/08/06/anthrax.case/index.html(Accessed 23.8.2008).

9 Feds release documents in anthrax case:Newspapers sued to retrieve information on falsely accused scientist at http://www.msnbc.msn.com/id/27913665/(Accessed 25.8.2008).

10 United States District Court for The District Of ColumbiaAnthrax Case Documents at http://ww.dcd.uscourts.gov/Anthrax-Case- Info.html(Accessed 31.8.2008).

11 Doubts over the anthrax case intensify — except among much of the mediaat http://www.salon.com/opinion/greenwald/2008/08/18/anthrax/ (Accessed 23.8.2008).

12 Konstantin V Frolov and Gregory B Baecher eds. Protection of Civilian Infrastructure from Acts of Terrorism, NATO Security through Science Studies- C,Environmental Security, Springer, Dordrecht,2006.

13 Janusz Kocik et al eds. Preparedness against Bioterrorism and Re-Emerging Infectious Diseases, NATO Science Series, IOS Press, Amsterdam,2004.

14 Michael S. Bronze and Ronald A. Greenfiled eds., Biodefence: Principlesand Pathogens, Horizon Bioscience,NorfolkNR, England,2005.

15 Robert J Ursana et al eds. Bioterrorism: Psychological and Public Health Interventions, Cambridge University Press, United Kingdom,2004.

Update on the Meeting of Experts for BWTC (18-22 August 2008)

Dr Monalisa Joshi

The author is the Assistant Editor, CBW Magazine.

As a part of the intersessional process for the BWC, this Meeting of Experts (known as MX) was in its second year. This year topics for discussion before the MX were- National, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins etc. This year's MX generated open discussions and helped to disseminate information in the public domain.

The Meeting of Experts for the Biological and Toxin Weapons Convention (BTWC/BWC) was held from August 18 to 22, 2008 in Geneva. As a part of the intersessional process for the BWC, this Meeting of Experts (known as MX) was in its second year.

This year topics for discussion before the MX were- National, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins' and 'Oversight, education, awareness raising, and adoption and/or development of codes of conduct with the aim of preventing misuse in the context of advances in bio-science and bio-technology research with the potential of use for purposes prohibited by the Convention'.[1]

This article presents an account of the various events and discussions taken up at MX. The information for this article is based on the reports prepared by Richard Guthrie on behalf of the BioWeapons Prevention Project (BWPP) in co-operation with the Acronym Institute for Disarmament Diplomacy.[2]

On the opening day, August 18, 2008 States Parties to the BWC made 'introductory statements', which was followed by statements from the NGOs. France (on behalf of the EU and associated states), Cuba (on behalf of the NAM), Pakistan, South Africa, Japan, US and India were among several other countries that gave statements. According to reports, the control of the hostile uses of the life sciences was marked as a challenge before the BWC.[3]

On the second day, August 19, thematic discussion on the 'concepts of biosafety and biosecurity' was initiated. There were presentations from several Intergovernmental organisations: the World Health Organisation, the Organisation for Economic Cooperation and Development, the United Nations Environment Programme/ Global Environment Facility, and the European Commission (DG SANCO).[4]

Later in the day a panel of four experts from the private sector recorded statements. Amongst

the four one was Shrikumar Suryanarayan (Association of Biotechnology Led Enterprises of India [ABLE]).[5]

On the third day, August 20, discussion from the previous day on the 'concepts of biosafety and biosecurity' were carried on. Later, presentations were also made by the representatives of scientific bodies like the American Biological Safety Association, the Asia Pacific Biosafety Association and the European Biological Safety Association etc.[6] The new Joint Action supporting the WHO in biosafety and biosecurity activities was mentioned by France. Issues like-capacity building to meet disaster management, legal mechanisms to control pathogens and infrastructure development for High Level Labs also found mention.[7] The Risk Management Panel provided useful insights on the subject. It noted that good communication of risks should be carried at all stages of risk management.[8]

On August 21, presentations were made by Canada, France and Cameroon on the subjects of biosafety and biosecurity. It was mentioned that biosecurity and biosafety processes are an on-going process and not permanent arrangements.[9] In addition, Japan pointed out that the model of preventing scientific people's involvement in hostile use of pathogens can be drawn from the country's experiences of dealing with the Aum Shinrikyo. The UN Security Council 1540 committee then addressed the meeting on education and awareness raising within the states.[10] The draft of the procedural section of the final report of the MX was also circulated.[11] The intention behind the final report was to make some recommendations that State Parties might consider in the future. These recommendations were not binding.[12]

On the concluding day, August 22, the morning started with the last presentations on the second topic of MX 2008 – 'Oversight, education, awareness raising, and adoption and/or development of codes of conduct with the aim of preventing misuse in the context of advances in bio-science and bio-technology research with the potential of use for purposes prohibited by the Convention'.[13]

Presentations were also made by Australia, Argentina, India, Georgia, and Pakistan on the theme of 'education and awareness'.[14] The Chairman of MX, Ambassador Georgi Avramchev (The Former Yugoslav Republic of Macedonia), gave an interim report on universalisation of the Convention. He mentioned the three new States Parties to BWC, Zambia, Madagascar and the United Arab Emirates. He indicated that Cameroon and Mozambique were well advanced in their preparations for becoming Parties to the BTWC. In addition, Myanmar, Nepal, Comoros and Côte d'Ivoire also had made some progress to join the BWC.[15]

This year's MX generated open discussions and helped to disseminate information in the public domain. It also set the ground for the next year's meeting that will discuss on the subject of 'enhancing international cooperation, assistance and exchange in biological sciences and technology for peaceful purposes' and 'promoting capacity building in the fields of disease surveillance, detection, diagnosis, and containment of infectious diseases'.

Endnotes:

1 Richard Guthrie, MX report #1, The 2008 Meeting of Experts: Biosecurity and Education, via http://www.bwpp.org/.

2 Copies these reports are available via <http://www.bwpp.org/2008MX/MX2008Resources.html> or <http://www.acronym.org.uk>.

3 Richard Guthrie, MX report #2, The 2008 Meeting of Experts: The Opening Day, via http://www.bwpp.org/.

4 Richard Guthrie, MX report #3, The 2008 Meeting of Experts: The Second Day, via http://www.bwpp.org/.

5 Ibid.

6 Richard Guthrie, MX report #4, The 2008 Meeting of Experts: The Third Day, via http://www.bwpp.org/.

7 Ibid.

8 Ibid.

9 Richard Guthrie, MX report #5, The 2008 Meeting of Experts: The Fourth Day, via http://www.bwpp.org/.

10 Ibid.

11 Ibid.

12 Richard Guthrie, MX report #6, The 2008 Meeting of Experts: The Final Day, via http://www.bwpp.org/.

13 Ibid.

14 Ibid.

15 Ibid.

Chemical Weapons: A Case Study of China

Gunjan Singh

The author is Research Assistant, IDSA, New Delhi.

China is an extremely difficult subject to study where sensitive military matters particularly related to Chemical and Biological weapons (CBW) are concerned.During the 1920s, the Chinese warlords had expressed interest in purchasing and manufacturing CW agents and even the PLA has had a defensive CW program for a long time.

China is an extremely difficult subject to study where sensitive military matters particularly related to Chemical and Biological weapons (CBW) are concerned. This article will be an attempt to examine the capabilities involving Chemical Weapons (CW) and China's current posture on these issues. The article concludes with some futuristic predictions related to the Chinese policies related to the subject.

During the 1920s, the Chinese warlords had expressed interest in purchasing and manufacturing CW agents. There were no reports of the use of chemical weapons during China's turbulent republican period. The first use of CW is believed to have taken place in 1930 in Wushe, a mountainous area in central Taiwan. Here China's Manchu rulers were forced to cede the provincial island of Taiwan to Japan. At Wushe the Japanese had used chloracetophenone (CN) while crushing the rebellion.

Beginning in 1937, the Japanese army employed a wide range of CW agents during its invasion of China. It is reported that 25% to 30% of Japanese artillery shells and aerial ordinance were chemical bombs which resulted in approximately 10,000 deaths. The CW agents used were diphenylchloroarsine, diphenylcyanoarsine, chloracetophenone (CN), chloropicrin, hydrogen cyanide, phosgene, mustard, and lewisite. However, according to some estimates CW never played a decisive role in the Sino-Japanese war of 1937-1945.

The Chinese resistance group known as the Kuomintang (KMT) operated a chemical warfare center from 1940 to 1945. The fate of KMT CW units after World War II and the Chinese communist takeover in 1949 is unknown. But the CW and equipment abandoned by the Japanese fell into the hands of Chinese communists in 1949. PRC has always made demands that the Japanese should remove the CW which it left behind after the World War II.

Chinese sources are full of information about the US employment of CW during Korean War of 1950-1953. They report that the US forces had used CW on more than 200 occasions. Even

Jiang Zemin (1993 to 2003) had stated that during the Korean War the US forces had used all modern weapons except for nuclear arms. However, according to some US sources there is no evidence that the UN forces of any country had employed CW during the Korean War.

PLA has had a defensive CW program for a long time. PRC takes credit for having trained the North Vietnamese in CW defence and protective gear during Vietnam War. Probably CW was used in some fashion during a brief but violent clash between the Chinese and Soviet military forces in 1969.

Disarmament and Current Capabilities

China signed the Chemical Weapon Convention (CWC) on January 13, 1993 and ratified it on April 25, 1997.[1] They have declared past CW activity to the organisation for the Prohibition of Chemical Weapons (OPCW) but it has not made this information public. The OPCW receives states-parties' declarations about their respective In the past they had two to three CW production facilities, which Chinese sources claim as pilot facilities. However no information is available about the types and quantities of the agents used for the production of CW. Such declarations are then verified through the OPCW inspections. OPCW monitors states-parties' facilities and activities as they are pertinent to the Convention's aims. The organisation also relies on the cooperation of other international organisations to assist it with dispatch, delivery and managing on-site activities and training. 'Chemical Weapon'.

According to the reports published by the US Department of Defence in January 2001: China possesses a moderate inventory of traditional weapons. It also states that Beijing has not acknowledged the full extent of its chemical weapons program. They have a wide variety of potential delivery systems like cannon artillery, multiple rocket launchers, mortars, land mines, aerial bombs, SRBMs, and MRBMs. But China has never been well equipped to use the CW offensively because of its geographical and technological limitations.

Their CW defence materiel and methods are dated, bulky, and best suited to defend against an unlikely land invasion from China's western and southern borders. The Chinese have taken active interest in binary CW, which contains two relatively harmless chemicals that react during munitions flight to the target to yield a lethal agent. China feels that these munitions are well suited for a people's war under modern conditions. According to their military sources, due to similarities with civilian industrial products, one can now sufficiently develop and produce chemical weapons on the sly.

Capabilities

The People's Liberation Army (PLA) is incapable of targeting continental US because of the absence of chemically armed Intercontinental Ballistic Missiles (ICBM). However, it is capable of hitting regionally deployed military forces by chemical weapons if they possess one. At the same time, Chinese missiles do not have high accuracy and also the spread of chemicals is bound to harm the population other than the US troops. Hence it is very unlikely that they would use such weapons on the US troops operating from bases in other countries as this would lead to a very high collateral damage.

Taiwan is 100 miles away from the mainland China. Hence China would have to use aerial platform or a missile to deliver a CW over there. But China's ultimate aim is unification and hence it would not like the local population to go against it. Also it would factor for the possibility of massive US retaliatory strike before attacking Taiwan by CW. Further, in China's assessment, the perceived CW threat from Taiwan is the least likely scenario.

For China, only continental land war options are amenable to offensive CW. So potential CW war between India and China only remains a theoretical possibility.

Footnotes:

The CWC defines 'chemical weapon ' broadly to include the following:

[1] toxic chemicals and their precursors, except where intended for purposes not prohibited by the CWC, as

long as the types and quantities are consistent with such purposes;

2 munitions and devices specifically designed to cause death or harm through the toxic properties of toxic chemicals released by using such munitions or devices; and

3 any equipment specifically designed for use directly in connection with the employment of such munitions and devices (Article 2.1).

CWC bans:

1 Developing, producing, acquiring, stockpiling, or retaining chemical weapons.

2 The direct or indirect transfer of chemical weapons.

3 Chemical weapons use or military preparation for use.

4 Assisting, encouraging or inducing other states to engage in CWC-prohibited activity.(e) The use of riot control agents "as a method of warfare."

References:

1 http://www.nti.org/db/china/cwcorg.htm

2 http://www.nti.org/e_research/profiles/China/Chemical/index.html

3 http://www.reachingcriticalwill.org/legal/cw/cwindex.html

4 http://english.people.com. cn/90001/90776/90883/6545040.html

Organisation for the Prohibition of Chemical Weapons (OPCW)

The Chemical Weapons Convention (CWC) is an international treaty of unlimited duration. It bans chemical weapons and requires their destruction within a specified period of time. The treaty is considered the most comprehensive pertaining to chemical weapons and is a landmark in multilateral arms negotiations in the post Cold War era.

On January 13, 1993, the Convention was opened for signature and it entered into force on April 29, 1997. At present, 183 states are party to the Convention. Amongst the seven states that have not signed or acceded include North Korea and Syria. CWC has been ratified by all the states of South Asia except for Myanmar. Myanmar signed the Convention on January 14, 1993 but has not ratified it as yet.

The implementing body of the CWC is the Organisation for the Prohibition of Chemical Weapons (OPCW). The mandate of the OPCW is to "achieve the object and purpose of the Convention, to ensure the implementation of its provisions, including those for international verification of compliance with it, and to provide a forum for consultation and cooperation among States Parties".1

Established in 1997, the OPCW has its Headquarters at The Hague, Netherlands. The current membership of the OPCW is 184. Ambassador Rogelio Pfirter is the OPCW Director General from 2006 to 2010.

There are three main organs of the OPCW, the Technical Secretariat, Executive Council and the Conference of the States Parties of the OPCW. The Secretariat is responsible for the day-to-day administration and implementation of the Convention. The Executive Council and the Conference of the States Parties are the decision-making organs. Composed of all Member States, the Conference meets annually as well as in special session when necessary. The Executive Council is comprised of the representatives of 41 Member States, who are elected by all other OPCW Member States to serve two-year terms. The Executive Council usually meets four times per year, and more frequently in meetings and informal consultations, to take policy decisions that enable the OPCW to function.2

The OPCW Member States already represent about 98% of the global population and landmass, as well as 98% of the worldwide chemical industry.3 The OPCW also support to non-member states to prepare for joining the CWC.

Endnotes:

1 http://www.opcw.org/about-opcw/

2 Ibid.

3 Ibid.

ARMS CONTROL

Fourth Regional Assistance and Protection Course for Asian States Parties

The Government of the Republic of Korea and the OPCW organised the Fourth Regional Assistance and Protection Course for Asian States Parties in Seoul from September 22 to 26, 2008. The course trained some 30 participants to plan for and build support teams in civil protection, civil defence, and decontamination operations in contaminated areas in the event of the use or threat of use of chemical weapons.In addition, the course provided information and training for appropriate responses and countermeasures in incidents involving chemical warfare agents and toxic industrial chemicals. Participants received a basic introduction to the use of individual and collective protective equipment, monitoring, detection, and decontamination techniques against chemical weapons. The course also contained a practical emergency response exercise.

The course provided participants an opportunity to exchange information and experiences regarding implementation of Article X of the CWC. The agenda included discussions on the type of assistance the OPCW, host country and Member States in Asia can provide during an emergency situation resulting from the threat or use of chemical weapons.

http://www.opcw.org/news/news/article/fourth-regional-assistance-and-protection-course-for-asian-states-parties

WMD strike 'likely' in five years

The chance of a nuclear or biological attack on a major world city within the next five years is now much greater, a new report has warned.

A bi-partisan commission set up by the US Congress said America's "margin of safety" was shrinking, not growing.

One of the authors of World at Risk said its enemies were moving quickly to gain weapons of mass destruction.

The White House later said it did not plan to overhaul the country's national security structures in response. A spokeswoman said it would be up to Barack Obama to consider the issue, when he took office. "I think that we would make sure that the president-elect's team is fully briefed and then if they decide they want to move forward when they have their team together," said its spokeswoman, Dana Perino. The report was presented to Vice-President-elect Joe Biden.

Biological threat greatest

Earlier, President George W Bush discussed the report with the nine members of the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism, along with his National Security Adviser, Stephen Hadley.

The commission, which was set up after the attacks of September 11, 2001 warns in its report that without urgent action, "it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013".

Barack Obama is urged to appoint a new official to oversee the threat. The threat to the US and the rest of the world, the report says, is from the rapid spread of nuclear technology in countries such as Pakistan and Iran, and poor security in biotech industries worldwide.

It says that the threat from biological weapons is greatest, adding that the US should be less concerned that terrorists will become biologists and far more concerned that biologists will become terrorists.

One of the members of the commission, former Democratic Senator Bob Graham, said that the threat was growing because America's adversaries were moving at a faster pace to get access to weapons of mass destruction. He said

time was not America's ally and that it needed to move with a sense of urgency. The commission wants President-elect Barack Obama to appoint a senior official to co-ordinate intelligence to combat the spread of nuclear and biological weapons.

Pakistan is highlighted as a country of particular concern. The report says there is a grave danger is could become "an unwitting source of a terrorist attack on the United States, possibly with weapons of mass destruction." It also accuses the Bush administration of failing to treat possible biological attacks with the same priority as the spread of nuclear weapons.

http://news.bbc.co.uk/2/hi/americas/7762318.stm

"The Broad-Spectrum Treatment of Biological Weapons and Emerging Pandemic Threats Report" released by Aethlon Medical

Biological weapons of mass destruction and emerging pandemic threats represent a significant security and health challenge for all nations. The development and commercialisation of traditional drug and vaccine countermeasures is an immense challenge requiring enormous resources. The universe of known and unknown bioterror and advancement of single-target drug and vaccine therapies as the predominant strategy to address a pandemic threats is clinically and economically unfeasible. Accordingly, the Department of Health and Human Services (HHS) of the United States has decreed that broad-spectrum therapies, able to demonstrate effectiveness in combating multiple pathogens, will become a focal point for government initiatives that encourage the development of countermeasures against bioterror pandemic threats. This section introduces the Aethlon Hemopurifier(R) as the most advanced and broad-spectrum treatment platform as evidenced by a breadth of supporting in vitro data and human treatment experience.

About Aethlon Medical

Aethlon Medical is the developer of the Hemopurifier(R), a first-in-class medical device designed to treat infectious disease. The Hemopurifier(R) provides real-time therapeutic filtration of infectious viruses and immunosuppressive particles, and is positioned to address the treatment of drug and vaccine resistant viruses. Additionally, the device holds promise in cancer care, as research studies have verified the Hemopurifier(R) is able to capture immunosuppressive particles secreted by tumors. The Hemopurifier(R) is designed to act both as a stand-alone therapeutic, and as an adjunct treatment to enhance clinical benefit of established therapies. Pre-clinical studies conducted by researchers representing leading government and non-government health organisations both in the United States and abroad have documented the effectiveness of the Hemopurifier(R) in capturing from circulation the viruses that constitute pandemic threats, including H5N1 Avian Influenza (bird flu), and Dengue Hemorrhagic Fever (DHF) from circulation. The company is conducting studies to support the use of the Hemopurifier(R) as a broad-spectrum treatment countermeasure against bioterror threats, including Smallpox, and Ebola, Marburg, and Lassa hemorrhagic fever. Regulatory and commercialisation initiatives in the United States are presently focused on bioterror threats, while international initiatives are directed toward naturally evolving pandemic threats, and chronic infectious disease conditions including the Human Immunodeficiency Virus (HIV) and Hepatitis-C (HCV). Aethlon has demonstrated safety of the Hemopurifier(R) in a 24-treatment human study at the Apollo Hospital in Delhi, India, and in an 18-treatment study at the Fortis Hospital, also located in Delhi. The company has submitted an investigational device exemption (IDE) to the U.S. Food and Drug Administration (FDA) to advance the Hemopurifier(R) as a broad-spectrum treatment countermeasure against category "A" bioterror threats. Additional information regarding Aethlon Medical and its Hemopurifier(R) technology is available online at www.aethlonmedical.com. Certain of the statements herein may be forward-looking and involve risks and uncertainties. Such forward-

looking statements involve assumptions, known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Aethlon Medical, Inc to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. Such potential risks and uncertainties include, without limitation, the Company's ability to raise capital when needed, the Company's ability to complete the development of its planned products, the ability of the Company to obtain FDA and other regulatory approvals permitting the sale of its products, the Company's ability to manufacture its products and provide its services, Company's proprietary technology, product the impact of government regulations, patent protection on the liability exposure, uncertainty of market acceptance, competition, technological change,and other risk factors. In such instances, actual results could differ materially as a result of a variety of factors, including the risks associated with the effect of changing economic conditions and other risk factors detailed in the Company's Securities and Exchange Commission filings.

http://www.marketwatch.com/news/story/The-Broad-Spectrum-Treatment-Biological/story.aspx?guid=%7B12D44FA3-BCA7-4011-A937-6327D97196E4%7D

DISARMAMENT

Lebanon Joins the Chemical Weapons Convention

The Embassy of Lebanon to the Kingdom of the Netherlands informed the Technical Secretariat that, on November 20, 2008 the Government of Lebanon deposited its instrument of accession to the Chemical Weapons Convention (CWC) with the Secretary General of the United Nations. Upon official confirmation of receipt of the instrument by the United Nations, the Convention will enter into force for Lebanon 30 days after the deposit and this country will become the 185th State Party to the CWC.

The OPCW is the implementing body for the Convention. The OPCW Director-General, Ambassador Rogelio Pfirter, welcomed Lebanon's decision as a significant step to strengthen global and regional efforts to prevent the spread and use of chemical weapons.

"Lebanon's accession draws us closer to the Convention's goal of the universal ban on chemical weapons, and we call upon those 10 remaining States that have not yet adhered to the CWC to do so without delay," Ambassador Pfirter said.

The Convention 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, who in turn must take the steps necessary to enforce that prohibition within their jurisdiction. All States Parties to the CWC are obliged to declare and destroy any stockpiles of chemical weapons they may hold and any facilities which produced them, as well as any chemical weapons they abandoned on the territory of other States Parties in the past.

All States Parties declare to the OPCW the extent of specific activities which could pose a risk to the object and purpose of the Convention. These activities are then subject to international verification and monitoring by the OPCW Secretariat, primarily through inspections, to ensure non-proliferation. States Parties also agree to abide by a verification regime for certain toxic chemicals and their precursors in order to ensure that such chemicals are only used for purposes not prohibited.

As a State Party, Lebanon will now be eligible to benefit from the OPCW's international cooperation and assistance programmes, which provide support in drafting and enacting the legislation necessary to implement the Convention at the national level. This legislation enables States Parties to detect, prosecute and punish any breach of the chemical weapons ban committed on their territory or by their nationals anywhere in the world.In addition, the Organisation provides support in the practical implementation of the Convention's stipulations, in particular, establishing an effective National Authority to facilitate annual

declarations and OPCW inspections, as well as to monitor chemical transfers and to maintain relevant chemical transfer restrictions. States Parties also receive training and may draw upon the Organisation's expertise to enhance their national civil protection in the event of a chemical weapons attack or the threat of such an attack.

http://www.opcw.org/news/news/article/lebanon-joinsthe-chemical-weapons-convention

Biological Weapons Convention Members Meet

Member nations to the Biological Weapons Convention are meeting in Geneva, the United Nations announced. The annual states parties session began on December 1, 2008 and is scheduled to end on December 5, 2008 it follows discussions that took place at an experts meeting in August. Participants will seek to develop a report that promotes movement in two particular areas:

"National, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins"; and "Oversight, education, awareness raising and adoption and/or development of codes of conduct with the aim of preventing misuse in the context of advances in bioscience and biotechnology research with the potential of use for purposes prohibited by the convention".

"You meet at the halfway point of the intersessional work program, in advance of the next review conference in 2011. I am encouraged to know that the program has been inclusive and productive, and that you have developed understandings on improving national implementation and regional cooperation," U.N. Secretary General Ban Ki-moon said in a statement to the meeting. "I urge you to maintain that spirit this week as you continue work on biosafety, biosecurity, oversight, education and awareness-raising, as well as next year, when you address capacity building in disease surveillance, detection, diagnosis and containment. These efforts are crucially important in strengthening barriers against biological weapons and bioterrorism, and in addressing other threats to public health, agriculture, economic development and the environment.

He added: "I also urge you to begin thinking about additional steps that could be taken at the next review conference. You might consider how to increase membership, and how to further develop the implementation support unit. You might also explore the potential for further multilateral cooperation in the fields of verification, compliance and enforcement of the convention (U.N. release II, Dec. 1).

The Biological Weapons Convention entered into force in 1975 and today has 162 member nations. It bans the development, manufacture and possession of weapons that involve biological agents such as anthrax, smallpox or plague (U.N. release I).

http://gsn.nti.org/gsn/nw_20081202_1754.php

RECENT DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

Transporting Broiler Chickens Could Spread Antibiotic-Resistant Organisms

Researchers at the John Hopkins Bloomberg School of Public Health have found evidence of a novel pathway for potential human exposure to antibiotic-resistant bacteria from intensively raised poultry—driving behind the trucks transporting broiler chickens from farm to slaughterhouse. A study by the Hopkins researchers found increased levels of pathogenic bacteria, both susceptible and drug-resistant, on surfaces and in the air inside cars traveling behind trucks that carry broiler chickens. The study is the first to look at exposure to antibiotic-resistant bacteria from the transportation of poultry. The findings are published in the first issue of the Journal of Infection and Public Health.

Typically, broiler chickens are transported in open crates on the back of flatbed trucks with no effective barrier to prevent release of pathogens into the environment. Previous studies have reported that these crates become contaminated with feces and bacteria.

The new study was conducted on the Delmarva Peninsula—a coastal region shared by Maryland, Delaware and Virginia, which has one of the highest densities of broiler chickens per acre in the United States. Ana M. Rule, PhD, a research associate in the Bloomberg School's Department of two to three Environmental Health Sciences, along with professor Ellen K. Silbergeld, PhD, and Sean L. Evans collected air and surface samples from cars driving car lengths behind the poultry trucks for a distance of 17 miles. The cars were driven with both air conditioners and fans turned off and with the windows fully opened. Air samples collected inside the cars, showed increased concentrations of bacteria (including antibiotic-resistant strains) that could be inhaled. The same bacteria were also found deposited on a soda can inside the car and on the outside door handle, where they could potentially be touched.

"We were expecting to find some antibiotic-resistant organisms since it's pretty clear that the transportation conditions for these chickens are not closed or contained," Rule said. "Our study shows that there is a real exposure potential, especially during the summer months, when people are driving with the windows down; the summer is also a time of very heavy traffic in Delmarva by vacationers driving to the shore resorts."

The strains of bacteria collected were found to be resistant to three antimicrobial drugs widely used to treat bacterial infections in people. These drugs are approved by the U.S. Food and Drug Administration for use as feed additives for broiler poultry. The study findings were also consistent with other studies on antibiotic resistance in poultry flocks and poultry products.

According to the authors, the findings support the need for further exposure characterisation, and attention to improving methods of biosecurity in poultry production, especially for regions of high density farming such as the Delmarva Peninsula.

news@jhsph.edu

Smallpox Vaccine Safe for HIV Carriers, Firm Says

The Danish pharmaceutical firm Bavarian Nordic reported that its next-generation Imvamune smallpox vaccine is safe to administer to HIV carriers who cannot safely receive the conventional vaccine.

In a Phase 2 clinical study, the company administered the vaccine to 300 HIV-infected subjects and 86 people without the virus. Researchers concluded that HIV carriers suffered no additional side effects, a finding that could potentially support the vaccine's use to stem a biological weapon attack.

The firm expects to submit its report to the U.S. Food and Drug Administration within several days and receive $25 million under a contract. The company plans to release all data from the report in the second half of next year, including details on the vaccine's ability to produce immune response and the reactions of additional HIV carriers who previously received another smallpox vaccine.

http://gsn.nti.org/gsn/nw_20081106_3862.php

NATIONAL AND INTERNATIONAL DEVELOPMENTS

90th anniversary of Armistice Day commemorated

On November 11, 2008 the city of Ieper in Belgium commemorated the 90th anniversary of the end of the First World War. On behalf of the Organisation for the Prohibition of Chemical Weapons, the Deputy Director-General Mr John Freeman, laid a wreath at the Menin Gate in Ieper as part of the solemn memorial ceremony.

For the OPCW, Ieper represents a stark reminder of the horrors that chemical weapons can cause. It was here that poison gas was used on a large scale for the first time on the battlefields around this city on April 22, 1915. The great numbers of people killed and maimed due to the chemical warfare propelled international efforts for a comprehensive ban on chemical weapons that was eventually realised in the form of the Chemical Weapons Convention (CWC). The Organisation has named its Executive Council chamber the Ieper Room in remembrance of the victims of the battle of 1915.

The OPCW is represented at this ceremony in Ieper annually, as an expression of the support and commitment of 184 States Parties for a world free from the scourge of chemical weapons.

http://www.opcw.org/news/news/article/90th-anniversary-of-armistice-day-commemorated/

Ninth International Course on Medical Defence against Chemical Weapons

On November 9, 2008, the Ninth Course on Medical Defence against Chemical Weapons concluded successfully. Twenty-two medical doctors from 21 Member States of the OPCW participated. They had the unique opportunity to take part in a training course during which they listened to lectures on the basics of defence against chemical weapons; they were also able to conduct medical examinations of patients who had actually been exposed to nerve and blister agents during the Iraq-Iran war, which took place in the 1980s.

Since 1998, this course has been conducted at the International Medical Centre for Training and Treatment-Chemical Weapons (IMCTT-CW) in Tehran, the Islamic Republic of Iran, and has been generously supported by the National Authority of that State Party. The participants were able to speak with Iranian doctors who had treated chemical casualties in the battlefield and who had often risked their own lives to do so. These doctors are still providing medical care for these survivors. During the Iran Iraq war, which raged from 1980 until 1988, the Islamic Republic of Iran was repeatedly subjected to attacks with nerve agents and mustard gas. These indiscriminate attacks caused more than 100,000 casualties, both military and civilian, 20,000 of whom, it is estimated, died immediately or in the following days and months after experiencing prolonged and terrible suffering. 34,000 survivors are, according to the Veterans Foundation Janbazan, still suffering from the long-term effects of exposure to chemical-warfare agents.

To prevent the re-occurrence of such suffering, Iranian doctors and their patients are dedicated to sharing their experience with medical specialists from all over the world. The four-day course included lectures about the following: chemical weapons, the OPCW, how to recognise that a chemical attack has taken place and the means of detection, protective equipment, and participants with an understanding on how to protect themselves if they were ever exposed to such an attack. These lectures were given by specialists from the OPCW Technical Secretariat's Health and Safety Branch. Experts from the OPCW Assistance and Protection Branch provided information about the efforts of the OPCW to assist Member States, should they ever be threatened or actually attacked with chemical weapons. Iranian doctors shared their vast experience and expertise in relation to the acute chronic effects of chemical weapons on the eyes, the skin, and the lungs. A well-known expert from the German Armed Forces Institute for Toxicology in Munich, Dr Kai Kehe, held lectures about the current status and the latest research on the pathology of nerve and blister-agent poisonings. In one segment of this course, the participants had the opportunity to interview the victims of chemical-warfare agents, and thus were able to gain the skills and knowledge that will prove useful, should they ever be involved in an investigation of alleged use.

The interview session was a sobering experience for the participants, in that they interacted with individuals who, for more than 20 years, have suffered from the chronic effects of being exposed to chemical weapons and who are determined that no one should ever suffer again from the effects of these horrific weapons.

The course also focused on clinical aspects in relation to the impact of chemical weapons on the human body. Participants, under the supervision and assistance of Iranian specialists, carried out medical examinations on the individuals who had become casualties of the chemical weapons that had been used during the Iran-Iraq war.

The course concluded with closing speeches by the Deputy Minister for Legal and International Affairs of Iran, Dr Gholamhossein Deghani, and Mrs Kalimi M. Mworia, Director of the OPCW International Cooperation and Assistance Division, both of whom reiterated the importance of this course. The OPCW would like to express its appreciation to IMCTT-CW in the Islamic Republic of Iran for providing information and training to the attendees on how to deal with the medical challenges in the event chemical weapons are ever used.

http://www.opcw.org/news/news/article/ninth-international-course-on-medical-defence-against-chemical-weapons/

OPCW Director-General Addresses First Committee of the United Nations General Assembly

In an address on October 15, 2008 to the First Committee of the 63rd Session of the United Nations (UN) General Assembly, the OPCW Director-General, Ambassador Rogelio Pfirter, hailed the cooperation between the OPCW and the UN as a manifestation of the international community's aspiration for a law-based, humane and peaceful system of global security with effective multilateralism at its root.

In the First Committee's general debate on the "Current State of Affairs in the Field of Arms Control and Disarmament and the Role and Contribution of the Respective Organisations," the Director-General informed the Committee on the results of the Second Review Conference that took place in The Hague from April 7 to 18, 2008. Drawing attention to the Final Report, he highlighted the renewed commitments of States Parties to the noble goals of the Chemical Weapons Convention (CWC) and reiterated its essential contribution to confidence building and cooperation among States Parties. He also noted that the Conference urged the world's remaining States not Party to ratify or accede to the CWC "as a matter of urgency and without preconditions."

Director-General Pfirter underlined the OPCW's achievements in disarmament and non-proliferation, noting the verified destruction of over 41% of the total chemical weapons stockpile declared by the six possessor States Parties. He informed the First Committee that A State Party had completed the destruction of its declared chemical weapons stockpile on July 10, 2008 making it the second State Party to do so after Albania. The Director-General stressed that this achievement takes the OPCW closer to the goal of complete chemical disarmament and reinforces the validity of the CWC.

The Director-General emphasised that together with achieving the goal of disarmament, it was vital to ensure that the non-proliferation regime under the Convention is implemented effectively and to its full potential. He further noted that the effective and efficient industry inspection regime which the OPCW has established is critical to non-proliferation efforts, and to promoting confidence among States Parties in the chemical industry's legitimate and peaceful activities.

Director-General Pfirter also stressed the need for effective national implementation of the CWC as an important contributing factor to a successful global chemical weapons ban. He underlined the need to strengthen domestic legal and administrative systems in Member States in order to ensure permanence and durability of the norms of the Convention, explaining that loopholes could encourage possible criminal and terrorist uses of chemistry and its products. The Director-General added that contemporary security threats - including the possible use of chemical weapons by non-State actors - all have created renewed interest in the OPCW's ability to coordinate delivery of emergency assistance to Member States. He outlined the Organisation's international cooperation and assistance programmes which are routinely held in regions of the world, including training courses for

emergency responders, and are supplemented by periodic field exercises in collaboration with the UN and other organisations. He thanked Member States and the European Union for their support to these programmes.

Director-General Pfirter concluded by noting that the OPCW has proved to be a successful experiment in true multilateralism: a forum for consultation and cooperation where States have worked tirelessly on the basis of dialogue and consensus to reach agreement on sensitive and complex issues and to progress effectively towards full implementation of the Chemical Weapons Convention.

http://www.opcw.org/news/news/article/opcw-director-general-addresses-first-committee-of-the-united-nations-general-assembly/

Asian Regional Meeting for National Authorities and Parliaments Held in Sri Lanka

A regional meeting of representatives of National Authorities and Parliaments in Asia was held in Colombo, Sri Lanka on August 25 and 26, 2008. The meeting attracted 65 participants, including 26 parliamentarians and 15 National Authority representatives from 20 States Parties.

The meeting focussed on issues related to the adoption of comprehensive national legislation to implement the Chemical Weapons Convention (CWC), including the rights and obligations of States Parties under the CWC and the legal basis for the control of toxic chemicals and combating illicit trafficking.

The Prime Minister of Sri Lanka, H.E. Mr Ratnasiri Wickramanayaka, inaugurated the regional meeting and in his keynote address said that "chemical weapons are weapons of terrorism. There are no peaceful uses of chemical weapons. Hence it is surely related to the menace of terrorism." He added that "as far as the government is aware there are no chemical weapons or any other weapons of mass destruction in Sri Lanka.

"During the discussions, participants reiterated the importance for all States Parties to adopt the necessary legal measures expeditiously in order to prosecute any violation of the Convention. Parliamentarians from States Parties that had yet to complete their national implementing measures reiterated their commitment to do so. The participants also reaffirmed the need for continued parliamentary oversight of the national implementation of the Convention and welcomed the process of interaction between the parliamentarians and the OPCW.

The programme for the meeting concluded with a visit to the Sri Lankan Parliament, during which the Speaker of the National Assembly met with the participants.

The meeting was organised with funds provided by the European Union under its 2007 Joint Action with the OPCW.

http://www.opcw.org/news/news/article/asian-regional-meeting-for-national-authorities-and-parliaments-held-in-sri-lanka/

Mad-Cow Crops Up in Canadian Dairy Herd, 15th Case

Canada confirmed the 15th case of mad-cow disease discovered in the country since May 2003, this time in a dairy cow from British Columbia.

No part of the seven-year-old cow got into systems that produce food for consumption by either people or animals, the Canadian Food Inspection Agency said in a statement. The agency has identified where the animal was born and is looking for the source of its disease, the statement said.

"The age and location of the infected animal are consistent with previous cases detected in Canada," the agency said. Regulators are also tracking down other animals in the cow's herd when it was born, the agency said. Testing for the disease began in 1992 in Canada, and was broadened in 2003, according to the Canadian regulator's Web site.

In 1997, Canada and the U.S. banned the use of cattle feed containing ground-up cow tissue, which scientists say is the way most animals contract the brain-wasting infection. As in other recent cases in Canada, the sick cow was born after the ban.

Bovine spongiform encephalopathy, otherwise known as BSE or mad-cow disease, has been linked to more than 150 human deaths worldwide. Eating meat from BSE-infected animals has been tied to Creutzfeldt-Jakob disease, an incurable human illness that destroys brain tissue. Last year, the U.S. eased most restrictions on Canadian beef and cattle after determining the animals pose "minimal risk" for mad-cow disease.

The U.S. has confirmed three cases of the disease since December 2003, including one in an animal born in Canada.

South Korea, which banned imports on Canadian beef after a BSE discovery in May 2003, resumed trade negotiations with Canada on November 3. Korea was once the fourth-largest foreign buyer of Canadian beef, accounting for C$50 million ($40.8 million) in annual sales, the food agency said on November 10.

Korean officials will visit Canadian beef slaughterhouses next week as planned, said Connie Argue, an animal-health program manager for the food agency. The new BSE case shouldn't affect trade talks with South Korea or relationships with other trading partners, Argue said in a telephone interview from Calgary, Alberta.

"They've been advised of the detection of this case, but to the best of our knowledge, there will be no changes in our status among our trading partners," Argue said. "We don't expect the detection of this case to have any impact on trade."

Canada is the largest foreign supplier of beef to the U.S., according to the Department of Agriculture. The U.S. bought 629.6 million pounds of beef from Canada in the first nine months of this year, 1.7 percent more than in the same period last year, the USDA said November 13.

Cattle futures for February delivery fell 1.65 cents, or 1.8 percent, to 89.025 cents a pound on the Chicago Mercantile Exchange today. Futures have dropped 4 percent this month.

http://www.bloomberg.com/apps/news?pid=20601082&sid=aGoKdKYmyEuE&refer=canada

Report Sounds Alarm Over Bioterror

Bipartisan Study Finds Insufficient Laboratory Safeguards, Loose Regulation Laboratories such as this one at the Centers for Disease Control and Prevention contain pathogens that could wreak havoc if used in weapons.

Seven years after the 2001 anthrax attacks, a congressionally ordered study finds a growing threat of biological terrorism and calls for aggressive defences on par with those used to prevent a terrorist nuclear detonation.

Due for release, a draft of the study warns that future bioterrorists may use new technology to make synthetic versions of killers such as Ebola, or genetically modified germs designed to resist ordinary vaccines and antibiotics.

The bipartisan report faults the Bush administration for devoting insufficient resources to prevent an attack and says U.S. policies have at times impeded international biodefence efforts while promoting the rapid growth of a network of domestic laboratories possessing the world's most dangerous pathogens.

The number of such "high-containment" labs in the United States has tripled since 2001, yet U.S. officials have not implemented adequate safeguards to prevent deadly germs from being stolen or accidentally released, it says.

"The rapid growth in the number of such labs in recent years has created new safety and security risks which must be managed," the draft report states.The report is the product of a six-month study by the Commission on the Prevention of

Weapons of Mass Destruction and Terrorism, which Congress created last spring in keeping with one of the recommendations of the 9/11 Commission. Drafts of chapters pertaining to bioterrorism were obtained by The Washington Post.

The document cites progress in many areas of biodefence since the deadly anthrax attacks of 2001, including major investments in research, stockpiling of drugs and development of a network of sensors designed to detect airborne viruses and bacteria. The Bush administration has spent more than $20 billion on such countermeasures, far more than any of its predecessors.

But the report says the next administration must do much more to prevent dangerous pathogens from falling into the wrong hands in the first place. While politicians often warn about the dangers of nuclear terrorism, a serious biological attack would be easier to accomplish and deserves a top priority, it says.

"The more probable threat of bioterrorism should be put on equal footing with the more devastating threat of nuclear terrorism," the draft states. It calls on the Obama administration to develop a comprehensive approach to preventing bioterrorism and to "banish the 'too-hard-to-do' mentality that has hobbled previous efforts."

Some bioweapons specialists have argued that it is practically impossible to prevent a biological attack, because lethal strains of anthrax bacteria and other deadly microbes can be found in nature. But the report argues that it would be far easier for bioterrorists to obtain the seeds of an attack from laboratories that have ready supplies of "hot" strains. U.S. officials think an Army biodefence lab was the source of the anthrax spores used in the 2001 attacks that killed five people.

The biodefence research industry that sprang up after 2001 offers potential solutions to a future attack, but also numerous new opportunities for theft or diversion of deadly germs, the report says. Today, about 400 research facilities and 14,000 people are authorized to work with deadly strains in the United States alone, and several of the new labs have been embroiled in controversies because of security breaches, such as the escape of lab animals.

No single government agency has authority to oversee security at these U.S. labs, most of which are run by private companies or universities. Such facilities in the United States "are not regulated" unless they obtain government funding or acquire pathogens from the government's list of known biowarfare agents. Because of this gap, labs can work with "dangerous but unlisted pathogens, such as the SARS virus," which causes severe acute respiratory syndrome, without the government's knowledge.

Internationally, the challenges are even greater. While the U.S. government continues to spend billions of dollars to secure Cold-War-era nuclear stockpiles, similar efforts to dismantle Soviet bioweapons facilities have been scaled back because of disagreements with the Russian government, the report notes. The only global treaty that outlaws the development of biological weapons has no mechanism for inspections or enforcement. Efforts to strengthen the 1972 Biological Weapons Convention were dealt a symbolic blow in 2001 when the Bush administration withdrew its support for a new accord that had been under negotiation for six years.

Meanwhile, the growth in biodefence research seen in the United States has spread to dozens of countries, including developing nations such as Malaysia and Cuba that are investing heavily to develop world-class biotech industries. One of the fastest-growing technologies is DNA synthesis, which offers new capabilities to alter the genes of existing pathogens or synthesize them artificially. While governments, trade groups and professional organisations are experimenting with various voluntary controls over such new capabilities, the United States should lead a global effort to strengthen oversight and clamp down on the unregulated export of deadly microbes, the panel said.

"Rapid scientific advances and the global spread of biotechnology equipment and know-how are currently outpacing the modest international attempts to promote biosecurity," the report says.

http://www.washingtonpost.com/wp-dyn/content/article/2008/11/29/AR2008112901921.html?hpid=moreheadlines

Bird flu alert sounded along Indo-Bangla border

An alert has been sounded along the porous Indo-Bangla international border in Tripura following reports of bird flu in the neighbouring country, official sources said in Agartala.

Sylhet, Srimanagal and Habigunj districts of Bangladesh, bordering Khowai subdivision of west Tripura district and Kamalpur subdivision of Dhalai district, have recently been affected by avian influenza, the sources said.

The Border Security Force was keeping a close vigil along the 856 km-long border to prevent the entry of chicken and poultry in the border markets, the sources said.

The state government also alerted all the district administrations and was organising workshops with the employees on disease control, the sources said.

An assistant director of the animal resource department, posted at Khowai subdivision, Samarendra Das, told reporters that a coordinated effort was needed to stop the spreading of disease.

http://www.rediff.com/news/2008/oct/20flu.htm

US controls bird flu vaccines over bioweapon fears

When Indonesia's health minister stopped sending bird flu viruses to a research laboratory in the U.S. for fear Washington could use them to make biological weapons, Defense Secretary Robert Gates laughed and called it "the nuttiest thing" he'd ever heard.

Yet deep inside an 86-page supplement to United States export regulations is a single sentence that bars U.S. exports of vaccines for avian bird flu and dozens of other viruses to five countries designated "state sponsors of terrorism." The reason: Fear that they will be used for biological warfare.

Under this little-known policy, North Korea, Iran, Cuba, Syria and Sudan may not get the vaccines unless they apply for special export licenses, which would be given or refused according to the discretion and timing of the U.S. Three of those nations — Iran, Cuba and Sudan — also are subject to a ban on all human pandemic influenza vaccines as part of a general U.S. embargo.

The regulations, which cover vaccines for everything from Dengue fever to the Ebola virus, have raised concern within the medical and scientific communities. Although they were quietly put in place more than a decade ago, they could now be more relevant because of recent concerns about bird flu. Officials from the U.S. Department of Health and Human Services and the Centers for Disease Control and Prevention said they were not even aware of the policies until contacted by The Associated Press last month and privately expressed alarm.

They make "no scientific sense," said Peter Palese, chairman of the microbiology department at Mount Sinai School of Medicine in New York. He said the bird flu vaccine, for example, can be used to contain outbreaks in poultry before they mutate to a form spread more easily between people.

"The more vaccines out there, the better," he said. "It's a matter of protecting ourselves, really, so the bird flu virus doesn't take hold in these countries and spread."

U.S. Commerce Assistant Secretary Christopher Wall declined to elaborate on the precise threat posed by vaccines for chickens infected with avian influenza, except to say there are "valid security concerns" that they "do not fall into the wrong hands."

"Legitimate public health and scientific research is not adversely affected by these controls," he said.But some experts say the idea of using

vaccines for bioweapons is far-fetched, and that in a health emergency, it is unclear how quickly authorities could cut through the current red tape to get the vaccines distributed.

Under normal circumstances it would take at least six weeks to approve export licenses for any vaccine on the list, said Thomas Monath, who formerly headed a CIA advisory group on ways to counter biological attacks. All such decisions would follow negotiations at a "very high level" of government.

That could makes it harder to contain an outbreak of bird flu among chickens in, say, North Korea, which is in the region hardest hit by the virus. Sudan and Iran already have recorded cases of the virus in poultry and Syria is surrounded by affected countries. Cuba, like all nations, is vulnerable because the disease is delivered by migratory birds.

Kumanan Wilson, whose research at the University of Toronto focuses on policymaking in areas of health protection, said it would be ironic if the bird flu virus morphed into a more dangerous form in one of those countries.

"That would pose a much graver threat to the public than the theoretical risk that the vaccine could be used for biological warfare," he said.

The danger of biological warfare use depends on the specific virus or bacteria. But most experts agree that bird flu vaccines cannot be genetically altered to create weapons because they contain an inactivated virus that cannot be resuscitated.

It's also unlikely they would be used to create a resistant strain of the virus as part of efforts to wreak havoc within global poultry stocks. If enemy states wanted to do that, they could make their own vaccines or turn to a less hostile country like China, said Ian Ramshaw, an expert on vaccine immunology and biosecurity at The Australian National University in Canberra.

"I can think of no scientific reason how a terrorist organisation could use such a vaccine for malicious intent," he said. "I personally think it's a rather silly attitude and the U.S. is probably going overboard as it has in the past with many of its bioterrorism initiatives."

Meanwhile, bioethicists say limiting vaccines could also raise moral questions of whether some countries should be denied because of decisions based on foreign policy. They said the export controls appear inconsistent, as Libya, Iraq and two dozen other countries suspected by the U.S. of having biological weapons programs do not face restrictions on the export of poultry vaccines.

"If there really is a serious threat, to be consistent we'd have to more heavily regulate who has access to the vaccine," said Michael Selgelid, who co-authored the book "Ethical and Philosophical Consideration of the Dual Use Dilemma in the Biological Sciences." "There are malevolent actors in the U.S. just like there might be in all these other countries," he said.

The policies were initially put in place amid biosecurity fears in the mid-1990s and then bolstered after the September 11, 2001 attacks and subsequent anthrax letter mailings. The vaccines are among a long list of other items barred to rogue states over fears they could be used to make weapons of mass destruction, from technology and chemicals to dangerous pathogens.

Bird flu has killed more than 240 people across the world since 2003, nearly half of them in Indonesia.

Indonesia's health minister Siti Fadilah Supari first drew widespread attention when she boycotted the World Health Organisation's 50-year-old virus sharing system last year, saying pharmaceutical companies were using viruses from developing nations without their knowledge to make expensive vaccines. She has since called for the creation of a global stockpile of drugs or other forms of benefit-sharing

.http://ap.google.com/article/ALeqM5j-WATgXqqkww2gPHXBOZrmFy-OpqQwD93O8LV80

U.S. Army to Bolster Biolab Security Training

The U.S. Army said it would provide more security training for its laboratory personnel to help prevent any diversion of potential biological-weapon agents, the Associated Press reported.

An internal review board proposed the new training in response to a Justice Department conclusion that an Army microbiologist carried out the 2001 anthrax mailings that killed five people, said Michael Brady, special assistant to Army Secretary Pete Geren.

The service launched a one-week review of security procedures for workers at the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick, Md., where anthrax mailing suspect Bruce Ivins worked for years. The Army intends to expand training, accountability and inventory management reforms to several of its other sensitive laboratories within several months, said USAMRIID spokeswoman Caree Vander Linden.

The Army plans to permanently shutter the Walter Reed Army Medical Center's Armed Forces Institute of Infectious Diseases, where activities were halted in April due to "security, surety management and emergency response" concerns, spokesman Paul Boyce said. The Washington laboratory's operations and some of its 30 to 40 employees were expected to be moved to other facilities.

http://gsn.nti.org/gsn/nw_20081203_7472.php

Pakistan has created its own Frankenstien monster

Post November 26 terror attacks in Mumbai, defence analyst Maroof Raza puts his thoughts together on certain issues being discussed. The terrorists entered Mumbai through the sea route and caused mayhem. Is this the level of defence preparedness in our country?

The Indian navy is expected to have a certain amount of maritime surveillance and it is done continuously. There are radars scanning coastlines, and there is our coastguard effectively guarding the coasts.

Reportedly, navy was carrying out exercises in Gujarat when they saw the trawler that supposedly ferried the terrorists into Mumbai.

Unfortunately, there is no coordination among our intelligence agencies. Each one guards its turf. When any of them get the information, the first thing they do is to pass it on to their bosses who in turn rush to the Home Minster. Precious time is lost, in doing so. Even intercepts are not shared.

During the Kargil war, the agencies had with them instances of intercepts; one being the famous recorded evidence played out on TV channels- the conversation between Musharraf and his deputy in Pakistan regarding the attack on Kargil. Yet, former army chief (during the Kargil war in 1999) General VB Malik was unaware of these intercepts for a considerable period (as mentioned in one book written on the Kargil war). The principal secretary of government of India at the time, Brajesh Misra, told him about this on a flight, around 6-12 hours after the information had reached the agencies.

These intelligence agents are trying to win brownie points; all trying to show their bosses they have managed to gather 'booty.' Another problem is that the last five years we had a pathetic home minister (Union home minister Shivraj Patil who had to resign after the terrorist attack on Mumbai).

Would India and Pakistan engage in a war?

I don't see a conventional military conflict; it would just worsen the situation. Besides, a conventional warfare is not safe for businesses as well for the economies of both the countries. India need not act in haste. Diplomatic solution of Pakistan is one way out. If US has to choose, my guess is it will select India.

Former Pakistani President Pervez Musharraf talked US president George Bush into siding with him after the 9/11 attack on America. ISI emerged from funding by US in the 80s. Osama Bin Laden was a US creation (to fight the Russians when they had occupied Afghanistan in the late 70s.) Hence, when US wanted to they used Pakistan. Today, the situation is very different.

What if 26/11 Mumbai attacks were a red herring and a diversionary tactic for something bigger, like a biological attack on some other city?

They might not resort to biological weapons. If that happens, then it will further put evidence on Pakistan. But... it could happen, even though the possibility looks remote at the moment.

On whether the Indian police force is equipped to take on such planned and heavy armed attacks

Our police (force) is completely defunct. It's a residue of the British Raj. Today, they have become more of a nuisance. Politicians use them for their own objectives. The officers' corps (Indian Police Service) constitutes those who have not been able to make it to the Indian Administrative Service. They have no interest, enthusiasm or idea to take on tough jobs; they are bookworms. As for the equipment (weapons etc) provided to them, it has never been adequate. We have a Raj mind set- symbolising a power of state. Police is a state subject. We need a system that's applicable across the country.

As for the rest of the security forces, they are engaged in preparing for war. Since 1992 a low intensity conflict has been launched where the entire force is fighting internal conflict; they have been able to keep a semblance of readiness on the borders. We need creation of more NSG (National Security Guard instrumental in shooting down terrorists in Mumbai) type forces in the country to be able to deal terrorism.

On possible intent and strategy of the terror group that struck Mumbai on 26/11

The strategy and intent was to create chaos, fear, lack of confidence, communal divide. There is nothing like specific homegrown (terrorist) group. The terrorists have tapped on sense of anger and alienation and taken advantage of lack of government's effort to take to task all the right wing parties. In the 2002 Gujarat massacre, there was no case made out against the perpetrators and even in the compensation given to the victims of the violence there was a disparity. The government has failed to address the root grievances. You see it in the north-east of India, as well. In Kashmir, the insurgency happened because of the repeated negativism of Delhi politics in the (Kashmir) Valley.

On Pakistan's role in terror attacks on India

In Pakistan, for the last two decades, ISI operatives have been entrusted with the task of identifying families of poor. Usually, the family has one boy who is a wastrel and has no purpose in life. This good-for-nothing fellow is selected by the ISI and told things like he is a failure but this task (militancy which they call 'Jihad') will give him respect in his society. They tell him even if he dies in the course of operation, he will attain martyrdom, and will be hailed as a hero.

This youth is then recruited by luring his families with salary, pensions and other financial benefits. Normally, $10 – 20,000 is set aside for this purpose. Traditionally, people joined the armed forces after a calling. But these people are not like that. Pakistan does this entire recruitment in a much organised way. The current government may not support this but it is a situation where the country is being haunted by its own mistakes. It's a 'Frankenstein's Monster' that they have created. It started with former Pakistani President late Muhammad Zia ul Haq. Zia's strategy was to "bleed India through a thousand cuts." Kashmir was his motive. It's no secret that Pakistan has always harboured a desire to integrate the Indian side of Jammu &

Kashmir into it, and that's what the successive governments have wanted.

These groups (militants) are a larger part of the same mind set. Apparently, the present Pakistan government is unable to control the militants.

On the manner in which terrorism can be curbed

It cannot end if US President-elect Barrack Obama gives a statement. It's very complicated and needs an elaborate process to curtail it, eventually. One way is to get like minded people in Pakistan to disagree with the spread of terrorism and militancy in their country.

The masses in Pakistan are bombarded with anti – India propaganda. Traditionally, in Pakistan, anti Indianism is not found wanting. They probably realise that whatever Pakistan is doing (soft on militants over the years and the grip of the army over Pak government operatives) may not be right but their envy and anger gets better of them.

But even with that (engaging locals) it cannot end. A long haul of whole reform of society is the need of the hour if the relations between the two neighbours are to improve, permanently.

Pakistan is not a tin pot society. It doesn't want global interference in its affairs. US (attempts to 'mentor' Pak after incidents like terror strikes) is not going into the hearts and minds of people. You can see the result in Iraq. One cannot have soldiers zipping around in their armoured humvees and shooting around all over the place. It is not the way to contain a volatile situation. They (US) have no idea about how to deal with Iraq's internals security and they are just damaging any process by their actions. Pakistan needs a reform process; the country is not willing to accept any lip service.

http://timesofindia.indiatimes.com/India/Pak_created_its_Frankenstien_monster/articleshow/3798132.cms

The Growing Planetary Threat from Biological Weapons and Terrorism

If you were James Bond and were ordered to kill half the population of a city of two million, without notice and without the resources of a major power at your command, what would you do? Another Hiroshima? No. You would take just a gram or two of a toxin called botulin and put it in the city's water supply.

The amount of botulin required to kill 50 percent of a group [LD50] is 0.6 nanograms per kg of a person's weight (1 nanogram is 1 billionth of a gram). And there will be no damage to property! Further, as botulin is a protein and all proteins decay sooner or later, the water contaminated with it will become potable in a while. Small wonder, botulin is one of the most powerful biological weapons. Such weapons have the following advantages.

They are easy and inexpensive to manufacture, weaponise and deliver. They have a long shelf life and are virtually impossible to detect and, therefore, verify; in just a few small refrigerators or freezers, one can store sufficient biological weapons to kill the entire population of the world many times over - and this is what Saddam Hussein probably did.

One has a wide range of choices, from agents that lead to virtually 100 percent mortality to agents that lead to little mortality but high morbidity [levels of infection]; or from agents that would have an immediate effect, to agents that would have a delayed effect (silent warfare!). One can also develop ethnic-specific weapons. For example, those that will kill or hurt Americans but not Indians.

Biological weapons can be either live bacteria, fungi (especially for targeting plants) and viruses or toxins. But fungi has the potential of multiplying after the organism is released and thus causing far more extensive damage over longer periods of time than fungi.

Today's repertoire of live biological weapons includes (where not obvious, parenthesis give

the disease caused by the bacterium, virus or rickettsia):

Chlamydia peittaci (Influenza psittacosis); Yellow fever virus; Dengue fever virus; Chikungunya virus; O'nyong-nyong virus; Mayaro virus; Ross River virus; Venezuelan equine encephalitis virus; Western equine encephalitis virus; Tick-borne encephalitis virus; Kyasanur Forest Disease virus; Rift Valley fever virus; Junin and other similar viruses (Argentinan haemorrhagic fever); Hantaan virus (Korean haemorrhagic fever); Lassa fever virus; Sindbis virus; Marburg virus; Congo Crimean virus (African haemorrhagic fever); Ebola virus; Variola virus (small pox); Vibrio cholarae (cholera); Salmonella typhose (typhoid); Shigella (dysentry); Francisella tularensis (tularemia); Brucella species; Clostridium tetani (tetanus); Clostridium perfringens (gangrene); Pasteurella pestis (plague); Bacillus anthracis (anthrax); Antinobacillus mallei (glanders); Rickettsia prowazakii (epidemic typhus); Rickettsia tsutsugamushi (scrub typhus); Coxiella burnetii (G-fever); Rickettsia rickettsii (Rocky Mountain spotted fever).

One need be infected with only 25 tularemia-causing microorganisms to run the risk of death. The toxins produced or studied as potential biological warfare agents are: Botulin (Clostridium botulinum toxin A); Enterotoxin B from Staphylococcus aureus; Saxitoxin (shellfish poison); Cobrotoxin; Crotoxin (from South American rattle snake); Myotoxin; Cardiotoxin; Bungarotoxin; Aflatoxin; Snail conotoxin; Scorpion toxins; Ricin (derived from castor beans); Substance P; Tetanus toxin; Trichothecene mycotoxins; Shiga toxin (from Shigella dysenteriae or S flexneri); Epsilon toxin from Clostridium perfringens).

And then there are fungi like Puccinia graminis (black-stem rust of cereals) and Pyricularia oryzae (rice blast) which can destroy entire fields of agriculture when sprayed in very small amounts. Before the collapse of their empire in 606 BC, the Assyrians used an ingenious method of poisoning the enemy. Rye, widely used at that time, is liable to attack by a poisonous fungus, Claviceps purpurea, which grows in place of the grain and forms a horny mass called ergot. Eating rye bread contaminated with ergot can cause gangrene, abortion and hallucinations. The Assyrians used this rye-ergot to poison their enemies.

[Although the Assyrians knew of ergot, a fungus of rye with effects similar to LSD, there is no evidence that they poisoned enemy wells with ergot, as has often been claimed].

The ancient Romans threw carrion into wells to poison the drinking water of their adversaries.

In 1347, the Tartars catapulted the bodies of bubonic-plague victims over the city walls of Kaffa, a Black Sea port that served as a gateway to the silk-trade route - a maneuver that worked.

[Editor's Note: The popular theory places the first cases of bubonic-plague in the steppes of Central Asia ... from Central Asia it was carried east and west along the Silk Road by Mongol armies and traders during the Pax Mongolica. It was reportedly first introduced to Europe at the trading city of Kaffa in the Crimea in 1347. After a protracted siege, during which the Mongol army was suffering the disease, they catapulted infected corpses over the city walls to spread the disease to the inhabitants.The total number of deaths worldwide is estimated to have been 75 million people, approximately 25–50 million of which occurred in Europe. The Black Death is estimated to have killed 30 to 60 percent of Europe's population.]

In 1942, the Soviets infected German occupation troops with the Tularemia-causing agent, which eventually led to more than 100,000 cases of the disease on both sides. Between 1936 and 1945, Japanese Military Unit-731 experimented with biological weapons on Chinese at PingFan in Manchuria, killing 3,559 prisoners of war with agents like anthrax, cholera, plague and dysentery. On several occasions, the Japanese also released plague on the Chinese civilian population of Hunan Province by releasing from aircraft, fleas that had fed on infected rats. In fact between 1940 and 1950, China was plagued by disease from Japan's biological weapons (typhus, bubonic plague, cholera and anthrax).

In 1978, Soviet intelligence agents used ricin to murder Georgi Markov, a defector from Bulgaria. In 1979, an accidental release of anthrax from the Soviet bioweapons facility in Sverdlovsk killed some 100 people and much livestock. In 1984, Salmonella was released by the cult followers of Bhagwan Rajneesh in salad bars in four restaurants in The Dalles in Oregon, U.S. which made 750 people ill; the objective was apparently to influence a local election by keeping voters from the polls! And between 1990 and 1995, the Japanese cult, Aum Shinrikyo, made several unsuccessful attempts to use biological weapons including botulin.

In 1763, U.S. Whites used blankets and handkerchiefs infected with small pox virus against the Red Indians; this led to the deaths of 6 million of America's native Indians.

In 1955, U.S. scientists sprayed Q-fever bacteria in a slurry [a watery mixture of insoluble matter] over Utah on human test subjects; not only were they infected, but so were soldiers manning the road blocks! During the Bay of Pigs conflict, the U.S. used the pig plague-causing organism in Cuba. And the Anthrax attack in the U.S. just after 9/11 was almost a contained act of biological warfare.

Advances in modern biology have opened up avenues for making designer biological weapons which would, say, exploit genetic or ethnic differences. For example, in the U.S., those who are above 50 have a comparatively weaker immune response [then Indians]. They would thus be far more susceptible to small doses of certain toxic antigens (living organisms or chemicals) which would have no effect on the adult Indian population. Proper release of these antigens in the environment could cause at least temporary disability amongst Americans over 50, while not affecting Indians. Indeed, when it comes to developing and using biological weapons, it is essentially a battle of wits - something in which, perhaps, the deprived part of the world has an advantage, since in any case, they've been living by their wits all along!The Soviets have developed genetically modified Legionella bacteria that have been shown to induce auto-immunity to myelin (an important component of nerve and brain) in mice; when infected with this bacterium the mice die a horrific death.

In 2002, a group of Australian genetic engineers accidentally created a mouse virus that kills every one of its victims by wrecking its immune response - something like what HIV does. There would be, as of today, no defence against such a human virus.

And the question whether Severe Acute Respiratory Syndrome was being developed by China as a biological warfare agent and happened to leak out of the lab has never been satisfactorily answered.

Despite being signatories to the Biological Weapons Convention, at least the U.K., the U.S., Russia, Canada, Germany, South Africa, Japan, Iraq, Iran, Syria and North Korea have had extensive biological weapons development and testing programs - in some cases for at least 80 years.

When, during the Iraq-Kuwait conflict from January 16 to February 20, 1991, Saddam Hussein said that he had the final weapon, several of us predicted that he had biological weapons like botulin or anthrax spores that could be put on a Scud missile warhead, even though Iraq had initially denied that it had a biological warfare program.

On May 31, 1991, the distinguished American scientist, Mathew Meselson, and this writer were invited to address ambassadors in Geneva at Chateau de Bossey on Lake Geneva, under the auspices of a residential conference on biological weapons. During a lecture that evening, this writer mentioned Saddam Hussein having biological weapons. Immediately after the meeting, organisers introduced me to two German gentlemen who had set up biological weapons factories in Iraq! These were the factories unearthed later by the CIA.

Subsequently, Iraq declared it had 157 aerial bombs and 25 warheads with botulin, anthrax spores and aflatoxin, the first two of which are the most fatal biological weapons known. An area of 18 sq km that was fenced in and maintained by Iraq was devoted to making single cell protein

and housed facilities for making biological weapons. In 1995 it was discovered that during the 1980s, Iraq had imported 40 tons of bacterial growth media the only purpose of which could be for making biological weapons.

According to the U.S. Defense Department, there are large stockpiles of Anthrax in Syria, Iran, Libya, China, South and North Korea, Taiwan and Israel. Strangely, it excludes itself and the U.K. where the stockpiles perhaps are the largest. In 1944, the U.S. provided funds to produce 275,000 botulin bombs and one million anthrax bombs.

In 2003, the U.S. Government gave $1.5 billion as an additional grant to an institution (National Institute of Allergy and Infectious Diseases at the National Institutes of Health, or NIAID) to work on selected biological warfare agents: to develop an enzyme to lyse anthrax bacilli; and to further work on a vaccine that seems to have been developed by a NIAID scientist against Ebola (the vaccine was being tried on monkeys in 2003). Over the past seven years, the U.S. has spent over $57 billion to shore up American Bioterror Defenses, stockpiling drugs against biological weapons, networking detection systems in more than 10 cities and preparedness at hospitals.

After World War II, in exchange for 8,000 pages of Japanese data, the U.S. gave immunity to Lieutenant-General Shiro Ishia, who began work on biological warfare in Japan in 1931. In 1950, the U.S. had large stockpiles of mosquitoes infected with Yellow Fever, Malaria, Dengue and Plague; and ticks infected with Tularemia.

When a few years ago, there was an epidemic of measles in the U.S., officials wondered if it was an act of biological warfare. But the systems they have are so effective that they traced it to a Romanian girl who unknowingly brought the infection into the country.

Unfortunately, we don't have such a system and thus can't be sure that the Surat plague or the various other episodes of Chikungunya weren't surreptitious acts of biological warfare. Experts have identified pest strains in some imported food which aren't known to occur in India. In fact, despite it now being clear that such an attack is far more likely than a nuclear attack given the comparative cost of biological weapons, India is completely unprepared for a biological weapons attack. Biological weapons are the poor man's atom bomb.

What we need to do

— Prepare an appropriate database with a mechanism to update it.

— Work out mechanisms of dissemination of appropriate information to the public

— Set up a first-rate laboratory that meets international standards for research into biological weapons and ways and means of detecting and combating them (in real time).

— Set up a laboratory for testing samples in real time like the Center for Disease Control in the U.S.

— Introduce a course on biological weapons in the medical curricula, in the training program for civil servants, and in the training module of police, defence and intelligence services.

— Set up a high power level coordination council consisting of defence personnel, police, scientists, medical personnel and National Security Advisory Board to plan and execute the above.

http://worldmeets.us/thetribuneoooooo6.shtml

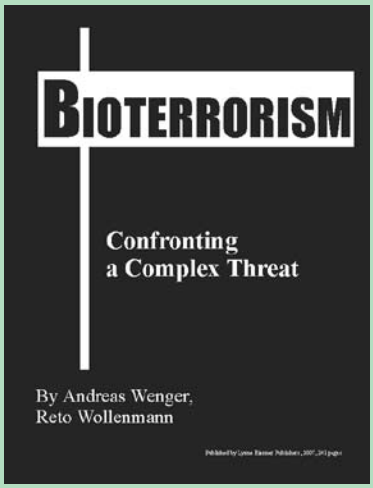
Compiled by: Wg. Cdr. Ajey Lele, Dr. Monalisa Joshi and Gunjan Singh.

Bioterrorism; Confronting a Complex Threat
Andreas Wenger and Reto Wollenmann (eds.), 2008, Viva Books Pvt Ltd, Pages xii+241 Price – Rs. 595.00

Avinash Anil Godbole

The author is Research Assistant, CLAWS, New Delhi.

The book renders a systemic account of the search for chemical and biological weapons in Iraq ever since its war with Iran in the 1980's i.e. across a period of almost two decades. Pearson offers a comprehensive account of the facts related to the search of chemical and biological weapons in Iraq. The case of Iraq pursuing the production of chemical and biological weapons emerged in the backdrop of the Iraq Iran war and largely within the purview of the cold war.



How does one link less than 10 instances of a kind of substance used for suspect terror purpose having caused less than 100 causalities over the period of a century to be able to come to any form of meaningful conclusion? Dealing with this question, Bioterrorism; Confronting a Complex Threat brings out a debate on a topic, the contours of which remain undefined and uncertain as of now for the community of strategic thinkers and planners. To begin on a good note, this book does justice to its title and subtitle and is able to put on the table, with fair degree of success, various aspects of the issue at hand. What differentiates this book from other literature on this subject is that not only does it spell out clearly the nature of threat as it stands today but also brings out the connection between threat abatement and the threat enlargement that happens in the process. Therefore, it also discusses the philosophical aspects of the links between defence preparedness, threat perception and the actual threat and the moral aspect of budgetary allocations away from more likely scenarios.

The gist of the book's argument is that various aspects of contemporary terrorism have been responsible for the heightened attention being paid to the issue of bioweapons and bioterrorism. It includes the mass casualty pattern of the terrorist activity in the past decade and the anthrax events in the United States in the aftermath of the 9/11. The authors broadly post the question as to can one include the two scenarios and make a case for preparedness against bioterrorism at the cost of other more conventional and more likely threat scenarios.

This book is divided into 3 parts that discuss the issue of the threat of bioterrorism besides the introductory and concluding chapters. The sections include a) Understanding the Threat: Actors and Capabilities, b) Assessing the Threat: Differing Perceptions and c) Managing the Threat: Policy Options. In the introductory chapter Wenger and Wollenmann spell out the scope of the book and in the concluding chapter, Wenger sums up the conclusions drawn by the contributors to this volume.

In the first chapter of the first section, Jeanne Guillemin takes a historical overview of the evolution of the idea of chemical and biological weapons in the broad context of the development of the idea of war and the international norms governing the future conduct of war including the Geneva Protocol. Guillemin also analyses the cold war era and the secrecy accorded to the defence projects that led to the exaggerated threat perceptions and thus heightened activity in the arena of biological weapons. In the next chapter, Milton Leitenberg examines the current threat of bioterrorism. What the author does is that he analyses the statements made by various United States officials and argues that inconsistencies in them has caused the exaggeration of the threat of bioweapons. Leitenberg's analysis is that the framing of the "threat" has been responsible for the overreaction for event preparedness on part of the policy makers and it has generally been the worst case scenarios that the policy makers have chosen to focus on. Malcolm Dando analyses the technological and scientific changes and its significance for bioterrorism in the next chapter. Dando asks for careful scrutiny even of the peaceful state led programs as the results and knowledge generated can be used for harmful purposes. Dando calls for better international cooperation for solving the problem.

Beginning the second section, Peter R. Lavoy looks at the existing knowledge gaps in this field and its impact on threat assessment. Lavoy studies the lack of insufficient data on various state and non-state actors' intentions and capability as well as the lack of definitive information on the previous use of the bioweapons. In the subsequent chapter, Marie Isabelle Chevrier asks the question as to why the conclusions from the experts tend to vary when they study same set of data. The author blames it on the loose use of terminology, lack of quantification, lack of time frame and noncommittal conclusions. Chevrier recommends critical and rigorous analysis to avoid the pitfalls of populist analysis.

In the third section on managing the threat, Anthony H. Cordesman argues that governments should be extremely careful in their threat assessments and response and that the response must focus on more likely scenarios rather than the worst-case ones. He also advises on balancing the bioweapons defence research and the natural disease research and ensuring more transparency and cooperation. In the next chapter in this section, Iris Hunger says that in order to ensure better preparedness on bioterrorism cooperation must increase and for that to happen the present trend of secrecy must reduce. She notes this tendency in the case of United States in the aftermath of September 11. Hunger argues that in the era of the spread of biotechnology, willingness for cooperation and transparency will differentiate between the good and bad actors.

Now the shortfall—even when the book's title is about bioterrorism, much of the content remains focussed on state led programs on bioweapons. In this sense, it does seem to mix bioweapons agenda of nation states and bioterrorism. Thus, the focus of the book moves from Japan during World War II to USSR in the cold war to Iraq in the Iraq- Iran war era. This might be justified given the lack of data on the subject. However, the authors stop short of defining the conditions under which the state led bioweapons program becomes bioterrorism. Probably this criticism of the book calls for the better definition on bioweapons possession, use and proliferation in order to make the difference between good and bad or rogue states more clear as far as bioweapons are concerned.

Overall it's a good book. It gives the broadest possible view on the issue of bioterrorism and the complexities therein. Even in terms of language, the technicality of the subject does not harm the flow of the book. It can be a useful pick even for the first time reader on the subject.

CBW *Magazine*

ORDER FORM

	SINGLE ISSUE	ANNUAL
INDIA	Rs. 125 ☐	Rs. 400 ☐
OTHER COUNTRIES	US$ 15 ☐	US$ 50 ☐

Name: _____

Institution: _____

Address: _____

City: _____

Zip/Postal Code: _____

Country: _____

E mail: _____

Subscription Total: Rs./ US$

Method of Payment:

Payments can be made only in the form of Cheque addressed to the 'Director General, Institute for Defence Studies and Analyses,' New Delhi.

Send your Order to:

CBW *Magazine*
Room No. 219,
Institute for Defence Studies and Analyses,
No.1, Development Enclave,
Rao Tula Ram Marg,
New Delhi – 110010
India

Instructions for Authors

CBW Magazine is the publication of the *Institute for Defence Studies and Analyses* (*IDSA*). The magazine was launched in the year 2007. It is a quarterly magazine.

Submissions: IDSA invites contributors to submit researched papers, articles and view points. Contributions may deal with matters of contemporary debate or historical analysis related to Chemical and Biological Weapons/Terrorism/Disasters. The magazine carries three categories of contributions: full-length analytical papers of 2000-3000 words; articles of 1500-2000 words and view points of 800-100 words. The magazine also welcomes book reviews of 700-1000 words.

Contributors are requested to follow the guidelines and style given below.

Guidelines

- The paper should be composed using MS Word 6.0 and above.
- The paper should be sent by email to the editor. It should be typed in Times New Roman, Font size 12 and 1.5 line spacing.
- All diagrams, charts and graphs should be referred to as Figures and consecutively numbered (Fig.1, Fig.2, and so on). Tables should carry only essential data and should complement the text rather than repeat what has already been said. They should carry a short title, be numbered (Table 1) and carry the source at the bottom. Each table must be referenced in the text.
- If actual statements or phrases are taken from another paper, the name of the author should be mentioned in the text and the chosen material should be placed within quotation marks with an appropriate reference. Alternatively, if another author's views are to be summarised, use the formulation: 'The views of xyz are summarised'; give a crisp summary. It is a good practice to reference sources of information extensively and effectively.
- Details of sources referenced should be included with notes listed at the end of the article.
- The paper should preferably have sub-headings to make it more reader-friendly.

References and notes

Notes should be sequentially numbered and listed at the end of the article. Details of references to sources should be included in the notes. Authors are responsible for the accuracy of the references.

All submissions should be addressed to The Editor, CBW Magazine, Institute for Defence Studies and Analyses, 1, Development Enclave, New Delhi - 110010, India; idsa@vsnl.com and editorcbw@gmail.com

India Strategic

India's leading Current Affairs monthly on Defence, Foreign Affairs, Nuclear Energy, Space, Civil and Military Aviation

India STRATEGIC

www.indiastrategic.in

E-mails: info@indiastrategic.in
india.strategic@hotmail.com

CBW Magazine

Journal on Chemical and Biological Weapons

Volume 2 Number 1 October-December 2008

Institute for Defence Studies and Analyses
No. 1, Development Enclave, Rao Tula Ram Marg
Delhi Cantt., New Delhi-110 010
http://www.idsa.in