CBW Magazine

Journal of Chemical and Biological Weapons

Volume 1 Number 3 April-June 2008

ISSN: 0974-0619

INVITED ARTICLES

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Institute for Defence Studies and Analyses

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Editorial

The *CBW Magazine*, with this third issue, completes one year of its existence. During this period, we have received encouraging feedback from our readers. We will, therefore, continue this publication as a quarterly issue and persevere with our efforts to improve its quality and content.

Earlier in April 2008, the Chemical Weapons Convention (CWC) completed its Second Review Conference at Geneva. The Conference regarded the progress of the CWC as satisfactory. It also highlighted the role of the non-state actors in the successful implementation of the treaty. This issue features an interview of Dr. Shehriyar Khateri, of the Society for Chemical Weapons Victim Support (SCWVS), an Iranian NGO, dedicated to enhancing public knowledge of chemical weapons issues.

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

We are extremely thankful to our readers for their continuous interest and support to the *CBW Magazine*.

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

Verification of the FMCT: Lessons from IAEA, OPCW and CTBTO

Arun Vishwanathan

The author is Associate Fellow, Indian Pugwash Society.

Verification mechanism of any future FMCT would have to "pick and choose" the useful practices and mechanisms existing across the IAEA, OPCW and the CTBTO. Three major issues are of significance to India in the FMCT. They are firstly, the definition of the term "fissile material"; secondly, the debate about the "scope" of the treaty with respect to production and stocks; and finally, the debate with regard to verification of the treaty.

The successful completion of a Fissile Material Cutoff Treaty (FMCT), some believe, would be an important step towards the ultimate goal of elimination of nuclear weapons. The FMCT will affect individual states differently due to the variance in their nuclear fuel cycles and pre-existing inventories of fissile material.[1] It is this difference which has led to divergent opinions among experts as to what the ultimate aim of the FMCT should be and how it fits into the broader arms control, disarmament and non-proliferation processes. This article seeks to study the current debate surrounding the verification of a future Fissile Material Cutoff Treaty (FMCT) and posit as to whether the Organisation for the Prohibition of Chemical Weapons (OPCW) could provide a verification mechanism for a future FMCT.

With the recent breaking of the deadlock at the Conference on Disarmament (CD) and the perceptible movement at the CD on the issue; studying the nature, scope as well as the implications of any future treaty has become very important.[2] For India, the issue assumes greater significance due to the fact that the Indian government under the July 18, 2005 Joint Statement has made a very clear cut commitment to work with the US for the conclusion of a multilateral FMCT.[3] More importantly, India will be most affected by the conclusion of at future FMCT regardless of the scope of the treaty. This is due to the fact that India possesses no hedge-stocks, unlike the case with most other nuclear-weapon-states (de facto or otherwise). This fact explains the rationale behind the importance that India ties to "effective verification" of a future treaty which is non-discriminatory, universal and credible.

There are three major issues that are of significance to India in the treaty. They are firstly, the definition of the term "fissile material"; secondly, the debate about the "scope" of the treaty with respect to production and stocks; and finally, the debate with regard to verification of the treaty. However, given the constraints of space as well as the focus of the issue, this essay will focus only on the issues surrounding the verification of a future FMCT.

Another point to be noted is that whatever the scope of the eventual FMCT, it will be the five nuclear-weapon states and the three states with nuclear weapons outside the NPT (namely India, Pakistan and Israel) which will be substantively affected. As the Non-Nuclear-Weapon states (NNWS) have undertaken not to produce or acquire nuclear weapons or other nuclear explosive devices, accept IAEA safeguards on all their nuclear material, and are parties to a comprehensive safeguards agreement, they already satisfy

the requirements of the FMCT. Given that India possesses no hedge-stocks, unlike the case with most other nuclear-weapon-states (de facto or otherwise), it is India that will be most affected by the conclusion of a FMCT.

Verification of a future FMCT

In the Shannon Mandate the task of verification is described as an "effectively verifiable treaty."[4] To achieve this end it is imperative that the verification mechanism be non-discriminatory, universal, and credible." To ensure that the principles are followed in letter as well as spirit it is necessary that all rights and obligations for verification must apply equally to all member states. In other words, no material, at least that being produced after entry into force, must be diverted to nuclear weapon use, equally for all treaty members. The measures to verify this ban therefore must be the same for everybody. India has already made a statement supporting such a move saying that "the treaty should incorporate a verification mechanism in order to provide the assurance that all States were complying with their obligations."[5]

However, the recent anti-verification stand taken by the United States has made matters very difficult. Dr. Christopher A. Ford, the US Special Representative for Nuclear Nonproliferation in a March 2007 statement ominously delivered at a conference on "Preparing for 2010: Getting the Process Right," said:

> "...it is the conclusion of the United States that effective verification of an FMCT cannot be achieved. The United States has concluded that there is no achievable combination of verification and monitoring means and measures that would enable the United States and other parties to the agreement to detect non-compliance in time to convince a violator to reverse its actions, or to take such steps as may be needed to reduce the threat presented and deny the violator the benefits of its wrongdoing."[6]

The US stand is that any verification scheme for an FMCT would have to address six fundamental verification issues: (1) detection of production of fissile material at clandestine facilities; (2) monitoring declared fissile material production facilities; (3) providing for the exclusion from verification of fissile material produced for non-proscribed but sensitive (e.g., military) uses after the Treaty's production cutoff date; (4) monitoring material declared as having been produced after the cutoff date, to verify that it is not diverted; (5) excluding from verification fissile material produced before the cutoff date; and (6) determination of acceptable end-use of material produced after the cutoff date.[7] Citing core national security concerns as well as the associated costs of implementing any such verification, the US has stated its opposition to any verification mechanism to be put in place for the treaty.

There are two important questions relating to the verification of an FMCT which require careful consideration. Firstly, who will verify the treaty? And secondly, what kind of verification regime will be implemented? Many experts are of the opinion that the easiest way forward would be to entrust the IAEA with the additional responsibility of verifying the FMCT. Though this does seem to be quite a logical step due to the fact that many of the existing IAEA safeguard techniques and procedures could be directly applied to the verification of the FMCT; the question that arises is whether the IAEA safeguards system is the optimum one for this purpose. It is important to take note of the fact that the OPCW and the CTBTO are two additional multilateral verification organisations which also possess similar capabilities and performs similar functions as the IAEA. Therefore, one must also assess the capabilities of these organisations to verify the FMCT rather than dismissing them off hand.

Currently, there are three major multilateral verification organisations in place – the International Atomic Energy Agency (IAEA), the Organisation for the Prohibition of Chemical Weapons (OPCW) and the

Comprehensive Nuclear Test Ban Treaty Organisation (CTBTO). There is a great deal of similarities and convergences between the three organisations. Each of the above mentioned organisations gathers and processes information to help verify the compliance of states with their disarmament and non-proliferation commitments. Additionally, these organisations also conduct on-site inspections as an integral part of verification.

Therefore, the positives of using the OPCW verification mechanism for a future FMCT definitely needs to be studied carefully. The first advantage is that using the OPCW-type mechanism would immediately minimise differences in implementation in the three types of states involved: the nuclear weapon states (NWS); the de facto nuclear-weapon states (Israel, India, and Pakistan); and the non-nuclear weapon states (NNWS) under the NPT. This would automatically remove the biggest hurdle in the way of successful FMCT negotiations.

However, there definitely are drawbacks of taking such a course. Firstly, establishing a new organisation would extend and complicate (and possibly even stall) the negotiation of an FMCT. Secondly, such a verification system could be very expensive and create additional layers of unnecessary bureaucracy. Given the fact that the IAEA has been working for several years with *zero real growth* budgets and facing acute financial constraints; it remains to be seen where the international community would find the financial resources for a new international multilateral verification organisation.

Given the situation, another possible way out could be to encourage cooperation between international organisations. The CTBT for instance seeks to cooperate with the IAEA and makes use of the Agency's expertise and facilities.[8] However, attempts to put in place pan-treaty verification organisation, or cross-treaty verification mechanisms have not succeeded in the past. The failures have mainly been due to political hurdles. For example, during initial CTBT negotiations there were proposals to have the IAEA to verify the CTBT. However, as it became clear that not all IAEA members would sign the CTBT, the proposal was dropped. A similar situation could take place in the case of the FMCT too. Another problem in joint verification mechanisms is the rightful concern among states to sharing of confidential information across verification organisations. State parties are likely to object to any cooperation that could result in the release of such information to non-states parties or to the verification organisations of other regimes.

Therefore, it is quite clear that the verification mechanism of any future FMCT would have to "pick and choose" the useful practices and mechanisms existing across the IAEA, OPCW and the CTBTO. Given, the problems associated with each of these multilateral international verification mechanisms it does not seem likely that imposing the responsibilities of FMCT verification on any one of these bodies would serve the purpose. For example, in case of declared facilities in state parties, the existing IAEA system of inspections, containment and surveillance would do fairly well. However, the IAEA safeguards mechanism has had problems with detecting undeclared facilities. The Iraqi and the North Korean activities are cases in point. However, with the adoption of the Additional Protocol, the Agency has addressed this issue to a great extent. To overcome this challenge, the verification of FMCT could borrow from the challenge-inspection mechanism of the OPCW. Under this mechanism, CWC parties are expected to use national means for looking for undeclared facilities. If a party becomes aware of a suspect site, it can request that the OPCW undertake a challenge inspection. However, a challenge inspection can be blocked by a three-fourths vote of the CWC Executive Council.[9]

Therefore, it can be said that given the short-comings and the positives of various verification mechanisms, serious thought should be given to the idea of setting up a new international agency to verify the FMCT. However, The safeguards system that would be evolved by the new agency would, of course, use as much of the IAEA or the OPCW or the CTBTO system as is desirable and useful, and would add elements to make the system appropriate for verifying an FMCT.

However, there are several areas for possible cooperation between these different verification mechanisms keeping the confidentiality of state parties' information intact.

The first possible area of cooperation is infrastructure and equipment sharing. For the verification of the FMCT, the sharing of certified radionuclide laboratories might be explored. If confidentiality of information can be assured, such laboratories being maintained by the IAEA and the CTBTO Prepcom can be made use for the purpose of FMCT verification. Also, it might be possible to pool the use of global communication infrastructures.[10] Currently, both the IAEA and the CTBTO Prepcom are maintaining fairly independent global monitoring communications system. Use of these facilities could be explored for the purpose of FMCT verification thereby saving considerable costs and unnecessary duplication of facilities and equipment. However, it must be understood that certain inspection equipment is specific to an inspection organisation and might not be of use to other organisations. However, the reverse too is true. Certain inspection equipment is generic and when not in use, can be shared by other organisations.

Another possible area of cooperation is training of staff. Though confidentiality concerns would be a barrier for free exchange, sharing of staff between organisations; it would greatly help if for example, the IAEA could share its experiences of past years with fairly new verification organisations like the CTBTO Prepcom and the OPCW.

Conclusion

The FMCT is only going to gain more and more importance by the day. However, verification remains one of the major stumbling blocks before the successful negotiation of the treaty. Though, the anti-verification stance of the US is a major challenge; the decision on the actual verification 'model' to be adopted by the FMCT is as much a great a challenge. It does seem as if a large section of experts and decision makers support the verification duties of a future FMCT to be handed over to the IAEA. However, given the lacunae of the IAEA system and political concerns of several member states outlined above, this article makes a case for putting in place a verification mechanism that picks and chooses from the existing verification mechanisms of the OPCW, the IAEA and the CTBTO Prepcom.

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8. Article II of the CTBT states that: 'The Organization, as an independent body, shall seek to utilize existing expertise and facilities, as appropriate, and to maximize cost efficiencies, through cooperative arrangements with other international organizations such as the International Atomic Energy Agency'.

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Remembering Sir Clarke and Prof. Lorenz

Dr. Arvind Mishra

The author is Secretary, Indian Science Fiction Writers' Association, Varanasi.

As a science fiction writer par excellence, Clarke's recurrent themes included humans evolving into a space-faring species and making contact with aliens. Edward Lorenz, showed how small actions could lead to major changes, what is now usually referred to as the "butterfly effect". He figured out in the 1960s that small differences in a dynamic system such as the atmosphere could set off enormous changes.

Technology has its critical place in human society. With their new ideas and discoveries and writings, scientists and writers bridge the gap between the knowledge of science and its understanding in society. *In death of Arthur C. Clarke (1917-2008), scientific community has lost one of its critical cheerleaders and a space optimist*. Professor Edward Lorenz, who died in April 2008, is regarded as the Father of chaos theory.

The ideas and innovations promulgated by both these great minds have left a profound impact on the development of various technologies. It would be difficult to directly identify their contribution towards development of various defensive technologies to be used as prevention against biological and chemical weapons. However, their work has indirectly impacted much of the happenings in the arena of biological and chemical weapons. *Biological and chemical weapons find mention in Clarke's work, like The Final Odyssey* (1997), the fourth and final book in the Space Odyssey series. Prof. Lorenz, a meteorologist, used computers to increase the precision of weather forecasts. Based on this discovery, the idea of plum models for the dispersion of chemical and biological agents was developed.

Sir Arthur Charles Clarke

With the demise of Sir Arthur Charles Clarke in Sri Lanka on March 19, 2008 *an era of space optimism appears to have come to an end now*. His work is usually regarded as an optimistic view of science, empowering man's exploration of his solar system and even beyond. Besides, his domain remained not only extrapolating about humanity's technological abilities, but also exploring all the possibilities of interface between science and society. With his death, world has lost a passionate champion and promoter of scientific thought who invoked scientists to play a greater role in public policy and demanded also that political leaders world over must take science seriously.

A science fiction writer par excellence

While Clarke had a few stories published in certain Fanzines between 1937 and 1945, his first professional sales appeared in 'Astounding Science Fiction' under the editorship Johan Campbell in 1946: "Loophole" was published in April, while "Rescue Party ", his first sale, was published in May. He briefly worked as Assistant Editor of Science Abstracts (1949) before devoting himself to writing full-time from 1951 onward.

As a science fiction writer par excellence, his recurrent themes included humans evolving into a space-faring species and making contact with aliens. But as a practitioner of science he never accommodated ideas that lacked a serious scientific approach in almost all of his science fiction works. In an essay in *Science*, he warned, "For more than a century science and its occasionally ugly sister technology has been the chief driving forces shaping our world. They decide the kinds of futures that are possible. Human wisdom must decide which are desirable."

Clarke often used his stories to caution humanity against many forms of undesirable futures for us earthlings. He imagined supercomputers taking control as HAL in '*2001: A Space Odyssey*' and the extermination of life on earth by nuclear warfare, asteroid impacts or climate change. He had a solid grounding in physics and mathematics, and a deep understanding of societal concerns of science and vice versa in today's world. Attributes like such helped him in becoming an effective, dependable communicator of science, especially on space travel, communication technologies and futuristic scenarios.

Clarke's great legacy constitute among other things his unbound inspiration to generations of space explorers, software engineers and 'techno-preneurs'. He triggered the globalisation of information-some sort a state of a global village, 'Vasudhaiv Kutumbkam' [The whole world is a family as the oft repeated quote from Indian scriptures pronounce] by proposing the geosynchronous communications satellite way back in 1945 — satellites that circle the earth at the same speed as the earth itself is turning, and therefore appear to stay in a fixed position. The concept was published in 'Wireless World' in October that year. In recognition of his contributions the geostationary orbit 36,000 kilometers (22,000 mi) above the equator is officially recognised by the International Astronomical Union as a "Clarke Orbit".

As we know today this idea having transformed into reality catering to the needs of all satellite based communications and the web communication also has become an integral part of the epoch making technology. But alas, Clarke could not even think of patenting the idea and had he done it he would have earned millions out of that very idea. But weep not readers, he nevertheless became a millionaire in his life time and spent a life no less than a tycoon.

Clarke as a crusader against anti- science beliefs

Clarke was a die hard crusader against all sort of unscientific claims, anti-science beliefs and superstitious practices, from creationism and scientology to astrology and fire-walking. In these endeavours he joined other campaigners including Carl Sagan, Stephen Jay Gould and the magician James Randi. He made a modest living as a professional skeptical enquirer. He hosted many television series that probed and even exposed numerous mysteries, superstitions and the paranormal. Also, he time and again challenged astrologers to explain rationally the basis of their work. Though the challenge was always avoided, and astrology continues to exercise much influence over politics, public policy, business and everyday life in Sri Lanka. Yet he never gave up the struggle for rational discussion and debate in public affairs, and remained outspoken till the last breath of his life.

While accepting the Kalinga Prize for Popularization of Science, 1961 by UNESCO in New Delhi in 1962, he iterated, "Two of the greatest evils that afflict Asia, and keep millions in a state of physical, mental and spiritual poverty, are fanaticism and superstition. Science, in its cultural as well as its technological sense, is the great enemy of both; it can provide the only weapons that will overcome them and lead whole nations to a better life."

Born in Mine head, Somerset, England he immigrated to Sri Lanka in 1956 largely to pursue

his interest in scuba diving and lived there until his death. He served in the Royal Air force as a radar instructor and technician during 1941-1946, where he proposed the most talked about satellite communication systems in 1945 which won him the Franklin Institute Stuart Ballantine Gold Medal in 1963 along with a nomination in 1994 for Nobel Prize. He was Chairman of the British Interplanetary Society from 1947-1950 and again in 1953.

Visionary Clarke

Though his story "The Sentinel" [1948] was rejected for a BBC competition it changed the course of Clarke's career. It formed the basis for 'A Space Odyssey'. Clarke's later works feature a technologically advanced but prejudiced mankind being confronted by a superior alien intelligence. Quite interestingly, in one of his novels, 'Fountains of Paradise' he conceptualized 'space elevators' in the lines of similar legendary efforts by demon king of mystical Lanka, Ravana who is said to have tried for establishing a ladder leading to heaven from earth. His 'Childhood's Ends' is considered as best novel by some critics. Clarke had a fascination with the paranormal and stated that it was part of the inspiration for *Childhood's End*. He signed in the early 1970s a three-book publishing deal, a record for a science-fiction writer at the time. 'Rendezvous with Rama' came out to be the first in 1973, which won him all the main genre awards.

He left written instructions for his funeral which stated:

"Absolutely no religious rites of any kind, relating to any religious faith, should be associated with my funeral."

Professor Edward Lorenz

Professor Edward Lorenz, meteorologist and mathematician died at the aged of 90 on April 16 2008. Father of modern chaos theory he became a midnight celebrity with his talk entitled, "*Predictability: Does the Flap of a butterfly's wings in Brazil set off a tornado in Texas?*" He first published his work on chaos theory in the early 1960s, but it was this talk he gave in 1972 which brought him wider attention. As a child he was always fascinated by the weather and natural phenomena – an interest which he retained throughout his life. He writes in his autography, *"As a boy I was always interested in doing things with numbers, and was also fascinated by changes in the weather".*

Professor Edward Lorenz was born on May 23 1917 in West Hartford, Connecticut and educated at Dartmouth College and Harvard University. His chaos theory caused an impact worldwide but amazingly much before to it Jagdish Chandra Bose wrote a story on a similar theme which is credited to be the first true science fiction story written in Bengali. Published in 1896 and entitled, "Palatak Toofan" [absconded tempest] the story described how a severe surge of the sea could be appeased by even a drop of oil and could save a ship. In similar vein Edward Lorenz, showed how small actions could lead to major changes, what is now usually referred to as the "butterfly effect". He figured out in the 1960s that small differences in a dynamic system such as the atmosphere could set off enormous changes.

Having earned degrees in mathematics from Dartmouth College in 1938, from Harvard University in 1940, and degrees in meteorology from MIT in 1943 and 1948 he served as a weather forecaster for the U.S. Army Air Corps in World War II. By showing that certain deterministic systems have formal predictability limits, Lorenz put the last nail in the coffin of the Cartesian universe and fomented what some have called the third scientific revolution of the 20th century, following on the heels of relativity and quantum physics. He was a perfect gentleman, and through his intelligence, integrity and humility set a very high standard for his and succeeding generations. He won the Kyoto Prize for basic sciences in the field of earth and planetary sciences in 1991.

"Lorenz made his boldest scientific achievement in discovering 'deterministic chaos,' a principle which has profoundly influenced a wide range of basic sciences and brought about one of the most dramatic changes in mankind's view of nature since Sir Isaac Newton." the prize committee said.

Dr. Shehriyar Khateri

The author is a physician, and charge of the public and international relations of the Society for Chemical Weapons Victims Support (SCWVS), Iran.

During the Iran-Iraq war (1980-1988) Saddam Hussein's regime used chemical weapons against Iranian civilians and soldiers as well as against Iraqi Kurds. As the results of those chemical attacks, about 1 million civilians and soldiers were exposed to chemical warfare agents. The international obligations are necessary but not enough to guarantee the ban of the use of inhuman weapons and to prevent war crimes.

Questions for Dr. Khateri

While WMD hold the centre stage of international politics, its victims often suffer from neglect and insensitivity. **Dr. Shehriyar Khateri,** a physician, works determinedly for the cause of chemical weapons victim in Iran. He spoke to our Assistant Editor, **Monalisa** at Bangalore and responded to the questions via E-mail. An excerpt-

1. **What is the NGO SCWVS about?**

   The Society for Chemical Weapons Victims Support (SCWVS) is a non-Governmental, non-Profit organisation, established in 2002.

   The founders were a group of veterans of Iran-Iraq war who had experienced war and chemical attacks during 80s.

   The SCWVS is dedicated to conducting awareness programs to increase public knowledge about the aftermath of war and weapons of mass destruction as well as about the importance of peace and the abolition of chemical, biological and nuclear weapons.

2. **What is the kind of work it does?**

   Awareness programs through: photo exhibitions, art exhibitions, meetings and conferences.

   Conducting research projects and studies in collaboration with universities and academic institutes addressing health impacts of chemical weapons, and the psychosocial problems of survivors and subsequently planning for interventions to improve quality of life and health status of them and their families.

3. What is your role?

I am in charge of the public and international relations of the organisation.

4. How does your training as medical personnel help you to deal with the subject of chemical weapons?

Indeed, as a physician I have been dealing with the long term health problems of the veterans and survivors of war, including the gas attacks survivors and I deeply understand how devastating the health consequences of war are and how necessary is to try to abolish chemical, biological and nuclear weapons from the world.

5. Does this training also help you in your personal interaction with the victims? In terms of building confidence etc.

Absolutely, although as a physician I am unfortunately aware of the fact that there is no cure for exposure related illnesses but we always try to help them on how to cope with their illnesses and how to improve their mental status despite their suffering.

6. Could you give us a brief background of the chemical weapons attack on Iran?

During the Iran-Iraq war (1980-1988) Saddam Hussein's regime used chemical weapons against Iranian civilians and soldiers as well as against Iraqi Kurds in violation of the 1925 Geneva Protocol. This was the most extensive use of chemical weapons since WW I and left thousands of persons killed and injured.

Seven official reports by UN expert teams during the war confirmed the use of Mustard gas and Nerve agents by Iraqi army against Iranians including: S/16433 , S/17127, S/17911, S/18852, S/ 19823, S/20060, S/20134.

Some of the major attacks are:

- Majnoon islands, *March 1984*–first use of nerve agent and mustard gas on a large scale.
- Sardasht, Iran, *June 28, 1987*–first mustard bombardment of civilian residential areas of a city.
- Halabja, Iraq, *March 16, 1988*–first massive nerve agent attack on civilian residential areas of a city.

As the results of those chemical attacks, about 1 million civilians and soldiers were exposed to chemical warfare agents (low dose or high dose), more than 100,000 were seriously injured and more than 6000 were killed as the direct results of the gas attacks in the battlefield.

Now 20 years on, more than 55,000 Iranians are suffering from serious long-term health effects of exposure to Mustard gas and need medical care.

7. What were the chemicals used in the attack?

According to Iraq, *between 1983 and 1988*—their military consumed almost 19,500 chemical bombs, over 54,000 chemical artillery shells and 27,000 short-range chemical rockets, containing 1,800 tonnes of Mustard, 140 tonnes of Tabun and over 600 tonnes of Sarin.

8. What were the long term effects of such attacks on the victims?

Studies of Iranian scientists' reveals that the most common long-term health effects of exposure to Mustard gas are:

- ✓ Respiratory problems including
  - Chronic Bronchtis / Bronchiolitis
  - Airways stenosis
  - Damage of the wind pipe structure (tracheomalacia)

- Recurrent lung infection
- Decreased respiratory volumes and lung function

✓ Eye lesions including
- Corneal damage/melting/ perforation
- Dry eye

✓ Skin lesions
- Scars
- Dry skin

✓ Psychological disorders

According to chamber, field, and patch tests run by the US Army during the Second World War, in which over 60,000 US servicemen sustained varying degrees of exposure to mustard gas, the following specific health problems are caused by exposure to mustard agent:[1]

- Respiratory cancers (nasopharyngeal, laryngeal, lung)
- Skin cancer
- Pigmentation abnormalities of skin
- Chronic skin ulceration and scar formation
- Chronic respiratory diseases (asthma, chronic bronchitis, emphysema, chronic obstructive pulmonary disease—COPD, laryngitis)
- Eye problems (recurrent corneal ulcerative disease, delayed recurrent keratitis of the eye, chronic conjunctivitis)
- Bone marrow depression and immunosuppression as an acute effect.
- Psychological disorders (mood disorders, anxiety disorders, post-traumatic stress disorder, other traumatic stress disorders).
- Sexual dysfunction due to scarring the reason for these effects can be traced to the alkylating effects of mustard: Mustard agents are DNA- alkylating agents and are extremely cytotoxic at low doses. DNA alkylation CBW is probably responsible for the mutagenicity of mustard agents. These agents also alkylate RNA and proteins and can, at moderate to high doses, produce non repairable DNA lesions (genotoxicity).

9. What could be certain preventive measure against a chemical weapon attack?

There is no certain prevention measure but when a chemical weapons attack or threat happens, the most important things to be considered are: improving defence measures, increasing public knowledge and training programs, protection equipments, medical countermeasures casualty management and decontamination.

10. Do you think that the international community has not handled the chemical weapons victims of Iran with sensitivity?

As mentioned earlier, Following Iranian allegations that Iraq was using chemical weapons during the Iran-Iraq war from 1980-1988, the UN Secretary-General, Javier Perez de Cuellar, sent a number of specialist teams to investigate the situation. Although the war was still in progress the team visited battlefields and medical centers, met with casualties and took samples from contaminated materials, including unexploded bombs. Their reports raised awareness of the shocking use of chemical weapons by Iraq. Since the use of chemical weapons by the Iraqi regime was in clear violation of the 1925 Geneva Protocol and given that the UN expert missions unanimously concluded that chemical warfare agents had indeed been used, the UN Security Council should have taken immediate strong action to stop such activities. It was its responsibility to do so.

Due to its lack of such action, Saddam Hussein's regime continued, with impunity, to use even greater quantities of chemical warfare agents on a larger scale, against both soldiers and civilians.

Therefore, there is no doubt that the international community including the United Nations and the Security council failed to fulfill their responsibility to try to stop the violation to International Humanitarian law and a big war crime which caused the death and suffering of tens of thousands of people.

11. What is the link between Biological, chemical and toxic weapons?

Both are known as so called Weapons of Mass Destruction as they are indiscriminate weapons and they have a nature of causing superfluous injury and unnecessary suffering.

12. What are the new and emerging chemical weapons?

Although at the moment 183 countries are member stated of the Chemical Weapons Convention (CWC) and it has been stipulated in the CWC that development, production, stockpiling and the use of chemical weapons are prohibited moreover the states parties which have stockpiles of chemical weapons must destroy their CW arsenals by 2012, but unfortunately there are still a few states which are neither member of CWC nor many other disarmament treaties and are real threats to the world peace, they not only have huge arsenals of CW but still developing more dangerous Chemical and Biological agents which can be used by themselves or terrorist groups and may cause a disaster for the world.

13. In terms of their lethality and after effects how would you rate chemical weapons in the category of WMD?

I am not going to say that chemical weapons are the most dangerous types of so called WMD but I would rather say that having a strong international treaty for total ban of such weapons (CW) urging all member states to eliminate these inhuman weapons and not to use chemical weapons under any circumstances is an indicator that the world community has considered chemical weapons as the most dangerous types of WMD as we do not have such obligations about other kind of weapons even Nuclear and Biological weapons!

14. What do you think are the reasons that chemical weapon are used in war fighting and against civilians?

Simply, lack of respect to international law and the rules which are created to save the human being from the crimes against humanity and to protect human dignity.

15. How effective is the moral norm against the use of inhumane weapons?

Lessons learnt from the disastrous events of 1980s and the violation of Saddam's regime to many principals of international humanitarian law including the 1925 Geneva protocol reveals that the international obligations are necessary but not enough to guarantee the ban of the use of inhuman weapons and to prevent war crimes.

When Saddam's regime was using chemical weapons against Iranians in a large scale and was gassing even civilians, the world community just turned a blind eye and let him to gas more people.

Even those nations which are always known as sensitive nations about the war crimes and violation to international law, did not react and forgot about the international law, so Saddam's regime killed more people with impunity.

Since Saddam was an ally of big powers then and he was using inhuman weapons against a country which was considered as an enemy of certain countries, it was O.K. but later even suspicions that he may have WMD arsenals justified a full scale military invasion to Iraq in violation of the UN charter! And even using inhuman weapons like Depleted Uranium (DU) weapons.

16. What is the role of global politics in the issue of chemical weapons?

Not to use the CWC and other international treaties as tools for the sake of interests of big powers but to respect them as the basic rules of humanity and justice.

17. Do you see a similarity of chemical weapons victims in Iran with the victims of Bhopal Gas tragedy in India in 1984?

Although Bhopal gas tragedy was an industrial accident and what happened in Iran was a war crime but there are similarities:

1. Both survivors developed chronic health problem and many are still suffering from disabling illnesses related to exposure to toxic chemicals.

2. Both survivors are also suffering from being ignored, they were (and still they are) forgotten by the world community, the perpetrators were not tried in a fair trial and were not punished as they should be.

18. Is there an International law that provides relief and compensation to chemical weapon victim and punishes the perpetrators?

Use of chemical weapons is clearly a violation of International Humanitarian Law and it was the responsibility of international community to react against the grave breach of International Humanitarian Law and war crimes that Saddam committed during its war with Iran.

19. Are there any compensatory claims for a chemical weapon's victim?

Unfortunately, nobody was ever tried for the war crimes of the use of chemical weapons against Iranians, this was even excluded from the list of Saddam's charges in his trial and he was not given the chance to speak about his atrocities against Iranians and about those who supplied chemical weapons and its precursors for his regime.

No international tribunal was set up to address the war crimes of Saddam during his invasion to Iran including the use of chemical weapons. The victims of chemical weapons attacks have never received any compensation for their suffering because of the abovementioned reasons.

20. What course of action and relief can chemical weapons victims claim for?

First of all they need to be recognised by the world community as victim of a war crime.

Secondly they need international contribution by world medical community to help them to cope with their chronic, progressive illnesses.

Third, they seek justice; they need the perpetrators of chemical weapons attacks to be punished and those who supported Saddam's regime to be tried in a fair international tribunal.

21. Has this work with chemical weapon's victim affected you personally?

Undoubtedly, witnessing the suffering of CW victims and living with them,

dealing with the long lasting health effects and serious psychological impacts of such weapons makes me more determined to do my best to prevent the repeat of such disasters and to promote culture of peace.

22. Do you think enough is being done in terms of Treaty, Conventions at the international level to prevent chemical weapons use?

I believe that the existing Chemical weapons convention is strong enough in terms of its legal aspects to ban the development, production, stockpiling and the use of chemical weapons in an international level.

23. What are the efforts that can be undertaken to prevent the proliferation of chemical weapons?

First, Putting pressure on those states which have not signed and ratified the CWC yet, to join the convention as soon as possible and to help the universality of the convention.

Second, putting pressure on those states which have not fulfilled their commitment regarding the destruction of their chemical arsenals based on the CWC obligations.

24. What more needs to be done?

Awareness! Awareness! Awareness! To make people aware of the danger of such devastating weapons and to recall them the human tragedy of WWI and Iran-Iraq War.

The survivors of 1980s chemical attacks are still alive and they are a witnesses of the most recent large scale use of Chemical weapons, their eye witness accounts are the best awareness messages, their chronic coughs, their skin scars and their burnt eyes have powerful messages to everybody: Never again!

25. Any other issue or question that has not been mentioned before and you would like to talk about.

Whilst talking about the chemical weapons convention, don't forget the victims!

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Is Bioterrorism Threat Credible?

Animesh Roul

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The big question is whether the threat of biological weapon use is real or a product of fearful future thinking? As far as terrorist groups are concerned, they not only wish to survive, but endeavor to thrive with continuous innovation and improvisation. The paucity of empirical data on terrorist use of biological weapons does not limit their future planning concerning biological weapon.

Even terrorists play pranks on WMD use these days! Late May 2008 a purported terrorist video caught media attention and some serious coverage. As per the reports, the Al Qaeda video message urged Islamic jihadists to use "biological, chemical and nuclear weapons to attack the West." Experts suspecting the authenticity of the video message dismissed the threat as a prank and not '*Qaedaesque*' enough to get scared.[1]

Much water has been passed since the anthrax scare which had taken its limited toll against the most powerful country on earth immediately after the events of 9/11 terrorists events in the US. Though limited in its spread, experts have concluded that the worst situation would arise mainly due excessive human interference in the natural process of life. A substantial part of the threat also constitutes the malign use of naturally occurring organisms (biological agents) by mankind in general and terrorists in particular. There are many factors that attract a terrorist group towards biological weapons and biological weapons attack. Most important is their toxicity. In addition, their un-detectability and capacity to reproduce rapidly make biological weapons a weapon of choice for terror groups.

Biological Weapons Use: Real Time or Futuristic

The big question is whether the threat of biological weapon use is real or a product of fearful future thinking? Plausibly enough, we are passing though a time where innovation is the key to survive. But as far as terrorist groups are concerned, they not only wish to survive, but endeavor to thrive with continuous innovation and improvisation. Trends show that terrorists in South Asia, particularly in India, have always improvised their tactics and methods, be it in suicide attacks, serial blasts, handling improvised explosives using pressure cookers, hurling grenades recruiting unemployed civilians or in choosing targets (temples, Mosques and busy market places).[2] And if intelligence reports are to be believed,

they have graduated to snipers for targeting high-profile political or business personalities in India. In the face of this continuous up-gradation of terror tactics, use of biological weapon or deadly pathogen by terrorist groups or a 'lone wolf' into civilian population or targeting individuals, might be probable.

Equally imperative to note is the nature of the biological weapon agents. Biological weapon could be lethal in the hands of non-states actors like terrorists, religious cults, and Mafia syndicates. International terrorist outfits like Al Qaeda have made unexpected efforts in developing bio-weapon capability among other weapon of mass 'disruption/destructions (WMD) in the past and possibly, are doing so even now.

Historically, no terrorist group or religious cults achieved success in employing biological weapons or live pathogen at a large scale. However, there are ample evidences of the use of biological agents by some groups with little success. These attempts managed to scare and disrupt the society at large.

In 1984, the Rajneesh cult in Oregon, US, intentionally and indiscriminately contaminated a number of salad bars with a strain of salmonella bacteria. Over 700 people got affected with gastrointestinal illness, though nobody died in this incident. The cult members used commercially available biological agents to incapacitate people. Their aim was to win voters at bay during the local election. In 1994, a Japanese group called the Aum Shinrikyo unsuccessfully attempted to spread botulinum toxin and other agents in the city, before committing the dreaded subway Nerve gas attack. In 1998, a microbiologist linked to white-supremacist groups in the US had threatened military-grade anthrax in Las Vegas. His threat though later turned out to be harmless; generated widespread fear within civil society and security forces. The other important case occurred in post 9/11 terrorist strikes. Anthrax laced letter attacks causes five deaths and more than 15 people were severely ill. Unlike most other pathogens, anthrax is considered to be most potent and virulent.
In 2003, at least four Ricin related incidents took place. In the beginning of the year, on January 5, 2003, six Algerians, believed to be part of the 'Chechen network', Ansar al-Islam, a group linked to Al Qaeda and Iraq were arrested during a raid on a flat in Wood Green, North London, by the British security agencies. They were in the possession of Ricin. Castor seeds and equipments to make Ricin were also recovered from the flat. In March, traces of Ricin were found by the police in two phials inside a locker at Gare de Lyon railway station in Paris. On October 2003 a metallic container with Ricin was discovered at a Greenville, postal facility in South Carolina, United States. A November 2003 disclosure confirms that traces of Ricin were also found in mail bound for the White House. No one was hurt in any of the four cases, fortunately.

In South Asia, Tamil rebel groups had threatened to use biological materials against the native Sinhalese in the early 1980s. The rebels threatened to spread Bilbariasis and Yellow Fever in the country and allegedly laid out plans to attack rubber plantations and tea gardens using anti plant agents. Again in Sri Lanka, recently in March 2008, this scare tactic surfaced when the UN Department of Safety and Security, located at Bauddhaloka Mawatha, Colombo, issued one intra organisation advisory following the receipt of suspicious packages with powder substance at one of the government agencies in Colombo. The suspicious packet was comprised of a threatening letter which contained a white powdery substance.

There are recent reports that Al Qaeda's Abdur Rauf, a Pakistani microbiologist has searched every corner of Europe to obtain anthrax spores and equipment for Al Qaeda bio-laboratory in Afghanistan to weaponise the pathogens, much before 9/11 events. Not to forget Menad Benchellali's covert activities and his quest to weaponise Ricin, before his arrest in early 2004, in his bio/chem laboratory in Lyon, France. Benchellali, an Al Qaeda trained terrorist, was convicted in 2006 along with 24 others. His handling of bio/chem material in small laboratory and expertise under terrorists' disposal opened a can of worms. Somebody has rightly pointed out that Benchellali's case had opened the door of secret world of bio-terrorism.

Why Islamist terrorist groups like Al Qaeda, are employing and indoctrinating scientists, trained microbiologists in its fold? The answer may be still unknown, but conventional wisdom suggests that there is a hidden design in place and that certainly involves intentional fiddling with life science and living organism. The picture is still hazy. The news about a couple of Indian origin doctors among others in their fraternity from Jordan and Iraq had been detained and suspected in connection with the foiled attacks in Glasgow and London last year might make the picture more clear.[3] The attempted bomb attacks by trained doctors who have undergone life science and pathological laboratory training to save human life, now on a terror call, are certainly very disturbing. This is not all! Investigations into a terror web forum suggest that around 45 (all Muslim) doctors planned a consorted Jihad against the US.

Again, analysts have stumbled upon chemical and biological weapon manuals being circulated in Jihadi web forums over the internet. This finding makes the bioterror threat more plausible, even though, these openly available manuals can help terrorist to develop crude biological weapon with minimum lethal factor. A survey published by *Jane's Intelligence Review (2007)* indicates that chemical and biological weapons on password protected web forums constitute a part of jihadi discussion. At least two longer manuals on biological weapons have found in these Jihadi forums which describe methods for growing plague bacteria and botulinum toxin.[4]

Conclusion

Knowledge about the Aum Shinrikyo (Japan) and Rajneesh (Oregon, US) episodes is available, however one could only speculate the biological weapons capacity of international terror groups such as Al Qaeda's. This is perhaps to downplay the latter's reach and interests in acquiring and using them.
Of course, the intelligence community does not have the evidence about Al Qaeda or any terror outfit going beyond the initial exploratory. But the paucity of empirical data on terrorist use of biological weapons does not limit their future planning concerning biological weapon. By leveling the whole bioterrorism issue as absurd would be too simplistic and immature on the parts of strategic thinkers or policy makers.

Knowledgeable observers opined that it is a matter of time car bombs would replace biological pathogen filled balloons, if not hi-tech delivery systems. Indeed, it is not very hard to stretch imagination on why five among the eight suspects have training in microbiology[5] and working for Al Qaeda's Jihadi agenda. Opinion is still divided between the alarmists and those holding an imminent bioterrorism threat to be far-fetched. Though time and again this insidious threat has been downplayed by India's counter-terror mandarins citing non-existent earlier cases in this part of the world, it is just a matter of time to witness a germ unleash of apocalyptic nature.

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North Korea's Chemical and Biological Weapons

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North Korea started developing its chemical weapons in 1947 as the Korean People's Army addressed the theory of chemical weapons operational doctrines. In 1954 the army reportedly established regular chemical and biological defence units after the Korean War of 1950 to 1953. The reliability of these facts has limitations for being confirmed. Kim Il Sung's "Declaration for Chemicalizaion" and his mentioning of "poisonous gas and bacteria can be used effectively in war" in 1961 called for further efforts to develop its chemical and biological production facilities. This reflected in Kim Il Sung's recognition of importance of biological and chemical weapons. Following this, North Korea's biological and chemical facilities were established and further developed.

Assessing chemical or biological weapons capability itself is a challenging project because of its dual use purposes and lack of unique marks. When it comes to North Korea, it is going to be a difficult task to decipher its real capability due to the country's least accessibility to its facilities and related materials. Currently North Korea is ranked as the third country (followed by the US and Russia) or just one of the most possessors of chemical weapons in the world.

Generally assumed chemical agents with North Korea are mustard gas, phosgene, sarin, with a total of 2500 to 5000 tons of chemical weapons possession. North Korea is capable of producing 5000 tons annually and 12,000 tons chemical agents in the advent of war. It has also continued research with possible production of biological warfare agents like anthrax, plague, yellow fever, typhoid, cholera, tuberculosis, typhus, smallpox, and botulinum toxin.

On October 4, 2002, North Korean First Vice Foreign Minister Kang Suk Ju mentioned North Korea possessing a powerful bomb which had been interpreted in general as H-bomb. It later came out to be a threat of chemical and biological weapons as North Korea confessed its nuclear program. In addition, North Korea's capability to have an H-bomb has been assessed negatively by the US intelligence at the same time.

Around late 1960s, North Korea began to produce chemical weapons "experimentally". In 1981 the Chemical Bureau was transformed into the Nuclear Chemical Defence Bureau and put under direct control of the General Staff Department of the Ministry of the People's Armed Forces. In the late 1980s or the early 1990s, the chemical weapons arsenal was expanded and intensified. In January 1993, South Korea signed the Chemical Weapons Convention (CWC) and declared its stock of chemical weapons, North Korea refused to sign the CWC, though denying its possession of chemical weapons. Despite ROK (Republic of Korea)'s deep concern over the North Korean

chemical weapons program, as the former Vice foreign minister Yi Ki Chu expressed "deep concern over the failure of North Korea to join the CWC" in May 1997, North Korea hasn't signed CWC nor has expressed to do so. However, North Korea has signed the Biological and Toxin Weapons Convention (BTWC) in 1987.

Suspicious traits

In late 1970s, North Korea purchased agricultural chemical products in large quantities (1.6, 2, 1.8, 3.1, 4 million tons from 1976 to 1980 respectively), putting aside its dual use possibility, its application for chemical weapons programme cannot be ruled out. In February 2002, an unidentified South Korean company sold about 338 tons of sodium cyanide which is a highly toxic chemical compound, to an unidentified Thailand firm. The Thai company arranged to ship 70 tons of the chemical to North Korea.

On September 25, 2004, the South Korean Customs Service handed in a report to a law maker stating that South Korea had exported 73,925 tons of sodium cyanide to China and 3,540 tons to Malaysia since 1998. Malaysia later stated that they had acted as a middleman for North Korea, and a total of 107 tons was handed to North Korea via Chinese middlemen.

Formidability

Biological attack on US mainland was carried out in October 2001. The causative agent was anthrax. Anthrax infection is caught unknowingly, the symptoms of infection are similar to a fever, but its formidability to killing people is enormous. Destructiveness of anthrax is as follow. Killing 50 % of people in 232km^2 needs 1 megaton (1000kg) nuclear weapon (equal to 160 metric tons of a chemical agent RDX). Anthrax used as a weapon to target Seoul (600m^2), could kill 50% of population in the city with only 17 kg of the agent. The target city being Gyeonggi province (10,900km^2), the most populous province and surrounds Seoul, adjacent to North Korea, more than half the population could be killed by using 310kg of anthrax. Thus, approximately 350 kg of anthrax would be needed for the mass killing of 50% of people in Seoul and Gyeonggi province, where almost half of Korean population resides. With regard to its economic, political importance of capital Seoul and 27 cities in Gyeonggi province, it would bring huge calamity only with 350kg of anthrax. South Korea is in urgent need of preparing in advance. According to a report handed in National Assembly for inspection of the administration in October 2006, among South Korea's 29,080 shelters, chemical and biological protected shelters for "the ordinary people" are only counted as 4 places, with an area of 4,237m^2 (1,284pyong) which could accommodate 5,136 people.

Table: Quantity of Anthrax required to inflict casualties of 50% of total population

	Washington (232km^2)	Seoul (600km^2)	Gyeonggi province (11,000km^2)
Nuclear weapons	1,000kg	2,600kg	48,000kg
Biological agent	6.5kg	17kg	310 kg

Delivery Systems

For chemical weapons warheads capability, North Korean's missiles could be armed with them. It has been said that if 50 missiles armed with biological and chemical weapons warheads were to be fired, 4 million among 12 million people in Seoul would be killed. In addition, what if North Korea fired missiles in quantity, it would be impossible to prevent South Korea from being attacked, resulting in a tremendous tragedy with a small amount of chemical or biological agents. Estimated as 13,000 personnel, North Korea's chemical defense force personnel could land on Korean peninsula and carry along biological weapons agent with intent to inflict damage and kill people in South Korea.

Biological and Chemical Warfare

Chung Bok Yi (a sergeant in the 18th Nuclear and Chemical Defence Battalion in the early 1990s, who defected in 1994) in his interview with *Korea Defense Review* in 2000, stated that North Koreans are already provided with anti-gas masks of 710 old version and the military with 1010 (a new version) for preparing chemical and biological warfare. He added that the agents used in the World War II and Korean War were crude agents. In February 2004, BBC broadcasted about North Korean defector Kwon Hyuk, who was the former military attaché at the North Korean embassy in Beijing and chief of management at prison camp 22, and Sun Ok Lee, a former prisoner in a North Korean prison, both witnessed human experimentation in North Korea. Whatever the status of its biological weapons efforts, North Korea has developed a lot of dual use biotechnology facilities where research and military purpose biological weapons agents could be produced. Such estimation is yet to be officially confirmed.

Table: North Korea's Weapons of Mass Destruction

Weapons systems	Range (km)	Availability of armed with chemical warheads
Calibers 170mm	.54	Possible
Calibers 240mm	65	Possible
Forg-5/7	55-72	Possible
SCUD(B/C)	. 300(B) 500(C)	Possible
Nodong 1, 2	1300	Possible
Daepodong 1,2	2500-6700	possible

There is lack of information to confirm the progress of North Korea's chemical and biological weapons programme. Whatever the situation or strategic interest they have in North Korea's estimates; a possible chemical and biological weapons capability could serve North Korea's strategic interest in creating or deterring an attack from perceived enemies.

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Chemical and Biological News

ARMS CONTROL

Air Force counter-biological warfare reaches milestone

The Air Force counter-biological warfare concept of operations recently reached a critical milestone, achieving initial operational capability across the service.

"It results from six years of analysis and testing," said Col. Steve Lucky, chief of the Air Force Strategic Plans & Policy Division at the Pentagon.

"Although these new procedures significantly improve our ability to operate in a biological warfare environment, there is still a significant amount of work to be done to fully prepare the Air Force to meet the threat," Colonel Lucky said. "Air Force major commands are working together to ensure the CONOPS reaches full operational capability by April 2009 and is successfully institutionalized across the service."

Simply put, the CONOPS for counter-biological warfare outlines the Air Force approach to countering biological warfare and terrorism, as well as naturally occurring disease outbreaks. It prescribes the actions to be taken before, during and after a biological event to limit casualties and sustain mission capability at Air Force installations. Base commanders use operational risk management to evaluate possible courses of action, identify risks and benefits, and determine the best course of action for installation response.

Several additions have been made to various Air Force instructions regarding biological warfare. An example includes AFI 10-2604, *Disease Containment Planning Guidance*. This document provides policy and guidance for disease containment planning, outlines roles and responsibilities and identifies planning considerations.

There are also several online courses devoted to the CONOPS, including the (Chemical, Biological, Radiological and Nuclear) Awareness Course, the CBRN Key Leaders Course and the CBRN Survival Skills Course.

"Now the Air Force will actively implement and integrate this CONOPS to reach full operational capability and to support its long-term institutionalisation," said Colonel Lucky. "We are embedding these procedures across the service to effectively prepare Air Force installations for potential biological warfare attacks."

http://www.af.mil/news/story.asp?id=123098357/ May 12, 2008

New commission to study WMDs announced

Soon after taking office, the next president will get some advice about how to prevent a nuclear attack on the U.S., researched and written by top experts on weapons of mass destruction.

Over the next six months, a congressionally mandated commission will look at the government's myriad WMD programs to counter nuclear, biological and chemical arms capable of killing great numbers of people and make recommendations on how to coordinate them. The commission was created by a 2007 law in response to the Sept. 11, 2001, attacks.

Commission members, announced Friday, include former Sen. Bob Graham, D-Fla., and former Rep. Tim Roemer, D-Ind., who was a member of the 9/11 commission, set up by Congress to investigate events leading up to the attacks and the government's response. The bipartisan panel made 41 recommendations, including to improve counterproliferation programs, information-sharing among federal agencies and emergency response communications and to create a director of national intelligence and a national counterterrorism center.

Graham, who will be chairman of the WMD commission, said most of the focus will be on nuclear and biological weapons, because those have the greatest potential to kill many people.

Graham has already met with the heads of agencies with counterproliferation programs, including the departments of Defense, Energy, Homeland Security and State. The commission has been promised access to whatever information they need, he said.

"We see as our principle audience the new administration and the new Congress," Graham said in an interview.

In a statement, Roemer said, "Far too many WMD components remain unsecured around the world, at a time when the threat from terrorists and extremist groups continues to grow."

The WMD report is due in mid-November.

"The greatest danger of another catastrophic attack in the United States will materialize if the world's most dangerous terrorists acquire the world's most dangerous weapons," according to the 9/11 report, published in 2004.

http://ap.google.com/article/ALeqM5jofTTWvTdRkVBs8Unp2LTTPmpy8wD90N1GTG0/May16,2008

China launches 5-day chemical weapons training course

A protection and assistance training course jointly sponsored by the Chinese government and the Organisation for the Prohibition of Chemical Weapons (OPCW) was inaugurated.

A Foreign Ministry press release said 25 students from 18 countries in the Asia-Pacific region were participating in the five days of training at the Chinese People's Liberation Army (PLA) Institute of Chemical Defense.

The course aims to implement the protection and assistance article of the Chemical Weapons Convention (CWC) to help relevant nations improve their ability to tackle the possible threat of chemical weapons and chemical accidents.

China has supported the CWC treaty and assisted the OPCW by offering funds and equipment, the release said.

The training course will conclude on Friday, the press release announced.

The CWC took force in 1997 and mandated the OPCW to eliminate chemical weapons and verify the destruction of declared chemical weapons stockpiles within stipulated deadlines.

So far, 183 nations, representing about 98 percent of the global population, have joined the OPCW.

http://news.xinhuanet.com/english/2008-05/12/content_8153418.htm

Guinea-Bissau Joins the Chemical Weapons Convention

Guinea-Bissau deposited its instrument of ratification of the Chemical Weapons Convention (CWC) with the Secretary General of the United Nations on May 20, 2008, and the Convention will enter into force for this State on June 19, 2008. It will thus become the 184th State Party to the CWC, reducing to 11 the number of States that still remain outside the CWC.

Guinea-Bissau's decision to join the Convention constitutes an important step towards the universality of the Convention. The goal of universal adherence is to both strengthen the global chemical weapons ban, as well as the international community's efforts to reinforce the norms against weapons of mass destruction.

As an OPCW Member State, Guinea-Bissau will benefit from OPCW's international cooperation-and-assistance programmes, which aim to enhance each State Party's national capacity to implement the Convention and to engage in the peaceful uses of chemistry. Guinea-Bissau is the 50th country in Africa to join the Convention with only three States in the region remaining outside its jurisdiction.

The Chemical Weapons Convention entered into force on April 29, 1997. As its implementing agency, the OPCW works towards achieving four principal objectives: to eliminate chemical weapons; to prevent their proliferation and re-emergence; to provide assistance and protection upon any State Party's request in the

event of the use, or threat of use, of chemical weapons; and to promote international cooperation in the peaceful uses of chemistry. Adherence to the Convention contributes to global peace and security, and its universal and effective implementation provides concrete benefits for all Member States.

http://www.opcw.org/May 23, 2008

China's Nonproliferation Practices

Patricia McNerney, Principal Deputy Assistant Secretary, International Security and Nonproliferation

Statement before the U.S.-China Economic and Security Review Commission

Chairman Reinsch, Commissioner Brookes, Commissioners of the U.S.-China Economic and Security Review Commission, I'd like to express my appreciation for the opportunity to appear before you and discuss China's nonproliferation practices. In my opening remarks I'd like to point out areas where the United States and China have successfully cooperated on matters of nonproliferation, areas of continuing concern, and some promising areas for new cooperation.

Let me say at the outset that the United States remains committed to working toward a relationship with China that enhances America's security, addresses China's legitimate concerns, and supports the security interests of our friends and allies. To that end, we continue to engage China on nonproliferation matters in a constructive and forthright manner – building upon shared interests when possible and raising concerns when necessary. We remain committed to expanding our areas of common interest with China, and improving our existing cooperation on nonproliferation. At the same time, we have serious concerns about the proliferation activities of certain Chinese entities and we continue, when necessary, to take action in response to those activities. We work constructively with China on a number of important proliferation issues, yet we also have made it clear that China must do more to halt the spread of WMD, missiles, and conventional weapons and related technologies.

Areas of Chinese Cooperation

The Government of China has come to recognize that it has a fundamental security interest in preventing the spread of weapons of mass destruction. In many ways, it has demonstrated its interest in becoming a responsible nonproliferation partner. It is now a party to many international nonproliferation instruments, including the Nuclear Nonproliferation Treaty (NPT), the Biological and Toxin Weapons Convention (BWC), the Chemical Weapons Convention (CWC), and is also a member of the Nuclear Suppliers Group (NSG) and the Zangger Committee. China has adopted export controls similar to the Australia Group control lists on chemical and biological related items, and has enacted missile-related export controls. And, the Government of China has approved a series of new laws and regulations designed to establish comprehensive national export control regulations.

China has cooperated in efforts to put pressure on Iran and North Korea via their role in the Six Party Talks. In the case of North Korea, China has made it clear that it does not condone Pyongyang's nuclear aspirations but admittedly has not actively cooperated to ensure closure of North Korean front companies inside China that facilitate proliferation or the Chinese companies that supply them. Following North Korea's missile launches of July 2006, and its October 2006 nuclear test, China joined in the Security Council's unanimous vote to adopt strong measures under UNSCR 1695 and UNSCR 1718, the latter of which imposed Chapter VII sanctions including a prohibition on transfers to North Korea of a broad range of conventional weapons, WMD-related items and luxury goods. China continues to serve as host to the Six-Party Talks, and has played a constructive role in formulating and implementing both the February 13, 2007 Initial Actions and the October 3, 2007 Second-Phase Actions agreements. With Chinese cooperation, the Six-Party process has brought us to the point where North Korea has agreed and begun to disable the three core facilities at

Yongbyon — the 5MW(e) Experimental Reactor, the Reprocessing Plant (Radiochemical Laboratory), and the Nuclear Fuel Rod Fabrication Facility. As we work to ensure that North Korea honors its commitments, continued Chinese support is pivotal in maintaining a united front.

With regard to Iran, China shares our goal of preventing Tehran's acquisition of a nuclear weapons capability. Though differences of opinion remain on how to best achieve this end, China has supported sanctions as a mechanism to increase pressure on Iran. China joined the other members of the Security Council in adopting UN Security Council Resolutions 1737 and 1747, and, just this March, UNSCR 1803. These Security Council resolutions impose a series of Chapter VII sanctions on Iran. Among other things, these resolutions require Member States to prevent the supply to Iran of certain items, technology, training or financial assistance that could contribute to its proliferation-sensitive nuclear activities or its development of a nuclear weapon delivery system. The resolutions also require Member States to freeze the assets of entities and individuals who are identified in the UNSCR Annexes as having a significant role in Iran's nuclear and missile programs, and those acting on their behalf, or owned or controlled by them. Moreover, these resolutions prohibit Iran from exporting arms, urge Member States to restrict heavy arms transfers to Iran, and call for vigilance in the activities of financial institutions in their territories with all banks domiciled in Iran and their branches and subsidiaries abroad. Resolution 1803 calls on states to inspect certain cargo to and from Iran to prevent trafficking in the items prohibited under the relevant resolutions, and also targets those who have assisted designated entities and individuals in evading or violating UNSC sanctions. As a member of the P5+1, China has reiterated that, should Iran continue to refuse verification and compliance negotiations, additional sanctions will be necessary to augment those already in place.

These Chapter VII sanctions imposed on Iran and the DPRK send a clear and compelling signal that the international community will not tolerate the proliferation of weapons of mass destruction. And it is up to the entire international community to remain unified and consistent in its message to North Korea and Iran that international concerns regarding their nuclear and missile ambitions must be resolved.

Beyond our cooperation in multi-lateral venues that address proliferation, there are a number of instances where the Chinese have expressed an interest in export control cooperation, including technical exchanges and training. To the extent that it is permissible within the law, we have endeavored to provide such assistance.

One such example is the State Department's Export Control and Related Border Security (EXBS) Program, which has supported training for Chinese licensing and enforcement officials. Since 2006, the EXBS program has coordinated two training events to help Chinese Customs officers identify controlled commodities. These events were sponsored by the Department of Energy's International Nonproliferation Export Control Program (INECP) and took place in Shanghai and Dalian, focusing on training Chinese frontline Customs enforcement officials and technical experts responsible for interdicting illicit shipments of WMD-related, "dual-use," strategic commodities. EXBS also plans to offer Chinese Customs seaport interdiction training at the working seaport in Charleston, South Carolina.

Other interdiction-related activities include China's participation in the Department of Homeland Security's Container Security Initiative and the Department of Energy's Megaports Initiative. Both initiatives are aimed at improving detection of radiological and nuclear items at seaports.

In the area of industry-related export control-related training, EXBS sponsored a successful "Industry-Government Forum" for Chinese inter-ministry participation in mid-January, and plans to work with China on its development of an industry "Internal Control Program." Additionally, in coordination with the EXBS program, the INECP program is collaborating with the China Atomic Energy Authority (CAEA) within the CAEA-DOE Peaceful Uses of Nuclear Technology (PUNT)

framework on the development of technical guides on nuclear and nuclear dual-use materials, equipment and technology. It is expected that these guides will enhance the capacity of Chinese licensing and industry specialist to evaluate export license applications and train Chinese industry and enforcement officials.

For the future, we expect China will agree to further exchanges on a wide variety of legal regulatory, industry outreach and enforcement issues, including practical inspection, targeting, and investigation techniques.

In addition to bilateral training initiatives, we also hope that China will join the Proliferation Security Initiative (PSI), which was created by President Bush to facilitate cooperation in the interdiction of nuclear, chemical and biological weapons, their delivery systems, and related technologies. The hallmark of the PSI is the close, innovative interaction between diplomatic, military, intelligence, law enforcement, and economic tools to combat proliferation. The PSI has become an important tool to interdict shipments, disrupt networks, and hold companies accountable for their activities. Beijing has thus far been reluctant to join with the almost 90 nations participating in the PSI, citing legal concerns. It also is quite possible that Beijing feels it must take regional concerns into account regarding its participation in the PSI, even though we have repeatedly clarified that PSI is not directed at any particular country. China's commitment and participation in the PSI effort would be in keeping with China's stated commitment to nonproliferation and would be a valuable contribution to international security. We will continue to address Beijing's concerns and emphasise that all PSI actions are taken in accordance with states' domestic authorities and international law.

Real Concerns Remain

The proliferation policies of the Government of China have improved. However, a number of Chinese entities continue to supply items and technologies useful in weapons of mass destruction, their means of delivery, and advanced conventional weapons to regimes of concern. We continue to find that China has important deficiencies in translating its declared nonproliferation objectives into its export control system, particularly with regard to thorough implementation, transparent enforcement and possibly, willingness.

We continue to engage the Chinese government in an effort to halt commercial transactions that violate UNSC Chapter VII sanctions, nonproliferation norms, and Chinese law, but our efforts are met with mixed results. We still observe Chinese firms and individuals transferring a wide variety of weapons-related materials and technologies to customers around the world that we judge would use or retransfer the weapons in a manner that threatens regional stability and international security – including to Burma, Cuba, Iran, Sudan and Syria.

In addition, we have raised with the Chinese government our concerns that Chinese seaport facilities and international airports are transit and transshipment points for governments and entities that wish to ship sensitive materials to programs of proliferation concern. Certainly we would hope that China wishes to avoid a global reputation as a safe transit and trans-shipment point for foreign proliferators.

Judging the extent to which the Chinese government or Chinese officials are witting of the proliferation activity of Chinese entities is difficult given the lack of transparency noted earlier. One factor enabling proliferation activities is the decentralisation that has become a key feature of China's economic reform. We simply do not know enough about China's export control regime, and cannot assess the level of control or awareness that Chinese officials have over increasingly free-wheeling companies that trade in dual-use materials applicable to WMD and their delivery systems. These transfers remain a serious concern, and we will continue to press Chinese officials to be vigilant and act vigorously to investigate and enforce their export control regulations.

We are particularly concerned that Chinese firms have continued to supply Iran with a range of conventional military goods and services in contravention of the restrictions

within these UN Security Council Resolutions. Inevitably, some of this weaponry has found its way to insurgents and militants operating in Iraq, as well as Hizballah terrorists in the Levant. The United States has sanctioned a number of Chinese entities under the Iran and Syria Nonproliferation Act and Executive Order 13382 for the sale of items on multilateral control lists or items with the potential to make a material contribution to ballistic or cruise missile programs or WMD programs.

With specific reference to conventional weapons, China, like many other countries, views its trade in conventional weapons as helping nations to meet their perceived defense needs and asserts that these transfers are in accordance with international norms. Despite this assertion, evidence indicates that Iran has transferred Chinese weapons to Shia militants in Iraq as well as terrorist groups such as Hizballah. For example, the Misagh-1 (the Iranian version of a Chinese MANPADS with Chinese components) was used in Iraq in 2004. In 2006, a Chinese C-802 anti-ship cruise missile, which has been supplied only to Iran in the region, was used by Hizballah to attack an Israeli naval vessel. China appears to accept at face value the end-use assurances and pledges against retransfers it receives from its customers, despite the fact that some of its customers have links to terrorists and have records as unreliable end-users, such as Iran. Nevertheless, China has demonstrated sensitivity to growing international concerns about recipients of some of its arms sales, notably Sudan. We continue to seek greater Chinese cooperation in curtailing transfers to state sponsors of terrorism and in stricter and more uniform application of its export control safeguards.

We have discussed with China the importance of addressing its weak export control enforcement and detection capabilities in order to rein in the proliferation activities of certain Chinese companies. If China is to have in place a rigorous export control system, it must devote additional resources, increased enforcement, rigorous implementation of catch-all provisions, and more investigations and prosecutions of violators of its export control laws. Moreover, we have encouraged China to share timely and substantive information on actions the government has taken in response to U.S. demarches. A level of transparency in China's nonproliferation activity is absolutely essential; heretofore this has been notably lacking. We will continue, as warranted, to impose sanctions against Chinese entities engaged in proliferation and will continue to highlight our ongoing concerns about China's proliferation record with the Chinese government.

An area of potential concern is possible additional Chinese support for Pakistan's civil nuclear program. As a member of both the NPT and the NSG, China has shown its commitment to enforcing international nonproliferation and export control norms. When China joined the NSG in 2004, it made a statement regarding the safeguarded nuclear facilities in Pakistan it would continue to support as "grandfathered." These are: the Karachi nuclear power plant; Chasma nuclear power plants 1 and 2; and Parr research reactors 1 and 2. Recently, Pakistan has expressed interest in increasing domestic nuclear power generation and has made overtures to China for support. This is something we continue to watch closely to ensure both that China abides by its commitments to the NSG and to ensure that ongoing Chinese cooperation with Pakistan does not support Pakistan's un-safeguarded nuclear weapons program.

Areas of Promising New Cooperation

Sanctions, of course, always remain an option to deter proliferating behavior. We have made an effort to use these sanctions in a targeted and constructive way. Avoiding those sanctions is a strong inducement for legitimate Chinese corporations to enact and enforce rigorous nonproliferation policies. As an alternative to sanctions, we have worked to encourage China to become a willing partner in addressing a common nonproliferation agenda.

Mr. Chairman, to this end, I would like to discuss one particular initiative that my bureau has pursued. As I have already noted, there are a number of Chinese entities who, after being sanctioned by the U.S. for proliferation related activity, have seen their international

reputations damaged and their exports dramatically reduced. Several Chinese firms sanctioned under U.S. law or Executive Order have expressed an interest in taking actions that would result in relief from the sanctions. We can leverage this desire by Chinese firms to come out from under sanctions and advertise the tangible benefits that can accrue to companies that wish to abandon proliferation.

As part of a broader nonproliferation strategy that we devised last year, we held discussions with two major Chinese companies – the China North Industries Corporation (NORINCO) and the China Great Wall Industries Company (CGWIC) – both of whom have been sanctioned repeatedly in the past for proliferation-related activities. We have made absolutely clear to these entities that any trade in technologies useful in WMD programs or delivery systems would constitute proliferation-related behavior, and would subject them to possible future sanctions. We also continue to make it clear to them that any conventional arms transfers to countries such as North Korea and Iran are equally unacceptable. But, we have indicated that their decision to cease such proliferation activity would be recognized by the United States. A commitment to end their proliferation-related activity and concrete, positive action towards this end would likewise increase prospects that Western companies and international financial institutions would have no concerns in developing broad economic and trade ties with these Chinese companies.

The response of NORINCO and CGWIC has been very encouraging. Both companies have adopted comprehensive internal compliance programs and are implementing policies to ensure that inadvertent transactions do not occur. NORINCO, for example, has committed to refrain from selling armaments to North Korea or Iran and claims to have turned down over $100 million in potential contracts with sanctioned regimes. And there are indications that the positive results are not limited only to these two companies. I fully anticipate that if tangible benefits of a solid nonproliferation record begin to accrue, additional Chinese companies will seek to emulate the nonproliferation policies of NORINCO and CGWIC.

This effort is, of course, only in its early stages. We need to ensure that these entities actually perform as they have pledged. We need to make sure they do not simply spin-off their proliferation-related activity to subsidiaries or sister companies so that the problem remains under another guise. And, these companies need to demonstrate that they are committed to the path of good corporate citizenship over the long haul. However, the possible impact of success would be dramatic. To have a commitment from a company such as NORINCO, a firm that has been sanctioned seven times since 2001, to get out of the proliferation business is a very positive development and one that could serve as an example to other Chinese companies. I am guardedly optimistic that our efforts can bring about meaningful results.

Conclusion

The United States will continue to press China to implement effectively its export control regulations, eliminate loopholes, and reign in the proliferation activities of certain companies. And we will continue to work with Chinese entities that have a serious desire to become good corporate citizens of the international business community. Continued proliferation by Chinese entities to countries of concern is neither in U.S. interests, nor China's. Working together, we can build upon our shared commitment to ensure an end to such proliferation activity.

http://www.state.gov/t/isn/rls/rm/105084.htm/May 20, 2008

DISARMAMENT

Japan arrests 5 for fraud in China WWII chemical weapons removal

Japanese authorities arrested five officials of Pacific Consultants International and its affiliate, Abandoned Chemical Weapons Disposal Corp. (ACWDC), for allegedly defrauding the Japanese government of $1.1 million in connection with a government program to remove abandoned chemical weapons left in China by Japanese troops at

the end of World War II. ACWD has been the government's sole contractor on the project, which has been plagued by delays and has cost the country over $222 million since it began in 2004. The 1997 Chemical Weapons Convention [text; Japan MOFA backgrounder] gives Japan until 2012 to clean up the abandoned weapons, which have been blamed for over 2,000 Chinese deaths since 1945.

The abandoned weapons have long been a point of friction between the two countries, but the Tokyo High Court has denied Chinese claimants relief for injuries from the leaks, ruling that earlier removal of the weapons would have been impractical or impossible.

http://jurist.law.pitt.edu/paperchase/2008/05/japan-arrests-5-for-fraud-in-china-wwii.php

Experts Pitch CW Disarmament, Nonproliferation Plans

Experts who have been listening to diplomats speak for several days had their opportunity to point the way toward improved chemical weapons destruction and nonproliferation regimes.

At their essence, the recommendations often came down to "more": more money for chemical weapons destruction, increased pressure and assistance to move a dozen nations toward Chemical Weapons Convention membership, greater attention to certain industry facilities that could be used to produce toxic agents.

Representatives from at least 20 national delegations to the second review conference for the treaty attended the nongovernmental discussion forum at the headquarters of the Organisation for the Prohibition of Chemical Weapons. They joined dozens of other diplomats in closed-door negotiations on a document intended to address challenges to the treaty that must be met in coming years.

"All the issues there were pertinent and no doubt will be discussed" as the conference continues through April 18, said Jamaican Ambassador Joy Wheeler.

Many of the issues raised had been noted regularly in 2 1/2 days of opening statements to the conference, beginning with treaty universality.

There are now 183 treaty states, leaving it 12 nations short of full membership. Universality would further strengthen the norm against chemical weapons use, help the treaty become an accepted component of international law, and prevent nations from becoming safe havens for terrorists or proliferators, said Daniel Feakes, a research fellow at the Harvard Sussex Program.

Eight non treaty states have no political objections to the pact and could be brought on board with the right mixture of pressure and support — from potential trade restrictions on some chemicals to increased programs of economic and technical support and protection against chemical weapons for treaty states, Feakes said.

That would further isolate those nations politically opposed to the convention — North Korea, Egypt, Israel and Syria, all of which are suspected of maintaining chemical weapons or weapons capabilities.

Pyongyang has given no indication of interest in joining the treaty. However, it could be influenced by South Korea's own chemical disarmament program and an extended, secret diplomatic effort akin to the one that brought Libya into the convention as a possessor state, said Feakes.

The Middle East is particularly worrisome, due to ongoing tensions, the past use of chemical weapons and suspicions that they are still held today, he said.

"It can be argued that the CWC is needed more in the Middle East than anywhere else," he said. "The region is the one most likely to witness a renewed use of deadly weapons."

Increased political engagement is also needed in the Middle East, where the issue of CWC membership must be disconnected from that of Israel's nuclear arsenal, said Feakes.

Nongovernmental organisations could contribute to these efforts by organising universality campaigns using awareness-raising and outreach skills not necessarily found in government, he said.

Chemical Weapons Destruction

Funding is the key to ensuring the prompt destruction of declared chemical weapons in the world's major possessor states — Russia and the United States, said Paul Walker, head of the Legacy Program at the environmental organisation Global Green USA.

Albania has already eliminated its stockpile of 16 tons of mustard agent, while India and another "state party" generally known to be South Korea have both destroyed more than 95 percent of their arsenals. Libya has not begun weapons destruction but has only 23 metric tons of mustard agent.

The United States has incinerated or chemically neutralized more than 50 percent of roughly 28,000 metric tons of warfare agents, while Russia has neutralised between 15 and 26 percent of its 40,000-metric-ton stockpile, Walker said. Both countries presently appear likely to miss their April 2012 destruction deadline, a schedule that Washington has acknowledged and Moscow has denied.

In order to move closer to the deadline, the United States should be spending at least $400 million annually on construction of the last two disposal sites at Blue Grass, Ky., and Pueblo, Colo., Walker said.

Russia should spend $1 billion annually on destruction, supplemented by at least $50 million in renewed yearly funding from the United States for completion of the Shchuchye weapons disposal plant. Washington has directed $1 billion toward the facility but the Bush administration has requested no money in the last two years.

Another $100 million or more is needed each year for chemical weapons destruction under the G-8 Global Partnership against the Proliferation of Weapons and Materials of Mass Destruction, Walker said.

"Everyone has to focus on money. I can't emphasise this enough," he said.

National Implementation

Continued focus is also needed on ensuring that treaty states have the required internal measures in place and that those measures adequately address key components of the convention, said Angela Woodward, executive director of the Verification Research, Training and Information Center.

"Such measures are essential in order to exclude completely the use of chemical weapons," she said. "States cannot simply rely on existing measures to give effect to the treaty, due to the specific requirements for penal law, [materials] transfer controls and measures to facilitate the verification regime."

Since enactment of an action plan at the 2003 treaty review conference, the percentage of member nations with laws in place fully covering the crucial components of the treaty's rules has increased to more than 40 percent.

Woodward said nations must be sure to implement laws and regulations that incorporate the treaty's "general purpose criterion," which mandates that the many toxic materials not listed in three schedules of chemicals still fall under the prohibitions against development, production, stockpiling, transfer or use of chemical weapons. An awareness and outreach program is needed to ensure this occurs, she said.

National implementation must be seen as a process — requiring periodic reviews and updates of legislation, along with monitoring and enforcement — rather than a project that ends when the regulations are enacted, Woodward said.

Other Chemical Production Facilities

There have been more than 500 inspections over the last eight years of "other chemical weapons facilities," the thousands of industry plants spread across the globe that do not produce materials listed under three chemical categories in the treaty. Up to 15 percent of these plants could be converted quickly for production of chemical warfare agents.

"The same processes used in industry … are used in making chemical agents," said Bob Mathews, a law professor at the University of Melbourne.

Inspections have covered 11 percent of these facilities, however the percentage is less than 1 percent in some member states and not all sites were relevant to the treaty, Mathews said. He noted that the OPCW Technical Secretariat has determined that "the level of OCPF inspections still does not provide adequate nonproliferation assurances."

Mathews offered several recommendations for improving the inspection regime for these facilities. Nations should provide more information on the plants, including the production processes used, to help determine which could pose threats to chemical nonproliferation. More funding is needed for OPCW inspections and the selection methodology should be updated to ensure it targets "high risk" sites while spreading inspections fairly among nations. He also called for training of inspectors and greater awareness for delegates to the agency.

Incapacitants

The U.S.-based Center for Arms Control and Nonproliferation called for delegates to the review conference to take several steps to address the potential use of incapacitating agents by law enforcement agencies.

The convention allows for law enforcement uses of tear gas and other riot control agents that "produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure."

There is interest today in "various communities" for anesthetic forms of incapacitants — "chemicals used under such conditions that they produce temporary physiological and/or mental effects which render individuals incapable of concerted effort … with very low lethality and permanent damage," said Mark Wheelis, Chairman of the center's Scientists' Working Group on Biological and Chemical Weapons. He said that such substances must be considered toxic materials.

Incapacitants cannot be considered strictly nonlethal, Wheelis said. The safety margin between an effective dose and a lethal dose is small, and susceptibility ranges widely based on factors such as age, size and health, he said. Unlike tear gas, which provokes flight upon contact, a person exposed to an incapacitant is likely to remain in place, increasing the dose received.

"A chemical compound that deserves the term incapacitant in a carefully controlled clinical or laboratory setting may well not deserve that term in field use," he said.

Wheelis called on the review conference to consider creating a mechanism for determining under which conditions a toxic chemical could be legally used by law enforcement and what materials could be used for incapacitating purposes. The conference and member nations should consider a number of transparency measures, including requiring treaty states to declare any chemical compounds held for law enforcement purposes, he said.

Several delegates to the conference have called for discussion of nonlethal materials. However, OPCW chief Rogelio Pfirter has said there is not enough technical information available to allow for a measured debate on the issue.

http://www.nti.org/d_newswire/issues/2008/4/10/4E1ED349-1F67-418D-8B2C-63F49DAE1240.html

Watchdog Agency: Treaty to Eliminate Chemical Weapons "Is Succeeding"

The agency responsible for implementing the international Chemical Weapons Convention has reported that steady progress is being made to eliminate global stockpiles of chemical weapons and the means to produce them, but warned that a dozen countries must still join the treaty — including five in the Middle East[1] — before universal compliance can be assured.

The report was issued by the Organisation for the Prohibition of Chemical Weapons (OPCW) on the eve of a major review conference that began in The Hague on Monday, April 7, 2008.

"The Chemical Weapons Convention is the only international treaty that aims to eliminate an entire category of weapons of mass destruction, and it is succeeding," said the OPCW Director-General, Ambassador Rogelio Pfirter. "At a time when the credibility of the multilateral system in this area has been questioned we have demonstrated that global disarmament under strict international verification is possible. However, the Convention is only as strong as its weakest link, and securing universal adherence remains our most important and difficult challenge."

Director-General Pfirter added that several of the remaining 12 countries that have not ratified the Convention may join in the near future, including at least one from the Middle East.

The Convention was signed at an international ceremony in Paris in January 1993 and took effect four years later. Among the main achievements cited by the OPCW report:

- 183 countries have now ratified the Convention representing about 98% of the world's population and chemical industry, making OPCW the fastest growing UN disarmament treaty organisation in history.
- Of the 65 chemical weapons productions facilities declared under the Convention by 12 States Parties, 100% have been de-activated and 61 of them either completely destroyed or converted to peaceful uses.
- Of the more than 70,000 metric tonnes of chemical agents declared by six States Parties, more than 37% have been verifiably destroyed with remaining stocks scheduled for destruction by 2012.
- Of the 8.6 million chemical munitions and containers covered by the Convention, 100% have been inventoried and verified, and one third destroyed.
- More than 3,000 inspections have taken place since 1997 at more than 1,000 chemical weapons-related and industrial sites on the territory of 80 States Parties to verify compliance with the Convention.

http://www.opcw.org/april8,2008

OPCW Director-General Attends Chemical Industry Meeting in Germany

The Director-General of the Organisation for the Prohibition of Chemical Weapons (OPCW), Ambassador Rogelio Pfirter, visited Germany on March 5, 2008 at the invitation of the Verband der Chemischen Industrie e. V. (VCI), the German chemical industry association.

Speaking to the Trade Policy Meeting of VCI with board members of the German chemical industry present, Director-General Pfirter stressed that the chemical industry is a key stakeholder in the Chemical Weapons Convention and a very important partner in the work of the OPCW. He also emphasised that the productive relationship between the Organisation and chemical industry is unique, mutually beneficial and crucial to promoting full implementation of the CWC, in particular with regard to the non-proliferation regime.

Director-General Pfirter further noted that the Second Review Conference, from 7 - 18 April 2008, will provide an opportunity for OPCW Members States to reaffirm the critical importance of the CWC to the goals of international peace and security. The Conference will assess the operation of the Convention over the past 5 years, consider implementation challenges, and provide strategic direction for the future.

Director-General Pfirter said Member States, the chemical industry, academia and civil society organisations all have vital roles to play in ensuring that the OPCW maintains the capacity to respond to the future implementation challenges. He also drew attention to the pace of progress in science and possible discovery of new chemicals with properties that will make them relevant to the CWC.

Director-General Pfirter thanked the German chemical industry for its steadfast support in ensuring full implementation of the Convention and its extensive cooperation in the framework of industry inspections under the CWC.

VCI is an association of 1,600 German chemical industries and German subsidiaries and represents over 90% of the entire German chemical industry.

http://www.opcw.org/ March 17, 2008

Iran backs WMD destruction: envoy

As a victim of weapons of mass destruction, Tehran vehemently urges the demolition of such weaponry, Iran's ambassador to Tokyo says.

More than one hundred thousand Iranians were killed or injured by the former Saddam Hussein regime which used chemical and biological weapons against Iranians, Abbas Araqchi told reporters in Hiroshima, a city known for being a victim of atomic bomb.

The United States dropped the first atomic bomb on Hiroshima on August 6, 1945. Three days later the U.S. used atomic bomb against the residents of Nagasaki.

Araqchi added chemical weapons are still claiming the lives of those wounded in the 1980-1988 Iran-Iraq war, stressing both Iran and Japan are the victims of WMD.

The Iranian city of Sardasht in West Azarbaijan Province was attacked with chemical weapons by Iraq in 1987.

"Thus, the Iranian nation is well aware of the disastrous consequences of using such weapons and urges a global partnership for annihilation of weapons of mass destruction," he explained.

He once again stressed that his country considers the use of such weapons anti-human, adding Iran favors a Middle East free of weapons of mass destruction.

http://www.tehrantimes.com/index_View.asp?code=169334

RECENT DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

Antidote to lethal germ 'closer'

Scientists are on their way to developing an effective antidote for botulinum toxin - one of the world's most feared biological weapons. Defence experts say that just one gram of the poison can kill hundreds of thousands of people. Several people each year fall victim to "botulism" from food poisoning, but the toxin is also used as Botox - injected into brows to relax wrinkles.

The US team's findings appear in the Journal of Biological Chemistry. With funding from the US government, researchers at the Brookhaven National Laboratory, New York, and the United States Army Medical Research Institute of Infectious Diseases (USAMRIID), Maryland, have broken through a barrier towards developing an effective antidote against the most potent form of the toxin.

The researchers have developed a protein that blocks the effects of the toxin by tricking it into not attacking cells in the body.

Biologist Subramanyam Swaminathan, who led the research, told BBC News: "We anticipate at least four to five years before this can be turned into an approved drug."

The *Clostridium botulinum* bacterium produces seven different neurotoxins, which attach to proteins inside human nerve cells and blocks the chemicals they use to communicate with each another and with muscles. This can paralyse breathing muscles, which eventually suffocates the victim.

The new protein developed at the Brookhaven National Laboratory acts on the most powerful of these seven toxins, for which there is no medical treatment.

It behaves as a decoy to proteins in the nerve cells, which means that the toxin chooses not to attach itself to the nerve cells when it enters the body. This prevents paralysis.

"It is about 10 to 15 times better than the best one available so far," said Subramanyam Swaminathan.

Vaccines for botulinum toxin already exist, designed to be administered before an attack, but this research could produce a drug that would work afterwards.

The US government has proposed increasing funding for research into defence against bioweapons such as botulinum to $9bn (£4.5bn; 5.8bn euros) in 2009. This is a rise of more than 5% on the previous year.

Although botulinum toxin has never been successfully used as a bioweapon, the Japanese terrorist cult, Aum Shinrikyo, tried three times between 1990 and 1995.

Also, in the run-up to the 1991 Gulf War, Iraq reportedly produced thousands of litres of the toxin.

http://news.bbc.co.uk/2/hi/science/nature/7395731.stm/May18,2008

War on cane toads turns to biological weapons

Prof Rick Shine wants to release sterile toads into the environment to help reduce the number of native animals killed.

A cane toad researcher wants to release more toads to help reduce the number of native animals killed.

The plan would involve using smaller, sterile toads ahead of the invasion's front line as the first contact native animals have with the pest.

Instead of preying on larger toads and getting a lethal dose of poison, Professor Rick Shine says animals like quolls, snakes and goannas would only get sick and learn to avoid the toads.

"Things like frogs, fishes and some of the small mammals all turn out to be remarkably fast learning to leave toads alone after they've had that first experience, as long as the first experience is a toad that's small enough not to be fatal."

He says the technique could create pockets of surviving animals where the toad invasion has passed.

Professor Shine is also working on methods to control cane toad numbers, and has discovered a parasitic lung worm that only affects cane toads and a pheromone that kills cane toad tadpoles.

"We've discovered that there is an alarm pheromone that cane toad tadpoles use. It turns out in some field trials that we're running in outdoor ponds that the tadpoles are so stressed that it kills about half of them."

While supportive of the work of community groups like Darwin's Frog Watch, who physically remove toads from the wild, he says the only way to control toads is biological. But even that may not deliver a knockout blow.

"I think it's incredibly unlikely we'll totally eradicate cane toads from the Australian tropics. I think we can knock their numbers down."

http://www.abc.net.au/news/stories/2008/05/06/2236425.htm/May6,2008

Walter Reed Uses Yoga, Other Therapies to Treat PTSD

As part of their Specialized Care Program, Walter Reed Army Medical Center is using yoga, individual and group therapy, physical therapy, classes that teach coping strategies, and daily seminars to help service members returning from Iraq and Afghanistan deal with posttraumatic stress disorder (PTSD), reports the Washington Post. The program serves up to 120 service members per year, 90 percent of whom suffer from PTSD, and costs about $800,000 annually. That figure includes the salaries for the program's specialists as well as travel and accommodations for the participants.

Yoga was added to the program in 2006 after a feasibility study appeared to yield positive results. Participants who have gone through the program often report to feeling better after sessions, but currently there is little scientific documentation to determine the program's impact.

A recent study from RAND found that of the approximately 1.6 million U.S. military personnel currently serving in Iraq and Afghanistan, roughly 20 percent suffer symptoms of PTSD. According to the U.S. Department of Defense, about 10 percent to 15 percent of service members in Operation Iraqi Freedom are at risk for PTSD.

PTSD is an anxiety disorder that can occur after an individual has been through a traumatic event such as a serious car accident, physical or sexual abuse, or military combat. Symptoms of PTSD include moments when the individual may relive the event, suffer persistent nightmares, or night terrors. Often individuals find it difficult to talk about the event, or find themselves in a constant state of hyper-alertness.

Last year the Institute of Medicine released the report *Treatment of Posttraumatic Stress Disorder: An Assessment of the Evidence*, which called on the U.S. Department of Veterans Affairs and the research community to take steps to strengthen the methodological quality of studies of PTSD treatment with psychotherapy and medication. The report also urged Congress to ensure funding for research to help clinicians better treat different populations of PTSD sufferers.

Also in 2007, a joint IOM and National Research Council report *PTSD Compensation and Military Service* suggested improvements to the VA's current method of assessing PTSD claimants and determining benefits allocations. Among the recommendations were to develop PTSD-specific disability rating criteria, evaluate how PTSD affects the ability of a veteran to function socially as well in the work environment, and consider the impact of the disorder on the veteran's quality of life. The report noted that most of the problems with the existing process could be addressed by consistently allocating the time and resources needed for a thorough initial examination of claimants.

http://nationalacademies.org/headlines/20080521.html/May21,2008

NATIONAL & NTERNATIONAL DEVELOPMENTS

Deadly virus spreads among children in eastern China

A fast-spreading viral outbreak in eastern China has killed 21 children, sickened nearly 3,000 others and caused panic among parents in an impoverished corner of Anhui Province, state news media reported.

The intestinal virus, commonly known as hand, foot and mouth disease, has been spreading in the city of Fuyang since early March, but local health officials only announced the outbreak, raising questions of whether they were trying to conceal word of the growing problem. In recent days the Chinese media have heavily criticized the government response, offering comparisons to the SARS epidemic of 2003, which drew widespread attention to China's shaky public health system and official attempts to cover up the outbreak.

The World Health Organisation warned that the disease, which thrives in warm weather, could spread in the coming months. It advised child-care centers and schools to stay closed until the spread of new infections was curtailed.

The virus, which has no relation to the foot-and-mouth disease that infects livestock, is easily passed between children. The illness begins with a fever and often leads to mouth ulcers and blisters on the hands, feet and buttocks. There is no vaccine or cure, but most patients recover in a week without treatment. In severe cases, however, brain swelling can lead to paralysis or death. Rigorous hygiene dramatically reduces the spread of the pathogen, which is an enterovirus known as EV71.

Health officials in Fuyang say that more than 700 children remain hospitalised, 36 of them in serious condition. All of the fatalities have been in children younger than 6, the majority of them under 2. Although the number of infected children has been steadily climbing, the fatality rate has dropped substantially in recent weeks, falling to 0.2 percent from 11 percent in March, according to World Health Organisation officials.

Anxious parents have been overwhelming local hospitals in Fuyang, a hardscrabble city of 170,000 people. A doctor at No. 2 People's Hospital said by telephone that health care workers there were coping with 200 sick children. He said there had not been any fatalities in the past five days.

"I think the disease itself can be controlled, but it is hard to treat if there are complications," said the doctor, who would only give his surname, Li.

Among parents, though, there is still widespread concern and confusion. Reached by telephone, the father of a 1-year-old boy said misinformation was rife. The current rumor, he said, suggested that a local river was the source of the infection. The man, a truck driver surnamed Wang, said schools had been closed and local health officials were instructing parents to frequently wash their children's hands. "We really hope journalists can come and report more on this," he said.

Since early April, teachers at the Dongfanghong kindergarten have been assiduously cleaning children and classrooms with a daily disinfectant spray. Still, the measures did not assuage everyone's fears. When the authorities shut the school, nearly 100 of the school's 500 students were being kept home by their parents. "A lot of parents are concerned about the contagiousness," said Xu Yanyan, the school's headmistress.

Fuyang is perhaps best known as the epicenter of a powdered milk scandal four years ago that sickened 200 infants, killing 13 of them.

In recent days the Chinese media have not been shy about lambasting health officials for waiting a month to sound the alarm bells. In mid-April, they noted, local officials who were confronted by reporters denied there was a problem. Two weeks later, after more than a dozen children had died, they were forced to acknowledge that an outbreak was well under way.

In an editorial headlined "Tragic Costs of Delay," the state-run English-language China Daily cited the SARS epidemic and the powdered milk scandal, and chastised the government for its sluggish response. "The memory of the last tragedy only adds to the bitterness of the new one," it said.

During the SARS outbreak, Chinese officials withheld information from the World Health Organisation, restricted media reporting and undercounted the cases of those stricken. After the disease spread beyond China's borders and provoked worldwide panic, the government apologised and pledged to confront future health emergencies with greater openness.

http://www.iht.com/articles/2008/05/02/asia/china.php

Does US face agricultural terrorism?

Are Americans really threatened by imported foods fearing 'agricultural terrorism'? The theme could very well make a Hollywood thriller.

The recent visit of Michael O Leavitt, US Secretary of Health and Human Services and Dr Andrew von Eschenbach, Commissioner, Food and Drug Administration (FDA) to China and India was a pointer to the concern regarding safety of food imported into US from developing countries.

The recently concluded World Spice Congress in Goa had several international speakers deliberating on contamination of food imported from various countries. They also stressed how harmonisation of standards was required to ensure food safety and ease the travails faced by spices exporters from countries like India.

If that is not enough, a recent book by Brian Halweil, senior environmental research analyst and author of "Eat Here: Reclaiming home grown pleasures in a global supermarket" is even more revealing.

According to him, a few years ago the U S Department of Homeland Security and the Department of Agriculture ran a series of war games to see how the United States would fare against an act of agricultural terrorism.

For example, they asked what would happen if someone dropped some lethal E. coli into the mixer at a big food processing plant or someone walked onto a giant chicken farm with a sample of avian flu.

It was concluded that long-distance shipping and the centralisation of US food system made them into sitting ducks. Any spike in the price of oil, or large-scale food contamination — whether accidental or malicious — would cripple food supply.

Brian Halweil says that there is a new trend sweeping across America of preferring locally produced food. Even supermarkets such as Whole Foods and Wal Mart have started sourcing locally cultivated food. The number of farmers and food markets has also doubled in the last decade.

Apart from the spectre of agricultural terrorism, Halweil also point out that it is often bad economics to ship food from one continent to the other. The farmer in the producing countries get peanuts compared to what the wealthy consumers in advanced countries pay for the processed food.

"For most Third World exports, like bananas or coffee, the rural community actually gets very little of what wealthy consumers spend. Communities can often reap more benefit by processing the food for local markets instead — like a group of women in Zimbabwe who were getting paid very little for their peanuts on the global market. After making peanut butter to market to local and national grocers, they kept profits that normally would have gone to traders, brokers, and processors," according to Brian Halweil.

The farther food travels, the less money stays in the local community and the less benefit that food has for the local community, he adds.

If indeed 'grow more locally' trend catches on, what impact would it have on exporting countries that depend largely on agricultural exports?

Chemical tea: Train passengers sip slow poison

People often complain the tea vendors sell at the Aurangabad railway station tastes funny. Their suspicion is correct—the tea is not made of milk but a chemical called Fevicry.

Surendra Kumar, a vendor at the Aurangabad railway station, readily admits that the tea he sells to train passengers contains Fevicryl. "I can make 20 litres of milk out of the chemical I buy for Rs 15. The milk lasts for at least six days," he says.

The economics is simple: Surendra sells tea worth Rs 200 a day and if he uses chemical instead of milk he can make a cool profit of up to Rs 150. Kumar justifies this dangerous fraud. "We have no choice but to use chemicals. It costs Rs 100 to buy 5 litres of milk. Then we have to bribe the railway police and other authorities. If we end up spending Rs 200 every day on these expenses how will we support our families," says Kumar.

Hundreds of people drink tea at the Aurangabad railway station every day but perhaps they don't know what they are sipping is really a concoction of chemicals. "It doesn't really taste like tea but it looks like tea, so I am drinking it," said one passenger.

New Disaster Preparedness Strategy Announced

In an unprecedented initiative, US and Canadian experts have developed a comprehensive framework to optimise and manage critical care resources during times of pandemic outbreaks or other mass critical care disasters.

The new proposal suggests legally protecting clinicians who follow accepted protocols for the allocation of scarce resources when providing care during mass critical care events.

The framework represents a major step forward to uniformly deliver sufficient critical care during catastrophes and maximize the number of victims who have access to potential life-saving interventions.

"Most countries, including the United States, have insufficient critical care resources to provide timely, usual care for a surge of critically ill and injured victims," said Asha Devereaux, MD, FCCP, Task Force for Mass Critical Care.

"If a mass casualty critical care event occurred tomorrow, many people with clinical conditions that are survivable under usual health-care system circumstances may have to forgo life-sustaining interventions due to deficiencies in supply, staffing, or space."

As a result, the Task Force for Mass Critical Care developed an emergency mass critical care (EMCC) framework for hospitals and public health authorities aimed to maximize effective critical care surge capacity.

Published as a supplement to the May issue of CHEST, the peer-reviewed journal of the American College of Chest Physicians (ACCP), Definitive Care for the Critically Ill During a Disaster offers guidance for hospitals, medical professionals, and public health authorities on how to prepare for and provide essential critical care when the need for critical care resources far exceeds availability.

Expanding Critical Care Resources for a Disaster

To prepare for a mass critical care event, the task force proposes that hospitals with ICUs aim to meet several standards, including the ability to provide sufficient critical care for at least triple their usual ICU capacity and sustain this surge for up to 10 days without external assistance.

Suggested surge capacity requirements include stockpiling medical equipment, including mechanical ventilators; optimising medication; designating auxiliary critical care areas; and augmenting critical care staff.

Trigger Event and Process

Prior to the rationing of critical care resources, hospitals and surrounding areas must first experience a "trigger" event that includes a declared state of emergency and lack of critical equipment or infrastructure. The decision to initiate EMCC must occur in conjunction with local and regional Medical Emergency Operations Command authority and not by individual hospitals.

Critical Care Resource Allocation

The task force advises rationing scarce critical care resources only after surge capacity has been exceeded and all attempts to use outside resources have been made. Under these circumstances, the task force proposes a formal EMCC triage and resource allocation protocol. Examples of the protocol include:

- The hospital triage officer/team will assess and prioritise all patients for receipt of scarce interventions using objective medical criteria.
- Palliative care for all patients will be a priority. However, patients will be ineligible for scarce critical care interventions if they have extreme organ failure and/or severe chronic illness with a short life expectancy.
- Critical care resources will not be preferentially distributed to any specific population group.
- Decisions regarding resource allocation will be documented, remain transparent, occur uniformly across all affected regions, and subject to rigorous quality assurance.

"Ideally, having an emergency mass critical care plan in place would prevent hospitals from needing to ration critical care resources," said Lewis Rubinson, MD, PhD, Task Force for Mass Critical Care. "However, if the surge capacity is exceeded, the use of emergency mass critical care triage and rationing will help local health-care facilities minimize mortality and optimise survival."

Physician Liability

EMCC protocol allows the triage officer and supporting triage team to make decisions that benefit the greatest number of patients with potentially limited resources. Consequently, lifesaving care may be withheld from one patient and given to another, prompting ethical and legal implications.

To reassure critical care providers and ensure consistent allocation of critical care resources, the task force advocates for legal protection of health-care professionals and institutions that follow accepted EMCC protocols while providing care during times that require critical care resource rationing. Government

endorsement of a protocol for EMCC triage and resource allocation ideally would shield practitioners and institutions acting in good faith from liability.

"The new EMCC framework provides a much needed foundation for disaster preparedness in the critical care setting. Suggestions proposed by the task force will facilitate ongoing discussions and allow for further input from the disaster planning community," said Alvin V. Thomas, Jr., MD, FCCP, President of the ACCP. "Hospitals, communities, and government agencies must take the next steps to modify framework principles and implement them in critical care environments."

Task Force for Mass Critical Care

Spearheaded by the ACCP, the task force consists of 37 senior-level participants with broad expertise relevant to EMCC, representing military medicine, medical societies and institutions, and government agencies, including the Centers for Disease Control and Prevention and the US Department of Health and Human Services.

The task force also includes members of the Critical Care Collaborative (CCC), a group of medical professional societies who collectively represent more than 100,000 health-care professionals. Members of the CCC include the ACCP, the American Association of Critical-Care Nurses, Society of Hospital Medicine, and the American Society of Health-System Pharmacists.

http://www.terradaily.com/reports/New_Disaster_Preparedness_Strategy_Announced_999.html/May9,2008

Indonesia 'needs bird flu help'

Indonesia needs more help to rein in the bird flu virus, the UN's Food and Agriculture Organisation has said.

The human death toll from bird flu in the country rose to 100 earlier this year - almost half of the total worldwide fatalities.

The FAO's chief veterinary expressed concerns that failure to tackle the disease could lead the virus to mutate and cause a "human influenza pandemic".

Most of those infected are thought to have caught the disease from poultry.

"The human mortality rate from bird flu in Indonesia is the highest in the world and there will be more human cases if we do not focus more on containing the disease at source in animals," said FAO Chief Veterinary Officer Joseph Domenech in a statement on Tuesday.

"The avian influenza situation in Indonesia is grave - all international partners and national authorities need to step up their efforts for halting the spread of the disease in animals and making the fight against the virus a top priority."

Mr Domenech also expressed concerns about a possible mutation of the virus which could be easily passed from human to human.

"Furthermore, I am deeply concerned that the high level of virus circulation in birds in the country could create conditions for the virus to mutate and to finally cause a human influenza pandemic," he said.

Endemic

Surveillance and response teams are working in 193 out of 448 districts in Indonesia, yet birds in 31 out of 33 provinces are affected, Mr Domenech said.

The virus is endemic in Java, Sumatra, Bali and southern Sulawesi with sporadic outbreaks reported from other areas, the FAO said.

By June 2008, more than 2,000 surveillance and response teams will be active in more than 300 districts in areas of the country where the disease is endemic, Mr Domenech said.

But that may not be enough.

"Indonesia is facing an uphill battle against a virus that is difficult to contain. Major human and financial resources, stronger political commitment and strengthened co-ordination between the central, provincial and district authorities are required to improve surveillance and control measures," Mr Domenech said.

Since the first outbreaks in 2003, bird flu has spread rapidly across Java into Bali, Kalimantan and Sumatra. In 2006, the virus spread further east infecting Papua and much of Sulawesi.

Since the H5N1 virus emerged in South East Asia in late 2003, it has claimed more than 220 lives around the world.

http://news.bbc.co.uk/2/hi/asia-pacific/7304557.stm

South Africa: Chemical Attack 'Threat to 2010'

Easily available industrial compounds made SA vulnerable to a chemical and biological weapons attack during the Soccer World Cup.

Philip Coleman, the executive manager of Protechnik, a subsidiary of the state-owned arms manufacturer Armscor, said chemical substances from the Cold War were no longer a major threat. Many had been destroyed since the adoption of the chemical weapons convention almost 10 years ago.

Where we see a greater threat is from toxic industrial chemicals," Coleman said yesterday. These substances, such as chlorine, were easier to get hold of and were already widely transported in SA .

This is something a terrorist would find far more attractive than dealing with chemical war agents in a clandestine laboratory, he said. Given better technology, the gap between chemical and biological weapons was narrowing.

However, the military, with help from Protechnik, a specialised chemicals company, was working at developing contingency plans that included acquiring detection equipment to be used to protect soccer stadiums and fan parks, said Coleman.

http://allafrica.com/stories/200805140403.html/May14,2008

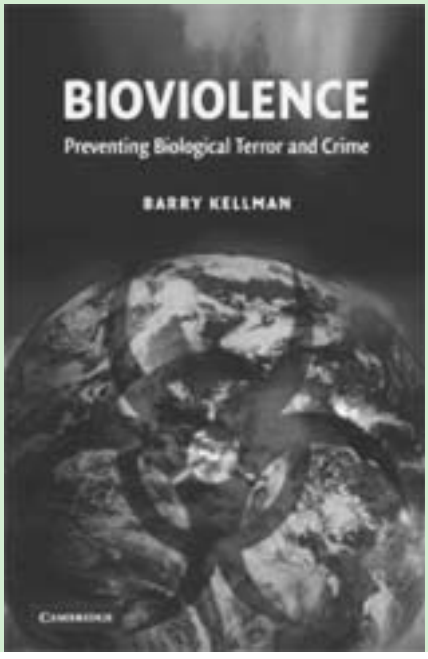
Complied by: Ajey Lele, Dr. Monalisa Joshi and Gunjan Singh.

Bioviolence: Preventing Biological Terror and Crime By Barry Kellman Cambridge University Press, Cambridge, UK, 2007

P. K. Sundaram

The author is Research Assistant at Indian Pugwash Society.

The magnitude and nature of harm that can be inflicted by biological weapons is such that it makes the distinctions between actors meaningless. As Kellman argues, "bioviolence captures the phenomena without regard to the actor or the motivation so long as it is deliberately malevolent". Prof. Kellman provides recipe for careful dual implication research and adoption of codes of ethics and self-regulation.



One of the enduring puzzles in security studies has been the question of whom to hold responsible – the weapon or the perpetrator, in other words, the capabilities or the intent. Arrival of non-state actors has further complicated this puzzle manifold; it's nearly impossible to verify and check 'intent', and terrorists can virtually make anything into a weapon. And when coupled with bio-weapons, the risks become immense and immediate.

Bioviolence is a timely addition by Barry Kellman who underlines the ambiguities in the definitions of terrorism and bio-weapons, and introduces terms like bioviolence and bio-offenders in order to capture the totality of bio-threats. The magnitude and nature of harm that can be inflicted by biological weapons is such that it makes the distinctions between actors meaningless. Attempts to chase and neutralise terrorist organisations can prove to be an endless and inadequate exercise; also, mechanisms to hold terrorists accountable for a bio-attack would also be equally futile as most likely they themselves will be dead and their punishment can hardly compensate for the human as well as political losses. As Kellman argues, "bioviolence captures the phenomena without regard to the actor or the motivation so long as it is deliberately malevolent".

Evoking a general abhorrence of the biological weapons, the book in its first section deals with problems that a bio-attack would unleash and also how bioviolence has pushed itself into the realm of possibility, yet becoming increasingly intractable. The chapter on methods of bioviolence provides extensive details of nature of the threat – range of pathogens from Anthrax to Typhus, limits of protection, possible ways to acquire and disseminate the virus, and emerging areas of concern such as Agroviolence, Molecular Biology, and Nanotechnology. The next chapter provides a panoramic overview of bio-weapon activities in recent history and looks into potential bio-threats of our times, focusing both on state as well as non-state actors, their motivations and justifications.

The other half of the book, the section on 'The Global Strategy for Preventing Bioviolence' is dedicated to looking into problems that existing modes of legislation, governance and law-enforcement are faced with, and alternative recommendations in these areas. The section begins with the need to criminalize bioweapons universally and to normatively discourage the use of pathogens as 'poor nation's weapons'. The author recommends comprehensive security, distributive justice, and fair participation in legal process as the imperative guiding principles of bioviolence prevention strategy. Kellman argues "synthesizing a global strategy of bioviolence prevention requires a broad international commitment to the spread of legitimate bioscience; recognition that countering bioviolence must be a facet of this commitment; and an obligation to establish and implement international legal standards and measures as a pre-requisite for global bioscience guardianship." The author calls for an overarching legal framework addressing bioviolence. This entails expansion of BWC mandate, strict and verifiable measures of denying access to pathogens, laboratories, and equipments; and also mechanisms for interdiction, data-mining and pattern recognition, transport security and counter-smuggling.

Constantly aware that these strategies might infringe on individual, institutional and national liberties and also in some cases constrain the development of science itself, Prof. Kellman provides recipe for careful dual implication research and adoption of codes of ethics and self-regulation. This should include proper attention to translucency, professional certification of bioscientists, a system of whistleblowers, financial barriers and patents. The book also calls for a better public preparedness for health aimed at reducing vulnerabilities to bioviolence – essentially protecting air circulation systems, water supplies, sensors, microbial forensics, compulsory vaccinations, stockpiling and distribution of medical resources, and effective system for quarantine.

Bioviolence also looks into the problems in international nonproliferation of bioweapons in the last chapter. It deals with complexities involved in defining bioweapons and non-lethal bioagents, and, issues of compliance, verification and confidence building under the Biological weapons Convention. The book subsequently enters into the realm of recommendations for global governance, which the author argues should be aimed at 1) preventing the spread of disease, 2) enhancing protection against and cure for diseases, 3) supervising the conduct of bioscience, and, 4) criminalize unauthorised or improper use of pathogens. Prof. Kellman provides concrete suggestions for a Global Covenant, UN Commission on Bioscience and Security, Bioviolence Prevention Office, and a Security Council Committee on bioviolence. These mechanisms would effectively inhibit use of biosciences for violent ends.

While the book's attempt at sensitising a wider audience besides the practitioners and policymakers must be commended; the remedies provided for global response to bioviolence falls short of capturing the complex political realities constituting the present world order. Suggesting for voluntary surrender of sovereign claims by states on bioscience research and other related areas would at best be misplaced optimism on part of the author. Also, nourishing positive bioscience while preventing its violent potentials involves certain puzzling technological and humane aspects which continue to delude any coherent and practical framework for containment.

Bioviolence may sound alarmist to some, but it is convincing in its appraisal of the imminent threat of biodestruction. The issue of biological violence is an exemplary victim of inadequate attention by the nations and policy-makers, mostly because any such event has not occurred till now. As the author argues, "we are likely to take appropriate steps to prevent a second bio-attack, but we seem fated to the wounds of one disease disaster before this conjectural threat becomes real enough."

Any true appreciation of this book must include a wish that Prof. Kellman starts with – may this book's fears prove illusory!

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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.
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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.

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CBW Magazine
Journal of Chemical and Biological Weapons
Volume 1 Number 3 April-June 2008

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