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Editorial

One of the biggest challenges the world faces today is the rise of Weapons of Mass Destruction (WMD) proliferation. In this issue Dr. Arvind Kumar analyses the findings of the recent report 'World at Risk' published by the US governments commission on the Prevention of WMD Proliferation and Terrorism. In her article Dr. Sudha Raman highlights the need for bolstering bio-defence measures. Dr. Reshmi Kazi has authored an article arguing the recent incidents of Bird Flu outbreak in Asia.

The Kaleidoscope section features the Stockholm International Peace Research Institute (SIPRI) and the efforts undertaken by it towards spreading awareness regarding the issues of biological and chemical weapons.

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

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

Global Security Environment: Challenges and Prospects

Dr. Arvind Kumar

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The real challenge before the international community has been to contain the proliferation of WMD. The rise of non-state actors and their networks worldwide has made the current international security situation worst. It is generally believed that the non-state actors might have been trying to acquire any one or all the components of WMD or might have already acquired it.

There seems to be a consensus worldwide among the members of the strategic and academic community that the proliferation of weapons of mass destruction (WMD) has been the greatest danger to the global security. The nuclear, biological and chemical weapons are commonly characterised as the WMD. The real challenge before the international community has been to contain the proliferation of WMD. The rise of non-state actors and their networks worldwide has made the current international security situation worst. It is generally believed that the non-state actors might have been trying to acquire any one or all the components of WMD or might have already acquired it. The assertion that such things are not possible or difficult to acquire may not be true. The possibility of acquisition of WMD by terrorist group more particularly by the Al Qaeda networks can not be ruled out.

The report of the commission on the prevention of WMD proliferation and terrorism: **WORLD AT RISK** was released on December 2, 2008. The US intelligence reported on global trends that the use of nuclear weapons will grow increasingly likely by 2025. It has been clearly highlighted by the US intelligence that such possibility exists because of the growing persistence of the terrorist groups and rogue states. The "World at Risk" report has added a different dimension to the US intelligence report on global trends. It has highlighted that the terrorists are likely to use nuclear or biological weapons in the next five years. The time span mentioned in the report that the use of nuclear or biological weapon is most likely in the next five years by the terrorist groups in particular has once again reinvigorated the ongoing debate on the global security environment.

This is a product of the bi-partisan commission appointed by the American Congress in 2007 chaired by Bob Graham with Graham Allison, Robin Cleveland, Steve Rademaker, Tim Roemer, Wendey Sherman, Henry Sokolsky and Rich Verma as members. The greatest dangers highlighted by the commission on the prevention of weapons of mass destruction proliferation and terrorism are the rapid proliferation of nuclear technology in countries such as Pakistan, North Korea and Iran. The current proliferation of biotech industries worldwide has also become a major source of concern for the international community because of the lack of adequate security

in this sector. The existing poor security in the biotech industries has increased the vulnerability and the terrorist groups might like to exploit this situation and get hold of some of the biological agents, which can be used as a silent killer of the human beings. It has been accepted by the bi-partisan commission that Pakistan has emerged as the weakest link in world security.

So far, Pakistan has been a close US ally but unfortunately it has emerged as an epicenter of terrorism and finds place in all the discussions on terrorism worldwide. Pakistan's inability to contain and eradicate terrorist links and networks has made the whole globe a dangerous place for the humanity. The report clearly has highlighted the degree of vulnerability emerging from Pakistan and to quote from the report, "were one to map terrorism and weapons of mass destruction today, all roads would intersect in Pakistan". Hence, it is a well accepted fact and the inference drawn from the bi-partisan commission that Pakistan has been supporting the terrorist networks and the United States itself might become a victim one day. The commission report has highlighted that the terrorists are more likely to be able to obtain biological than nuclear weapons, with anthrax as the primary mode.

It is a well known fact that the terrorists have already tried chemical and biological weapons – nerve gas in the Tokyo subway, anthrax mailed to US public figures. So far, the nuclear weapons and materials have been left out. However, it is believed that the Al Qaeda group and other terrorist's network must be trying to procure and obtain such nuclear materials. They have definitely expertise available with them to build atleast a crude nuclear device or may like to use radiological material in the form of the so called dirty bombs. The most difficult step in making a nuclear bomb is obtaining the fissile materials either plutonium or highly enriched uranium. There may be several routes for the terrorists' group to acquire nuclear weapons and nuclear materials. The first option might be to make an attempt in stealing one from the stockpile of a country possessing such weapons in nexus with the security. The second option would be to buy from a country if that country is in dire crisis and overtly supporting terrorism. The other route would be to buy or steal from some other subnational group that had obtained it by one of the above mentioned ways.

If the terrorists are successful in obtaining and acquiring fissile material, it would be much easier for them to transport and detonate it. Hence, the need of the hour would be to prevent the theft or illegal purchase of fissile materials because stopping terrorists from transporting and detonating a bomb would be a tough proposition. It is, therefore, most important to control and contain at the source itself. Unfortunately, there have been a number of documented cases of real theft of kilogram quantities of real weapons usable nuclear material. It is again well known that the International Atomic Energy Agency has a database that includes 18 incidents involving seizure of stolen highly enriched uranium or plutonium that have been confirmed by the relevant states.

Comes of the greatest threats to peace now come from terrorist groups. The major recommendations made by the commission to the new US administration are mostly related to the safeguarding of uranium and plutonium stockpiles. Since the demise of the Soviet Union, the United States has been spending billions of dollars for securing and maintaining nuclear weapons, materials, and technology in erstwhile Soviet Union. The other recommendation made in the report is to strengthen the nuclear Non-Proliferation Treaty (NPT). The US in particular and the other nuclear weapon states (UK, Russia, China and France) in general according to the NPT definition have so far absolutely failed to meet their legal obligations enshrined in the Article VI of the NPT, which talks about nuclear disarmament. In many ways, the US nuclear doctrine itself has weakened the NPT regime. Instead of showing genuine commitment towards achieving a nuclear weapon free world, the US has been talking about its reliable replacement warhead (RRW) programme where it has been intended that the US would be putting primacy to the nuclear

weapons and keep refining its stockpiles of nuclear weapons. The US in the current global security environment should set an example by showing and signaling to the world that it is interested in the elimination of nuclear weapons. By doing so, it can only prevent new countries including Iran and North Korea from possessing uranium enrichment or plutonium reprocessing capabilities. The US would require to find ways for making the role of nuclear weapons decimated. The estimated yield from all the nuclear weapons in the world today is 5,000 megatons—the equivalent of 2,500 World War IIs.

From a bioterrorism perspective the bi-partisan commission report has cautioned the US in particular and the international community in general that the possibility of getting hold of biological weapons and its use by the terrorist group will always be high. Biological weapons employ viruses, bacteria and other germs to produce diseases, which kill people in large numbers and do not destroy the infrastructure. The serious concerns relating to biological weapons use have been reflected in the report. The US and Russia possess almost the entire worldwide stockpile of biological and chemical weapons, which is approximately 60,000 metric tons. It can wipe out 60 billion people. The world currently comprises of about 6.5 billion people. Anthrax spores occur naturally around the world in soil and certain animals and they can be easily used for biological warfare. The need of the hour is to urgently tighten security in domestic bio-sphere institutes and laboratories. The mushrooming of biotechnology sector across the world has made this area highly vulnerable.

It must be reiterated here that the bi-partisan commission report has mentioned Pakistan a number of times and few recommendations made in the report have been related to the need for securing and protecting nuclear and biological materials in Pakistan. The whole world is worried about Pakistan's nuclear weapons and nuclear materials. There is a growing concern among the members of international community that the WMD materials might fall in the wrong hands and that can easily create havoc globally. The report clearly has mentioned that parts of Pakistan's territory are currently a safe haven for Al Qaeda and other terrorists. It is reiterated again in the report that in term of the nexus of proliferation and terrorism, Pakistan must figure on the top of the agenda for the next President and Congress.

After 26/11 incident at Mumbai in India, there has been a great deal of mounting international pressure on Pakistan to act and dismantle all the terrorist networks functioning from Pakistani soil. India was able to build international consensus and mobilize international opinion against Pakistan after collecting and analyzing a number of evidences gathered during the 48 hours operation during the attacks on India's iconic hotel Taj and Trident in Mumbai. The release of the report of the bi-partisan commission just after a week of Mumbai attack and the concerns and reflections made in the report validated India's claims. Pakistan on January 15, 2009 has declared that it has shut down five training camps of the outlawed *Jamaat-ud-Dawa* outfit. With this, Pakistan has admitted for the first time of the presence of terror facilities on its soil. It was possible only because of the international pressure built this time against Pakistan.

Undoubtedly, the current global security environment warrants the international community to forge an international consensus and a coalition to secure weapons of mass destruction. The commission report is very timely and relevant and it is anticipated that the recommendations made in the report would be taken seriously by the new administration in the US. Such detailed account would certainly help in understanding the complexities involved with the larger framework of the current international security calculus.

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The Emerging Biological Weapons Threat and Proliferation

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Of the triad of weapons of mass destruction, nuclear weapons that have been the focus of attention followed by chemical weapons. But it must be remembered that there is an altered security environment which compels us to consider options to stem and resolve the grave risks posed by bio-terrorism and outbreak of infectious diseases. Hence the imperative to develop a bio-defence measure at the earliest and for this international cooperation is a must. This is an area of neglect and needs more attention. Biological weapons attack entails a pandemic and the health infrastructure and personnel could get overwhelmed by the demands on their services.

Of the triad of weapons of mass destruction, nuclear weapons that have been the focus of attention followed by chemical weapons. But it must be remembered that there is an altered security environment which compels us to consider options to stem and resolve the grave risks posed by bio-terrorism and outbreak of infectious diseases. The attempts by the Taliban and Al-Qaeda to expand modes of terrorism through the medium of use of biological weapons require awareness of the closeness of the threat. The terrorists have to succeed only once, it has been rightly said, while the defender has to be persistently prepared for such scenarios.

According to the parameters laid down by the Center for Disease Control and Prevention, lethality, toxicity, morbidity and mortality levels define bio-terror attack agents.[1] Bacteria, virus and toxins occur naturally in the environment too. Environmental contamination and infectivity of food and water or for that matter agricultural produce are matters of serious concern.[2] A bio-terror attack against an agricultural facility is a psychological and ecological disaster.[3] In case of such an occurrence in a country like India, it could spell a massive disaster without spilling war blood. The irony lies in the fact that these agents could be carried by winds, bugs and birds which do not respect national borders. It thus becomes nearly impossible to detect the biological agent (especially if it is a toxin) or to determine that the victim has been deliberately infected (especially if it is a pathogen).

The suspension of pathogens or toxins in a wet or dry formulation and dispersal over the target as aerosolized particles is the worst and the likeliest mode that could be used. It could also be a multi-pronged option usage at any given time. There could also be the usage of human "biological bombs" or dropping of parasites. Formulating pathogens and toxins for airborne dispersal, operating dispersal mechanism and making certain that proper meteorological conditions exist for aerosol dispersal is technically challenging but not unattainable.

Then there are the added problems of diversion of resources from other valuable medical research towards unintentional releases of agents from scientific laboratories, unexpected natural or man made accidents – all requiring correct and adequate counter measures. Bio issues ought to be high on national and international agenda. Especially fighting infectious diseases should get additional attention and funding. Detection of simultaneous diseases is important. Early detection is the key to mitigating bio-terrorist attack and it is important to deploy effective response mechanism including medical countermeasures. It is also important to determine the place where it was disseminated to disinfect that area. The resilience of the society has to be increased regarding such attacks. This implies *cooperation among nations* in certain fields. No single nation can have enough wherewithals to fight such an attack – if massive – on its own.

Military Utility

There is a widespread international acquiescence that biological weapons lack military utility. Yet, at the operational or theatre level of warfare, it may be to the contrary. This requires attention from concerned nations in the event of use by anti-state elements in their war against the state. Aptly termed as *operational* paralysis[4], biological warfare agents provide the attacker the opening to seize the objective without provoking retaliation from a nuclear-armed state. Biological weapons could be used just before an assault commences. A biological weapon attack takes on being strategic in nature when their reach goes beyond the battlefield. The ability of biological warfare to be dispersed over large areas and for agents to cause epidemics makes them well suited for strategic attacks. Deployment of biological weapons against strategic objectives could serve as a potent force multiplier for a conventional military operation.[5]

The Motives and the Problems

Bio-terrorism is one of the lethal ways to highlight 'cause', *to send a political message* and also gain international attention and create *mass reaction*. Dilemma is worse where the concern is regarding a state suspected of having a chemical-biological programme in the zone of conflict. There is no assurance that there may never be instances when a nation may have an understanding with certain groups to attack adversaries using these agents.

A major drawback in accurate assessment of a threat is the very character of attack – it is generally unspecified. A major challenge of course is an indistinctive attack which could trigger a war between nations, despite each being innocent of an intentional attack. While considering the threat one has to be clear about the actors involved, the agent in use, the target and the method of attack.[6] This necessitates monitoring of *capabilities* as much as *intentions*, which any way is tricky to discern. Lesson learnt – it is not the capabilities that are difficult to monitor, it is the intentions that are near impossible to detect.[7]

The challenge thus lies in detection and interruption of the insidious spread. How can these agents be detected before they make contact with a person and how can it be diagnosed after it infects a person? How does one increase the resilience of a society against bio-terror events?

Then there is the challenge of tracing covert production which goes hand in hand with enhanced access to materials and knowledge. One is bound to witness a steady increase in the number of persons with expertise in microbiology and biosciences. Some among these will get pulled by reasons of greed, ideology or fear to apply their knowledge for criminal or terrorist purposes.

There are technical and political problems in that the same industry can manufacture biological weapons and pharmaceutical or agro-industrial products the latter being for civilian purposes. Not only can biological agents be produced within weeks, it does not require storage either. Governments may be chary of intrusive verifications which in turn make the distinction between the permitted and the prohibited impossible till on-site inspections

are held and samples drawn. Also, any evidence related of clandestine manufacture of biological weapons and toxins can be destroyed.[8]

The "globalisation of biotechnology" is driven by national decisions, as also by biotechnology firms' technical cooperation agreements to further their research. Matters are made worse by the availability of this knowledge in open sources. To add to the woes, new technologies are emerging like the genetic manipulation of biological agents and toxins that complicates control of induced diseases. An illustration is development of vaccine for potential bio-terrorist agents.[9]

The international community is not yet well prepared to combat a biological warfare or a combined biological warfare and conventional warfare threat. Inspite of Biological and Toxin Weapons Convention (BTWC) of 1975, not to forget the Geneva Protocol of 1925 and the Australia Group, numerous states persist in their research and development of biological weapons. To deal with the yet unseen but looming threat it was hoped that an Organisation for the Prohibition of Biological Weapons (OPBW) would provide a solution instead of which it became a non starter.[10] The BTWC still lacks the wherewithal to detect the development of biological weapons and adopt a hands-on approach to destroy stockpiles or combat the disease whether intentionally or inadvertently spread. A six-year negotiation for a compliance protocol to the Biological Weapons Convention came to naught when the US administration declared the BWC to be "inherently unverifiable."[11]

There is indeed a mismatch between threat assessments and efforts at preparedness. A suggestion made is "planning for a variety of more likely middle- to low-casualty incidents, while simultaneously being prepared for low-probability, high consequence incidents".[12] Also important would be the ways to identify the likely sources of attack so that the threat could be eliminated. Credible intelligence and, more so, an effective, viable and responsive intelligence system will be an arduous task to attain.

India and Biological Weapons Convention

Osama has identified India and Israel as the other two enemies apart from the US.[13] And terrorist are bound to search for their options in biological weapons at a greater level and at a faster pace. India needs to look at the concerns regarding biological warfare from the perspective of placing this threat in the context of public health measures needed to combat this danger.

India had played an active role in efforts to strengthen the Convention and had played a central role in facilitating progress towards consensus on key elements with a view to recommending a programme of work for the future.[14]

India was amongst the earliest entrants to the BTWC (January 15, 1973) and ratified its entry on July 15, 1974. India moved a resolution at the 57th UN General Assembly entitled Measures to Prevent Terrorists from Acquiring WMD, which sought collective action by the international community to address the threat of use of biological weapons by non state actors.[15] The Group of Ministers set up by the Indian Government to review national security after Kargil (May to July 1999) maintained that nuclear, biological and chemical weapons terrorism was no more a far fetched horror but a contingency that could happen tomorrow. IT and communications have made terrorism with WMD easier. [16]

Two aspects to be noted is that while acceding to the Geneva protocol the British empire had retained the right to use biological and chemical weapons against countries that were not parties to the Convention. This reservation was not withdrawn by India on gaining independence. Interestingly, Article I of the BWC does *not* prohibit the *use* of BW.[17]

The negotiating states differed in their opinions on the preciseness of definition required for the terms '*bio weapons*' and '*hostile purposes*'. India opined that Article I should be interpreted to take into account *any further developments in science and technology*. India agreed with Iran's proposal that the word '*use*'

should be inserted in Article I. Differences also arose in the organisational structure envisaged and India suggested that all BTWC members be included with a smaller group of representatives being selected to guide its actions and take urgent decisions. The most contentious issue was regarding the on-site inspections. India favored the latter. India was skeptical about the extra need for non-challenge or random visits to check declarations and to familiarize inspectors with sensitive facilities. Regarding the controls on technology transfer, India favored multilateral monitoring of export controls functioning within the ambit of a multilateral or universally accepted treaty or convention. India preferred use of declarations to monitor export of dual purpose materials and their regulation through multilateral guidelines.[18] India opposed the subordination of Article X (cooperation and peaceful development through bio sciences) to Article III (commits states parties not to assist, encourage, induce any country or organisation engaging in prohibited activities).

India stated that while it was worth engaging in national implementation measures they cannot substitute for meaningful multilateral efforts to strengthen the convention.[19] India also needed to build up disease surveillance and the required response. It needs to enhance defence against normal epidemics and those that are intentional.[20]

India it needs to be noted has a positive record in protecting sensitive transferred technology from getting lost or surreptitiously transferred is impeccable. India could support further tightening of export controls, stockpiling of vaccines and antibiotics in storage centers and undertaking international research programmes to develop new and cheaper drug regimes against common diseases and those through bio-warfare.

It must also be noted that India has already stated that in case of a major biological or chemical attack, India will retain the option of retaliating with nuclear weapons.[21]

What is required is the willing cooperation of the international community to destroy the terrorists by destroying their organisation. This entails collaboration on inter-state, and international level in the areas of "*prevention, crisis management and recovery*". This is particularly necessary for disease surveillance be they intentional releases of pathogens and toxins or natural outbreaks. A public health set up to detect and respond to a broad range of contingencies is required. As nearly always, civil sector organisations and NGOs will have a roles to play. The Chambers of Commerce and Industry especially the Confederation of Indian Industries has shown great interest in biological weapons due to the rapidly increasing biotech and pharmaceuticals industries with agro-industries poised for an exceptional growth.

Assessment and Options

The global society will have to cope with as much of biological future as with nuclear and chemical. The threat and its impact can be assessed by realizing *who* (player) constitutes the threat; *what* (agent) is the threat; *where* (target) is the threat; and *how* (mode of attack) is the attack to occur. *It is worth repeating that the terrorist needs to only succeed once to prove his point.*

SARS virus leaked from Labs in Taiwan, Singapore and Beijing. Most of the germ attacks were conducted by professional researchers who had gained or already had access to human pathogens.[22]

The complex nature of damage that a threat from biological weapons entails and the magnitude of fatalities demand a comprehensive management planning. Networking, as well as integration in the medical and administrative set-up must be worked out. To understand, plan and implement such a management set up is no mean task.

It is not an easy task to bring together international and domestic support for a harmonized approach to countering bio terrorism threat unless accurate intelligence is available. Hence, as stated earlier, an effective, workable and quick-to-respond intelligence system, to intimate an impending attack, the source(s) of the attack and the main area of concentration, is needed. On their part,

scientists specialising in study of dangerous pathogens and diagnostics could monitor the latest developments in the scientific field.

The variance that exists between threat assessments and preparedness efforts could be pointed to the failure of threat assessment methodologies to take into account factors that comprise the threat.[23] The bio-terrorist threat requires comprehensive planning, preparedness and response capacity. This suggests a role and assets integration of the state and central governments. People in general also have to be active in early warning, prevention and crisis management. Both preventive and pre-emptive strategies are required to neutralize a threat.

India will need to show greater activism in rescuing BTWC from the quagmire into which it has fallen and aim at a workable verification regime. Like-minded countries need to detail steps that could be pursued to verify the compliance of the BTWC.

It is also important to emphasize the need to determine that certain outbreaks are not the result of terrorism. India's public health and medical authorities have to be prepared enough to detect or respond to a bio attack. Awareness of the seriousness of the issue, let alone stock of vaccines and antibiotics is inadequate. It is necessary to be proactive and take measures as public awareness, stockpiling vaccines and drugs, logistics preparation in case of an exigency, and bio-defense research and preparedness. *The fight is not against the bio-terrorist but bio-terrorism*. Hence it is better choice to prevent a bio-terrorist attack than trying to face an attack. Preparedness against their weapons and means of attack would act as a deterrent. The government must be in a position to tell their citizens about the measures taken for their safety and in the process instill confidence in them. This is a vital psychological factor.

The threat of escalation to WMD terrorism remains ineffectually understood. This is to be feared far more than any explosives especially so when detection and interdiction of those intending to use biological weapons is exceptionally easier said than done.

Hence the imperative to develop a bio-defence measure at the earliest and for this international cooperation is a must. This is an area of neglect and needs more attention.

Biological weapons attack entails a pandemic and the health infrastructure and personnel could get overwhelmed by the demands on their services. Experience in dealing with large scale disasters would be important here. Large stock of vaccines and medicine is important. All this requires long term planning and implementation over time. This also necessitates a policy to ensure a turnover of time-expiry vaccines, drugs and medicines.

Ultimately it will be a test of international cooperation and unified coordination between civic and state authorities at national level. The role of the armed forces needs to be better defined as they are highly trained and disciplined force that can bring orderliness in a disaster situation. The local populace and civic governance may perhaps not be able to organise as the armed forces do.

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Bird Flu: A Lethal Threat

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In early January 2009, bird flu resurfaced with the death of a Chinese woman who was infected with the H5N1 strain of avian influenza in the eastern Shandong province in China. Avian influenza is a deadly virus that can pose serious health concerns. Apart from spelling economic disaster, the bird flu crisis poses a grave threat to national security. The frequent outbreak of bird flu pandemic in Asia and India is alarming.

In early January 2009, bird flu resurfaced with the death of a Chinese woman who was infected with the H5N1 strain of avian influenza in the eastern Shandong province in China. Only two weeks before this, the Chinese media had announced the death of a 19-year old woman from the disease. Reportedly, the woman died after she came into contact with poultry in the market. This is the second reported death caused by bird flu in China since the beginning of the year. This deadly pandemic, also known as avian influenza is the worst of its kind in medical history. It has erupted several times in Asia since 2003 having caused 247 human deaths and it has led to culation of a large number of poultry.

Avian influenza is a highly contagious viral infection, which can affect all bird species. However, the poultry is particularly susceptible to it. There are two types of influenza viruses that infect poultry – Highly Pathogenic Avian Influenza (HPAI) and Low Pathogenic Avian Influenza (LPAI). HPAI is the more virulent form of influenza infecting the poultry with a flock mortality rate of almost 100 percent. The clinical symptoms of HPAI infection may vary from sudden death with little or no overt symptoms to a more characteristic disease with excessive swelling of sinus tissues, swelling of the head, skin becoming loose, coughing, sneezing and diarrhoea. Bird flu viruses are transmitted through primary and secondary methods. Primary transmissions are mainly through migratory birds like waterfowls, gulls and shorebirds that act as potential carriers of bird flu viruses. Secondary transmissions are mainly by mechanical transfer of infected faeces, in which viruses may be present in high concentrations.

In India, bird flu outbreaks have occurred on eleven occasions since 2006. Though there has been no human death reported, the pandemic has significantly hit the poultry industry and has generated serious concerns within India. The latest outbreak of bird flu virus was reported early January 2009 in West Bengal. West Bengal officials confirmed that they had begun culling about 60,000 poultry. This was the fourth outbreak of the deadly virus in the State since 2007. The third outbreak which

resulted in the culling of 17,000 poultry was done barely a fortnight ago in December 2008. In November and December 2008, H5N1 a virulent strain of bird flu was detected in backyard and commercial poultry in several districts of Assam. To combat the spread of bird flu infection, nearly 4.3 lakh birds were culled. Earlier, in April 2008, the deadly H5N1 strains infected backyard poultry in Tripura that led to the death of 3000 domestic birds and at the same time several dogs and jackals which consumed the affected birds were also found dead. Around 20,000 birds were culled as part of the operation. In July 2007, the highly pathogenic Qinghai strains of bird flu, capable of infecting humans, were detected in Manipur.

The frequent outbreak of bird flu pandemic in Asia and India is alarming. Poultry is a vital source of food and income security in Asia, which is demonstrated by the fact that the region has 200 million small farmers, who have between 10 to 100 birds each in their farms. In India, the poultry population is very large (about 150 million). The high rate of fatality of avian influenza is a serious concern for the authorities. Many people have been subject to economic insecurity because of the culling operations undertaken to contain the spread of the virus. In many cases, people have not been compensated adequately. Many neighbouring countries like Bhutan have stopped importing poultry from India because of fears of the bird flu virus. As a consequence the revenue that is derived from poultry export by India has been severely affected.

Apart from spelling economic disaster, the bird flu crisis poses a grave threat to national security. It is important to note that all the above mentioned affected states in India share international borders with countries like Bangladesh, Myanmar, Pakistan that have all been affected by avian influenza. In China, bird flu outbreaks have also been incessant. India remains vulnerable to bird flu virus outbreaks because of the geographical proximity with its neighbouring countries. Porous borders are also another source through which infected poultry can be smuggled into India. Transmission can take place because of the trucks that are transferring poultry and from farm to farm contaminated equipments and clothing and shoes. In fact, the Qinghai strains of bird flu detected in Manipur in July 2007 are believed to have originated from China's mid-western province of Qinghai. The natural habitat is attractive centre for many migratory birds that migrate to India from the neighbouring areas particularly in the winters. At present, with thousands of migratory birds flocking to Dharamshala region, there are rising concerns of an outbreak of the deadly H5N1 virus. Reports from the United Nations indicate that due to continuous circulation of the highly pathogenic H5N1 strains in Bangladesh, the virus may have got entrenched in the Indo-Gangetic plains of India and Bangladesh. This exposes India to significant risks of the fatal avian influenza virus.

Avian influenza is a deadly virus that can pose serious health concerns. It can swap or 'reassort' genetic materials and merge, thereby resulting in a new subtype different from the parent viruses. These highly pathogenic viruses crossbred with human influenza, would be transmissible from humans to humans by airborne droplets, driven by coughs and sneezes resulting in a human pandemic. At present, no vaccines have been developed to combat HPAI. Even if vaccines were developed, it would take months to produce sufficient doses to protect the entire population of India. In the absence of an effective vaccine to combat avian flu, there is an extremely high possibility of human pandemic in South Asia.

Despite the lethality of avian influenza, India has been able to contain the outbreaks so far. However, the recurrence of the pandemic (four outbreaks of bird flu among poultry in 14 out of the West Bengal's 19 districts in less than a year) is a cause for concern. Another is that within West Bengal, ducks are not culled. "Ducks have become reservoirs of the virus because they carry it without developing symptoms or falling sick. Infected ducks pose a threat not only to other animals but also humans," said N.K. Ganguly, distinguished biotechnology fellow, Government of India, and scientific adviser to the Ministry of Health.

The task of eradicating H5N1 virus is a difficult and an expensive task. However, avian flu can be contained if the poultry industry is adequately overhauled and new surveillance systems are placed to detect bird flu outbreaks. Constant alert and hard work could play a vital role in combating avian influenza. This is one battle that India and the rest of Asia cannot afford to lose.

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Biological Weapons: A Case Study of China

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Though the Chinese government has ardently asserted that there is no active Bioweapon programme some scholars believe that it retains a biological warfare capability. While China has publicly declared that it is in full compliance with the BTWC there have been U.S. Department of State reports which have claimed that China has a small-scale offensive biological weapons program.

History

China has been a victim of the biological warfare during the World War II at the hands of the Japanese troops. The Japanese made China an experiment ground for their bioweapons (BW) programme. In 1939 the Japanese army established the Unit 731 germ-warfare research center in Harbin, China. It is believed that the Japanese medical experts experimented on Chinese, Soviet, Korean, British and other prisoners. It is estimated that almost 250,000 Chinese citizens were killed during this period. Most of the deaths were due to cholera and plague. Though China blames Japan for deaths due to plague during the Japanese occupation study shows that plague has been endemic to China since 1894. It is also a fact that during wartime outbreaks of infectious diseases are common. But the Chinese sufferings related to BW did not end with the end of the World War II.

Another incidence of BW is seen during the Korean War (1950). The Chinese troops were involved from the North Korean side and the United States from the South Korean side. The Chinese government continues to believe that the US employed BW. However some evidence indicates that the Chinese communists and North Korean operatives manufactured evidence of the US BW in the Korean War. Americans believe that military conflicts often led to breakdowns in public health and the spread of infectious disease, and China during the Korean War was no exception.

Biological Defence Strategy

Learning from its past experiences China initiated a programme to deal with defensive mechanism in a situation of BW attack. China declared that its BW defence programme was initiated officially in 1958 but in 1952 during the involvement of Chinese People's Volunteer Army in Korea, Peoples Liberation Army (PLA) had employed sanitation and anti-plague units. By 1984, Military Medical Science University started awarding Master of Science degrees in the field of BW defence.

Disarmament and Current Capabilities

The Biological Weapons Convention (BWC) was opened for signature in 1972 and entered into force in 1975. Initially the Chinese government considered the BWC to be fundamentally flawed, in part because the treaty does not explicitly prohibit the use of BW. China refused to join BWC in 1972, considering the treaty to discriminate against developing countries. But later China acceded to BWC on November 15, 1984 with a caveat that China considered the BWC to be legally binding only with respect to other states parties and would not be bound in the event that other states violated the Convention. China is also a party to the major international agreements regulating biological weapons. The Chinese government has also supported the adoption of UN Security Council Resolution 1540 in 2004, which compels states to prevent non-state actors from acquiring biological weapons or other weapons of mass destruction (WMD). China is currently not a member of the Australia Group (AG), an export control regime focused on chemical and biological weapons, though the issuance of new export control regulations in 2002 (and subsequent updates) has put Beijing's export control policy fully in line with that of the AG. Since 2006, China has engaged in regular discussions with the AG, possibly laying the groundwork for eventual Chinese membership.

Though the Chinese government has ardently asserted that there is no active Bioweapon programme some scholars believe that it retains a biological warfare capability. While China has publicly declared that it is in full compliance with the BTWC there have been U.S. Department of State reports which have claimed that China has a small-scale offensive biological weapons program. They also assert that the Chinese entities have transferred controlled biological weapons-related items to Iran. These have lead to a number of sanctions being imposed on various Chinese companies.

Chinese writings on BW are very scanty. The official Chinese position is that China has never manufactured nor possessed biological weapons. But it is also believed that China has conducted a considerable amount of ostensibly defensive research on potential BW agents, including the causative agents of anthrax, tularemia, and botulism.

PRC has expertise in aerobiology and reportedly conducts laboratory scale aerosolization experiments with microorganisms. According to a 2001 report by the US department of defence, "China continues to maintain some elements of an offensive biological warfare programme it is believed to have started in the 1950s. China is believed to possess an offensive biological warfare capability based on technology developed prior to its accession to the BWC in 1984".What appears from the available open sources is that China's biological weapons testing center is apparently co-located with to its nuclear program in Lop Nor. There are allegations that in late eighties an outbreak of hemorrhagic fever in Xinjiang province was the result of Chinese offensive BW research. Few Taiwanese sources claim that China has offensive BW programme.

Assessment

Accurate assessment of Chinas potential for BW is very difficult because of the lack of open source information. China views biotechnology as crucial to its future, making participation in the BWC regime desirable from the standpoint of industrial technology. There is an assumption that China is capable of weaponising BW agents but still the question remains unanswered about its capability of proper delivery systems for the same. Only a vague inference could be drawn that since China is capable of producing biological weapons delivery platforms like Unmanned Arial Vehicle (UAV) crop dusting aircrafts and it may modify them for delivery of biological weapons. There is also a need for accurate assessment of the Taiwanese sources regarding Chinas offensive BW programme. China like many other countries has a significant duel use base for biological products but this does not directly imply that they have BW programme.

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Stockholm International Peace Research Institute (SIPRI)

In an effort to curb the proliferation and production of biological and chemical weapon and raising awareness on related issues the Stockholm International Peace Research Institute (SIPRI) is the leading institute. SIPRI has its headquarters at Solna, Sweden. It was founded in 1966 to commemorate 150 years of unbroken peace in Sweden.[1]

The Chemical and Biological Security Project is one of the major projects at SIPRI. The thrust of the project is "developments regarding chemical and biological weapons, including efforts to establish effective and equitable disarmament regimes, allegations of their use, and measures to stem their proliferation and prevent their use by terrorist and criminal organizations".[2] This project is also one of the longest running projects of the institute. This project has a dedicated team of researchers and probes issues related to disease surveillance and response with a focus on Asia, the security implications of dual-use research and technologies in the life sciences etc. SIPRI findings and insights are useful for policy makers, students and researchers.

The research findings are published in SIPRI Yearbook chapters on CBW, SIPRI CBW Studies ("Scorpion" books), fact sheets etc. The early years of the CBW Project saw the publication of the six-volume series, The Problem of Chemical and Biological Warfare by Julian Perry Robinson and Milton Leitenberg. This volume is regarded as the standard reference work on the subject of chemical and biological weapons. "This book presents a description of the main lines of development in the technology underlying CBW and in the constraints affecting the use of CB weapons. The period covered is approximately 1914–1945, although more recent developments in CW technology are also described. In addition, the volume includes an account of all instances known to SIPRI when CB weapons have been used in war, or when their use has been alleged; in this case the time-span is 1914–1970".[3]

The SIPRI-Saskatchewan-Frankfurt Research Group produced a number of papers and factsheets on certain aspects of the implementation of the Chemical Weapons Convention between 1993 and 1996.[4]

Recently, in collaboration with Bradford University, SIPRI is running a Joint Bradford - SIPRI: Chemical and Biological Warfare Project. This project is hosted by the university of Bradford, Department of Peace Studies in the School of Social and International Studies. The project aims to provide a better means to disseminate information on the 1993 Chemical Weapons Convention (CWC), the 1972 Biological and Toxin Weapons Convention (BTWC) and related chemical and biological warfare issues.[5] In addition, the project aims through pooling of their Internet resources in providing a better dissemination of information on the 1993 Chemical Weapons Convention, the 1972 Biological and Toxin Weapons Convention, and allied chemical and biological warfare issues. On-line resources involve use of the Bradford and SIPRI databases concerning bioweapons and chemical weapons proliferation, containment and disarmament".[6]

With its commitment to 'the understanding of the preconditions for a stable peace and for peaceful solutions of international conflicts' SIPRI has contributed significantly in spreading awareness regarding the issues of biological and chemical weapons. The previous writings and recent research at SIPRI explore the intricacies of chemical and biological weapon issues and generate momentum for both State and non-state actors n their efforts to curb the production, proliferation and use of biological and chemical weapons.

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Chemical and Biological News

ARMS CONTROL

Kansas Site Gets Final OK to Host Biological Defense Lab

The U.S. Homeland Security Department has finalized its decision to build a planned $450 million biological defense laboratory at a 59-acre site in Kansas, the Associated Press reported.

When built on the Kansas State University property at Manhattan, the National Bio- and Agro-Defense Facility would assume responsibility for research on anthrax and other diseases conducted for decades by a laboratory at Plum Island, N.Y.

The department would not comment on the approval because the final record of decision was not made public, but the state's U.S. senators verified that Homeland Security Undersecretary Jay Cohen had signed the document.

"With this new lab, Kansas will cement its reputation as the nation's leader in plant and animal health research and the biosciences," Senator Pat Roberts (R-Kan.) said in a statement. "We will reap the benefits of a cutting edge industry while protecting the nation's food supply and agricultural economy for years to come."

Kansas State officials suggested that the nearby Biosecurity Research Institute might assume some of the laboratory's duties until the new facility is ready in 2015. Institute scientists already conduct sensitive studies involving crop and livestock ailments.

Kansas edged out several other states competing to host the site, prompting threats from Texas and Mississippi officials to challenge the decision in court.

Texas Governor Rick Perry argued last week that lawmakers in his state were not convened last year to draw up a competitive financial offer, ultimately skewing the selection process.

http:www.globalsecuritynewswire.org/gsn/nw_20090113_2249.php

Bush Establishes Laboratory Biosecurity Panel

U.S. President George W. Bush last week issued an executive order establishing a high-level working group to study strategies for augmenting security at laboratories that conduct research on dangerous diseases, the White House announced.

"It is the policy of the United States that facilities that possess biological select agents and toxins have appropriate security and personnel assurance practices to protect against theft, misuse, or diversion to unlawful activity of such agents and toxins," according to the executive order. Therefore, "there is hereby established, within the Department of Defense for administrative purposes only, the Working Group on Strengthening the Biosecurity of the United States."

The working group would include the U.S. secretaries of state, agriculture, commerce, transportation, energy and homeland security, along with the attorney general, national intelligence director, the heads of the National Science Foundation and the Environmental Protection Agency and possibly other officials.

The working group is expected to study existing biosecurity laws and regulations, along with current physical, facility and personnel security measures in place at disease research sites. Within 180 days of the executive order, it must issue a report containing recommendations on possible new rules and security measures, options for comprehensive oversight systems at laboratories, and "a comparison of the range of existing personnel security and assurance programs for access to biological select agents

and toxins to personnel security and assurance programs in other fields and industries."

The report would be submitted to President-elect Barack Obama, who takes office on January 20, 2009.

http://www.globalsecuritynewswire.org/gsn/nw_20090112_2069.php

China committed to int'l mechanisms on arms control, non-proliferation

The Chinese Government has always attached importance to and been supportive of international efforts in the field of arms control, disarmament and non-proliferation, said a white paper.

In a defense white paper issued, China reaffirmed its resolve and measures to support the international arms control, disarmament and non-proliferation.

It was the first time that China's defense white paper devoted a whole chapter to arms control and disarmament.

On nuclear disarmament, the paper said: "China holds all nuclear-weapon states should make an unequivocal commitment to the thorough destruction of nuclear weapons, and reduce the role of nuclear weapons in their national security policy."

China supported the early entry into force of the Comprehensive Nuclear Test-Ban Treaty, and will continue to honor its moratorium commitment on nuclear testing, the paper said.

"China will not be the first to use nuclear weapons at any time and in any circumstances, and will unconditionally not use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapon-free zones," it said.

China called on other nuclear-weapon states to make the same commitments and conclude an international legal instrument in this regard.

China maintained the global missile defense program would be detrimental to strategic balance and stability, it said.

On the prohibition of biological and chemical weapons, China observed its obligations under the Biological Weapons Convention (BWC), and supports the multilateral efforts aimed at strengthening the effectiveness of the Convention.

On non-proliferation, the paper said China firmly opposes the proliferation of weapons of mass destruction (WMD) and their means of delivery, and actively takes part in international non-proliferation efforts.

The paper, the sixth of its kind Chinese government issued since 1998, gives an overall picture of China's national defense ranging from the security environment, national defense policy, to defense expenditure and arms control.

http://news.xinhuanet.com/english/2009-01/20/content_10688964.htm

DISARMAMENT

Iraq Joins Chemical Weapons Convention

Iraq, a nation that once used blister and nerve agents in war and against its own people, yesterday joined the international ban on chemical weapons.

Baghdad submitted its accession document to the United Nations and will become the 186th member nation to the Chemical Weapons Convention on February 12, 2009. The treaty prohibits development, production, stockpiling or use of weapons that feature materials such as mustard gas or the nerve agents VX and sarin.

There are now only nine states that remain outside the convention — Angola, the Bahamas, Dominican Republic, Egypt, Israel, Myanmar, North Korea, Somalia and Syria.

"Iraq's accession draws us closer to the convention's goal of the universal ban on chemical weapons, and we call upon those nine states that have not yet adhered to the convention to do so without delay," Rogelio Pfirter, director general of the Organisation for the Prohibition of Chemical Weapons, the verification body for the treaty, said in a prepared statement.

The Bahamas is likely to be the next state to join the pact, possibly in a matter of months, said OPCW spokesman Michael Luhan. He acknowledged the challenge of reaching treaty universality, particularly when it comes to the Middle East, where long-standing tensions have been exacerbated by recent fighting in the Gaza Strip.

"It's difficult. The equation in the Middle East transcends the particular issue of chemical weapons," Luhan told *Global Security Newswire*. "Certainly we hope that the accession of both Lebanon and Iraq will generate some fresh thinking on the convention [by Egypt, Israel and Syria] and perhaps create some sense of momentum. But ... with everything happening in the Middle East right now, our expectations are moderate."

Those three Middle Eastern nations are all believed to have had some history with chemical weapons activities, with Syria suspected of possessing a stockpile of blister and nerve agents.

More than 42 percent of the declared global stockpile of chemical warfare materials has been eliminated; work is complete in Albania and an unidentified nation generally known to be South Korea, while Libya, India, Russia and the United States are at varying points in the disposal process.

Iraq reportedly established an offensive chemical weapons program in the late 1960s that led to the production of warfare materials in the 1980s, according to an online time line developed by the Nuclear Threat Initiative. The Hussein regime employed mustard gas and tabun nerve agent against Iranian forces while the two nations were at war in the 1980s, and also killed thousands of Iraqi Kurds during crackdowns in that decade.

Following the first Gulf War, U.N. inspectors or the Hussein regime itself verifiably destroyed nearly 700 metric tons of Iraqi chemical weapons agents, along with almost 90,000 munitions, 980 crucial chemical weapons production items and related material, according to NTI.

The U.S.-led 2003 invasion of Iraq was conducted partly on the assertion that Baghdad was again stockpiling chemical weapons and conducting other WMD programs. However, inspectors in 2004 reported that while Saddam Hussein hoped one day to resume chemical warfare activities, his nation had eliminated its toxic arsenal in 1991.

Several hundred abandoned chemical weapons have been found in Iraq since the invasion, though they are believed to have been produced before 1991 and had deteriorated to the point of being unusable. The weapons were being destroyed as they were located, the U.S. Defense Department said in 2006.

Iraq must within 30 days of becoming a CWC member state file a declaration with the Hague-based monitoring agency identifying any remaining chemical weapons stockpiles or production facilities.

"It's a given that there are no chemical weapons stockpiles that will be declared from Iraq," said Paul Walker, security and sustainability chief at the environmental group Global Green USA. However, buried or dumped chemical agents and weapons might still someday be found that would have to be dealt with, he added.

The Iraqi Embassy in Washington had not responded by press time today to a request for comment regarding details of its chemical declaration.

Any necessary "destruction process, as with every other possessor state, will be verified by OPCW," Luhan said. ""In Iraq's case ... depending on the [security] circumstances there, if Iraq does declare CW or production facilities, destruction could be in the presence

of an inspection team or without the presence of an inspection team but with full documentation, meaning pictures, videos and so forth."

ttp:/www.globalsecuritynewswire.org/gsn/nw_20090114_3530.php

NATIONAL AND INTERNATIONAL DEVELOPMENTS

Al Qaeda's bio-warfare directors are in Pakistan

An al Qaeda affiliate in Algeria closed a base earlier this monthafter an experiment with unconventional weapons went awry, a senior U.S. intelligence official said.

The official, who spoke on the condition he not be named because of the sensitive nature of the issue, said he could not confirm press reports that the accident killed at least 40 al Qaeda operatives, but he said the mishap led the militant group to shut down a base in themountains of Tizi Ouzou province in eastern Algeria.

He said authorities in the first week of January intercepted an urgent communication between the leadership of al Qaeda in the Land of the Maghreb (AQIM) and al Qaeda's leadership in the tribal region of Pakistan on the border with Afghanistan. The communication suggested that an area sealed to prevent leakage of a biological or chemicalsubstance had been breached, according to the official. "We don't know if this is biological or chemical," the official said.

AQIM, according to U.S. intelligence estimates, maintains about adozen bases in Algeria, where the group has waged a terrorist campaignagainst government forces and civilians. In 2006, the group claimedresponsibility for an attack on foreign contractors. In 2007, the group said it bombed U.N. headquarters in Algiers, an attack thatkilled 41 people.

Al Qaeda is believed by U.S. and Western experts to have been pursuing biological weapons since at least the late 1990s. A 2005 report on unconventional weapons drafted by a commission led by former Sen. Charles Robb, Virginia Democrat, and federal appeals court Judge Laurence Silberman concluded that al Qaeda's biological weapons program "was extensive, well organised and operated two years before the Sept. 11" terror attacks in the U.S.

Another report from the Commission on the Prevention of Weapons of Mass Destruction Proliferation, released in December, warned that" terrorists are more likely to be able to obtain and use a biological weapon than a nuclear weapon."

British authorities in January 2003 arrested seven men they accused ofproducing a poison from castor beans known as ricin. British officialssaid one of the suspects had visited an al Qaeda training camp. In theinvestigation into the case, British authorities found an undated al Qaeda manual on assassinations with a recipe for making the poison. The late leader of al Qaeda in Iraq, Abu Musab Zarqawi, was suspected of developing ricin in northern Iraq. Then-Secretary of State Colin L.Powell referred to the poison in his presentation to the U.N. SecurityCouncil in February 2003 that sought to lay the groundwork for the U.S. invasion of Iraq.

Roger Cressey, a former senior counterterrorism official at the National Security Council under Presidents Bill Clinton and George W. Bush, told The Washington Times that al Qaeda has had an interest in acquiring a poisons capability since the late 1990s.

"This is something that al Qaeda still aspires to do, and the infrastructure to develop it does not have to be that sophisticated," he said.Mr. Cressey added that he also is concerned about al Qaeda in the Land of the Maghreb, which refers to the North African countries of Algeria, Morocco and Tunisia.

”Al Qaeda in the Maghreb is probably the most operationally capable affiliate in the organisation right now,” he said.

Algerian Al-Qaeda activists infected themselves with Black Death, says expert

The al-Qaeda cell that was wiped out in Algeria by the Black Death may have infected itself while developing biological weapons.

According to The Sun, the 40-odd terrorists, who succumbed to the plague, planned to wreak havoc on Western targets but fell victims to their own weapon According to Dr Igor Khrupinov, a leading expert on chemical warfare at Georgia University, the “Al-Qaeda is known to experiment with biological weapons. And, this group has direct communication with other cells around the world. Contagious diseases, like ebola and anthrax, occur in northern Africa. It makes sense that people are trying to use them against Western governments.”

Dr. Khrupinov, once arms adviser to Russian leader Mikhail Gorbachev, added: “Instead of using bombs, people with infectious diseases could be walking through cities.”

http://story.zimbabwestar.com/index.php/ct/9/cid/c1ab2109a5bf37ec/id/455899/cs/1/

Fears in US about Mumbai-type attacks

The terrorist attacks in Mumbai have dramatically damaged Pakistan’s image in the United States where a consensus seems to be emerging that the terrorists may be planning a Mumbai-like attack on the US as well and that if such an attack happens, it will originate in Pakistan.

Over the past two days, more than a dozen senior US officials, lawmakers and terrorism experts discussed various scenarios for a possible terrorist attack on the United States. All pointed their fingers at Pakistan.

And these were not unnamed intelligence officials who in the past discussed such scenarios with the US media on the condition that they remained anonymous.

These were all senior officials and lawmakers — such as Gen David H. Petraeus, the new head of the US Central Command; Ken Wainstein, the White House national security adviser; and Senator Joe Lieberman, chairman Senate Homeland and Governmental Affairs Committee. And they were all speaking on the record.

There were differences among them on the nature of the next terrorist attack on the United States, but not on its source. All agreed that the terrorists hiding in Pakistan’s tribal areas were already planning such an attack.

Before the Mumbai attacks, US officials and terrorism experts focussed on terrorists acquiring a so-called ‘dirty bomb’; a small nuclear, chemical or biological device big enough to cause serious damage to a major US city.

But the Mumbai attack seems to have changed their views.

”US cities are vulnerable to an attack like the gun-and-grenade assault that terrorised Mumbai for three days and killed 179 people,” arned Mr Wainstein.

The US Senate Homeland and Governmental Affairs Committee, which held a special hearing on the Mumbai attacks on Thursday evening, agreed.

The lawmakers, who participated in the hearing, admitted that they feared a Mumbai-like attack could happen in the United States.

And Gen David H. Petraeus, the man responsible for winning the war against terror, warned that the United States would need to make a “sustained, substantial” commitment if it wanted to stop the Taliban and Al Qaeda

militants hiding in Fata from resurging in Afghanistan.

Gen Petraeus linked Afghanistan's fortunes directly to Pakistan's where, he observed, a US-backed civilian government was struggling and the country's ability to control militants along its border with Afghanistan was in doubt.

"Afghanistan and Pakistan have, in many ways, merged into a single problem set, and the way forward in Afghanistan is incomplete without a strategy that includes and assists Pakistan, and also takes into account Pakistan's troubled relationship with rival India," Gen Petraeus said.

The need to fight Al Qaeda and Taliban militants hiding in Pakistan's tribal region was even included in a national agenda that Democrats issued a day after the new Congress was sworn in. The Democrats, who are now a majority in the US legislature, want a deeper US involvement in fighting the terrorists hiding in Fata.Mr Wainstein told a Washington think-tank the Mumbai attacks in November showed the effectiveness of a low-technology coordinated assault on an open city.

He did not rule out the possibility of terrorists in Fata acquiring a 'dirty bomb' and recalled that in December of 2001 "we and the United Nations designated as a supporter of terrorism a group of Pakistani scientists and former government officials — known as the UTN — who had worked with the Taliban and had previously discussed nuclear, chemical and biological weapons with Osama bin Laden."

Senator Dick Durbin of Illinois, the number two Democrat in the Senate, stressed that by refocussing "our resources on Al Qaeda, Afghanistan, and Pakistan ... we will protect our nation from other deadly weapons and will share more effectively in the fight against terrorism".

Senator Lieberman insisted that "they (Pakistanis) and we know" that there're terrorist camps inside Pakistan. "They need to finish them," he added.

The Pakistanis, he said, also needed to ensure that "there are no links between terrorists and their intelligence agencies".

Mr Lieberman said he knew that President Zardari and Prime Minister Gilani were trying to uproot terrorism from their country "but unfortunately the contacts between the terrorists and Pakistani intelligence agencies remain".

The United States, he said, did not want the alleged terrorist camps in Pakistan to close just because of what happened in Mumbai. "We want this because the camps also provide refuge to radical elements from the US and they are risk for our security as well."

Donald Van Duyn, Deputy Assistant Director of the Counter-terrorism Division of the Federal Bureau of Investigation, said the attacks in Mumbai showed how ordinary weapons could cause mass casualties. "It comes as no surprise that a small, disciplined team of highly trained individuals can wreak the level of havoc that we saw in Mumbai. Other terrorist groups will no doubt take note of and seek to emulate the Mumbai attacks," he said.

Those involved in the Mumbai attacks, about 10 in all, were armed with automatic rifles and grenades, and carried global positioning devices when they came ashore on speedboats and descended on hotels and restaurants and other sites, taking and killing hostages.

http://www.dawn.com/2009/01/10/top12.htm

Experts Debate Threat of Nuclear, Biological Terrorism

There is an "almost vanishingly small" likelihood that terrorists would ever be able to acquire and detonate a nuclear weapon, one expert said.

In even the most likely scenario of nuclear terrorism, there are 20 barriers between extremists and a successful nuclear strike on a major city, said John Mueller, a political science professor at Ohio State University.

The process itself is seemingly straightforward but exceedingly difficult — buy or steal highly enriched uranium, manufacture a weapon, take the bomb to the target site and blow it up. Meanwhile, variables strewn across the path to an attack would increase the complexity of the effort, Mueller argued.

Terrorists would have to bribe officials in a state nuclear program to acquire the material, while avoiding a sting by authorities or a scam by the sellers. The material itself could also turn out to be bad.

"Once the purloined material is purloined, [police are] going to be chasing after you. They are also going to put on a high reward, extremely high reward, on getting the weapon back or getting the fissile material back," Mueller said during a panel discussion at a two-day Cato Institute conference on counterterrorism issues facing the incoming Obama administration.

Smuggling the material out of a country would mean relying on criminals who "are very good at extortion" and might have to be killed to avoid a double-cross, Mueller said. The terrorists would then have to find scientists and engineers willing to give up their normal lives to manufacture a bomb, which would require an expensive and sophisticated machine shop.

Finally, further technological expertise would be needed to sneak the weapon across national borders to its destination point and conduct a successful detonation, Mueller said.

Every obstacle is "difficult but not impossible" to overcome, Mueller said, putting the chance of success at no less than one in three for each. The likelihood of successfully passing through each obstacle, in sequence, would be roughly one in 3 1/2 billion, he said, but for argument's sake dropped it to 3 1/2 million.

"It's a total gamble. This is a very expensive and difficult thing to do," said Mueller, who addresses the issue at greater length in an upcoming book, *Atomic Obsession*. "So unlike buying a ticket to the lottery ... you're basically putting everything, including your life, at stake for a gamble that's maybe one in 3 1/2 million or 3 1/2 billion."

Other scenarios are even less probable, Mueller said.

A nuclear-armed state is "exceedingly unlikely" to hand a weapon to a terrorist group, he argued: "States just simply won't give it to somebody they can't control."

Terrorists are also not likely to be able to steal a whole weapon, Mueller asserted, dismissing the idea of "loose nukes." Even Pakistan, which today is perhaps the nation of greatest concern regarding nuclear security, keeps its bombs in two segments that are stored at different locations, he said.

Fear of an "extremely improbable event" such as nuclear terrorism produces support for a wide range of homeland security activities, Mueller said. He argued that there has been a major and costly overreaction to the terrorism threat — noting that the Sept. 11 attacks helped to precipitate the invasion of Iraq, which has led to far more deaths than the original event.

Panel moderator Benjamin Friedman, a research fellow at the Cato Institute, said academic and governmental discussions of acts of nuclear or biological terrorism have tended to focus on "worst-case assumptions about terrorists' ability to use these weapons to kill us." There is need for consideration for what is probable rather than simply what is possible, he said.

Friedman took issue with the finding late last year of an experts' report that an act of WMD terrorism would "more likely than not" occur in the next half decade unless the international community takes greater action. "I would say that the report, if you read it, actually offers no analysis to justify that claim, which seems to have been made to change policy by generating alarm in headlines."

One panel speaker offered a partial rebuttal to Mueller's presentation. Jim Walsh, principal research scientist for the Security Studies Program at the Massachusetts Institute of

Technology, said he agreed that nations would almost certainly not give a nuclear weapon to a nonstate group, that most terrorist organizations have no interest in seeking out the bomb, and that it would be difficult to build a weapon or use one that has been stolen.

However, he disputed Mueller's assertion that nations can be trusted to secure their atomic weapons and materials. "I don't think the historical record shows that at all," Walsh said.

Black-market networks such as the organization once operated by former top Pakistani nuclear scientist Abdul Qadeer Khan remain a problem and should not be assumed to be easily defeated by international intelligence services, Walsh said. It is also reasonable to worry about extremists gaining access to nuclear blueprints or poorly secured stocks of highly enriched uranium, he said.

"I worry about al-Qaeda 4.0, kids in Europe who go to good schools 20 years from now. Or types of terrorists we don't even imagine," Walsh said.

Greater consideration must be given to exactly how much risk is tolerable and what actions must be taken to reduce the threat, he added.

"For all the alarmism, we haven't done that much about the problem," Walsh said. "We've done a lot in the name of nuclear terrorism, the attack on Iraq, these other things, but we have moved ever so modestly to lock down nuclear materials."

Biological Terrorism

Another two analysts offered a similar debate on the potential for terrorists to carry out an attack using infectious disease material.

Milton Leitenberg, a senior research scholar at the Center for International and Security Studies at the University of Maryland, played down the threat in comparison to other health risks. Bioterrorism has killed five U.S. citizens in the 21st century — the victims of the 2001 anthrax attacks, he said. Meanwhile, at least 400,000 deaths are linked each year to obesity in this country.

The United States has authorized $57 billion in spending since the anthrax mailings for biological prevention and defense activities, Leitenberg said. Much of the money would have been better used to prepare for pandemic flu, he argued.

"Mistaken threat assessments make mistaken policy and make mistaken allocation of financial resources," Leitenberg said.

The number of states with offensive biological weapons programs appears to have stabilized at six beginning in the mid-1970s, despite subsequent intelligence estimates that once indicated an increasing number of efforts, Leitenberg said. Caveats in present analyses of those states make it near-impossible to determine the extent to which their activities remain offensive in nature, he added.

There has been minimal proliferation of biological expertise or technology to nations of concern in recent decades, Leitenberg said. He identified roughly 12 Russian scientists who ended up in Iran and shipments of technology and pathogen strains to Iraq from France, Germany, the former Soviet Union and the United States between 1980 and 1990.

No evidence exists of state assistance to nonstate groups in this sector. Two prominent extremist organizations, al-Qaeda and Aum Shinrikyo in Japan, failed to produce pathogenic disease strains that could be used in an attack, according to Leitenberg.

Terrorists would have to acquire the correct disease strain, handle it safely, correctly reproduce and store the material and then disperse it properly, Leitenberg said. He dismissed their ability to do so.

"What we've found so far is that those people have been totally abysmally ignorant of how to read the technical, professional literature," Leitenberg said. "What's on the jihadi Web sites comes from American poisoners' handbooks sold here at gun shows. Which can't make anything and what it would make is just garbage."

Randall Larsen, national security adviser to the University of Pittsburgh's Center for Biosecurity, expressed less confidence in terrorists' incompetence.

Scientific and technological advances could enable the production of a dangerous biological agent using technology purchased through the Internet, he said.

"This is what you can do that took superpower technology in the '60s that graduate students can do in laboratories and universities ... around the world today," according to Larsen.

He also took issue with Leitenberg's assertion regarding the biological capabilities of Aum Shinrikyo, the cult best known for the 1995 sarin nerve agent attack on the Tokyo subway system. Recent interviews with personnel from the cult's biological program indicated they succeeded in producing a pathogenic disease strain, but that the material was "screwed up" during mass production, Larsen said.

"It is a very, very difficult challenge for the intelligence community to find out if a terrorist organisation is developing a biological weapon in a room smaller than this," he said.

http:www.globalsecuritynewswire.org/gsn/nw_20090113_7105.php

Iran accuses Israel of using chemical weapons in Gaza

Iran is seeking for United Nations' serious action over Israel's use of chemical weapons in Gaza, the semi-official Fars news agency reported.

Foreign Minister Manouchehr Mottaki made the accusation against Israel in a letter to UN Chief Ban Ki-moon, urging for a "serious and effective action" over Israel's use of chemical weapons in Gaza, according to the report.

"In recent attacks by the Zionist regime's troops on Gaza, the regime's army has several times used banned weapons, including dangerous, toxic materials causing painful deaths, incapacitation or physical inabilities," Mottaki was quoted as saying in the letter.He also called the use of the chemical weapons as the "examples of war crimes."

Earlier, Iran's Ministry of Defense and Armed Forces Logistics also issued a statement to denounce the Israeli use of chemical weapons in Gaza, saying that "the Zionist regime" had fired "white phosphorus into Gaza."

"According to the Geneva Protocol 1925, using the poisonous gases is forbidden," the statement said.

Geneva Protocol 1925 prohibits the use of asphyxiating, poisonous or other gases, and of bacteriological methods of warfare declared in Geneva on June 17, 1925.

After about three weeks of an unprecedented military air and ground offensive of Israel on Gaza since Dec. 27, where around 1,240 Palestinians killed and more than 5,200 others wounded, Israeli Prime Minister Ehud Olmert declared a unilateral ceasefire in the Hamas-ruled Gaza Strip, beginning from 2 a.m. (0000 GMT) Sunday.

"We have reached all of our objectives in Gaza," Olmert told a press conference in Tel Aviv, adding that Hamas has been dealt a heavy blow and its leaders are now in hiding.

However, on Sunday morning, hours after the unilateral ceasefire went into effect, southern Israel was pounded by a number of rockets fired from Gaza and the Israeli army confirmed that it opened fire after Gazan militants attacked Israeli troops in the Palestinian enclave.

At least one Palestinian was reportedly killed by the exchange of fire on Sunday morning.

http://news.xinhuanet.com/english/2009-01/18/content_10678977.htm

China Presses Japan on Abandoned Chemical Weapons

Chinese officials today pressed Japan to follow through on its pledge to recover and eliminate chemical weapons abandoned in China at the

close of World War II, the Xinhua News Agency reported.

Beijing has claimed that 2 million tons of Japanese chemical munitions were left in roughly 40 locations in 15 provinces, particularly the Heilongjiang, Jilin and Liaoning provinces in northeast China. The two nations in 1999 signed an agreement on eliminating the weapons.

Xinhua reported last month that excavation had begun of weapons abandoned at Haerbaling in the Jilin Province. However, Tokyo has suspended the effort and cut related funding, according to the *Sankei Shimbun* newspaper.

"China has demanded that the Japanese side clarify the report. The Japanese side said clearly that the report does not conform to the fact, and there's no change to the government's principle to speed up the process of dealing with the chemical weapons it abandoned in China during World War II," said Foreign Ministry spokeswoman Jiang Yu.

http:www.globalsecuritynewswire.org/gsn/nw_20090123_7236.php

Regev: Hamas used phosphorus not Israel

An Israeli spokesman suggests Gaza phosphorus casualties may have been caused by Hamas after the Foreign Ministry admitted to using the weapon.

After weeks of mounting evidence and international outcry by human rights groups about the use of phosphorus shells by the Israeli army in the heavily populated Gaza Strip, Israeli government spokesman Mark Regev made an effort to shift the blame onto Hamas resistance movement.

"When you walk into a totalitarian government where people have injuries, how do you know that some of these ijuries ren't caused - for example - by Hamas munitions?," Regev told Britain's Channel Four.

When confronted by the Channel Four presenter for accusing Hamas, Regev argued that the democratically-elected government of Hamas is an "authoritarian government" and therefore reports gathered from witnesses in Gaza can not be relied upon.

He went on to lash out at a report by the channel's correspondent in Gaza for suggesting that "Israel went and randomly killed civilians" adding that it "is not clearly the case."

This is while according to Health officials in the embattled strip 23 days of intense Israeli military operation in Gaza left more than 1,300 Palestinians dead and some 5,450 others wounded.

On the other hand, according to the Israeli army, thirteen Israelis including three civilians were killed.

Regev's remarks came as Yigal Palmor, an Israeli Foreign Ministry spokesman finally admitted on Friday that the controversial chemical weapon was deployed in its offensive against the Palestinian territory.

"Yes, phosphorus was used but not in any illegal manner," Palmor told *The Times*. "Some practices could be illegal but we are going into that. The IDF is holding an investigation concerning one specific incident."

Palmor was referring to the Israeli shelling of a UN headquarters in Gaza where the compound was hit by three white phosphorus shells causing a fire which destroyed much of the aid supplies.

While international law permits the use of white phosphorus as an obscurant to conceal troop movement and prevent the enemy from using certain guided weapons, its use remains controversial in civilian areas, as it sticks to human skin and burns right through to the bone.

The burns cause death or leave survivors with painful wounds which are slow to heal. The chemical's ingestion or inhalation can also be fatal.

Human rights group Amnesty International along with many other countries has accused Israel of committing war crimes in the embattled Palestinian territory.

”Such extensive use of this weapon in Gaza’s densely populated residential neighborhoods is inherently indiscriminate,” Donatella Rovera, a Middle East researcher with Amnesty International, said in a Jan 20 statement.

”Its repeated use in this manner, despite evidence of its indiscriminate effects and its toll on civilians, is a war crime,” she charged.

http://www.presstv.ir/detail.aspx?id=83598&sectionid=351020202

Singapore opens border facility to reduce threat of chemical, biological attacks

Singapore has opened the world’s first border facility to weed out the threat of chemical and biological attacks.

Called the Protective and Analytical Facility, it is located at the Tuas Checkpoint in western Singapore.

About a million cargo vehicles pass through the Tuas Checkpoint every year. As the frequency in border crossings between Singapore and its neighbours increases, so too does the threat of a biological attack.

All hazardous cargoes and livestock entering Singapore must do so through the Tuas Checkpoint. This makes frontline customs officers at the checkpoint most at risk of exposure to chemical and biological hazards.

The new facility will strengthen Singapore’s defence against these threats. An early warning system will detect the release of hazardous agents at the checkpoint cargo lanes.

If there is a chemical spill or deliberate attack, those affected can wash themselves at the decontamination facility. There is also a laboratory to identify and analyse the chemical.

Singapore’s Deputy Prime Minister Wong Kan Seng, who is also the Home Affairs Minister, said: “Our checkpoints cannot be viewed simply as a mere crossing for efficient immigration and customs clearance procedures. It is the critical first line of defence of our national security.”

Citing the SARS episode in 2003, Mr Wong also warned against biological agents that could cause an outbreak in the country.

Mr Wong said while they may not be terrorist acts, their potential consequences are no less devastating.

http://www.channelnewsasia.com/stories/singaporelocalnews/view/403675/1/.html

RECENT DEVELOPMENTS IN SCIENCE AND TECHNOLOGY

Terrorists could use ‘insect-based’ biological weapon

Terrorists would find it “relatively easy” to launch a devastating attack using swarms of insects to spread a deadly disease, an academic has warned.

Jeffrey Lockwood, professor of entomology at Wyoming University and author of Six-legged Soldiers: Using Insects as Weapons of War, said such Rift Valley Fever or other diseases could be transported into a country by a terrorist with a suitcase.

He told BBC Radio 4’s Today programme: “I think a small terrorist cell could very easily develop an insect-based weapon.”

He said it would “probably be much easier” than developing a nuclear or chemical weapon, arguing: “The raw material is in the back yard.”

He continued: “It would be a relatively easy and simple process.

“A few hundred dollars and a plane ticket and you could have a pretty good stab at it.”

Governments, he advised, needed to have robust "pest management infrastructure that's able to absorb and respond to an introduction" of infected insects, he said.

Trying to stop everything coming in at the border would not work, he said.

Rift Valley Fever is an east African disease which "can cause severe disease in both animals and humans, leading to high rates of disease and death" according to the World Health Organisation.

However, WHO says that "the vast majority of human infections result from direct or indirect contact with the blood or organs of infected animals."

http://www.telegraph.co.uk/earth/wildlife/4123782/Terrorists-could-use-insect-based-biological-weapon.html

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

Bioterror and Biowarfare: A beginner's guide by - Malcolm Dando, Oneworld Publication, Oxford, UK 2006

P K Sundaram

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

Malcolm Dando convincingly argues that in the wake of rapid technological changes and spurt of international terrorism, we can not remain in our present situation—with holes such as the law enforcement problem in the Chemical Weapons Convention (CWC) and deficiencies such as the lack of verification of the BTWC in the web of prevention and our scientific communities lacking the knowledge and awareness necessary to assist in the protection of their science from abuse.

In a world where developments in technology are too rapid and diverse that chasing its course and incorporating its implications into state-policy has become a daunting task, it is incumbent on the experts in science to have dialogue with the policymakers, the strategic community and the society in general. Malcolm Dando is an internationally renowned expert in Life Sciences and is a researcher in international security at Department of Peace Studies in the University of Bradford. He lends his expertise to the cause of meeting the two ends of technology and policy in the increasingly vulnerable domain of bioterrorism and bioweapons. After his several acclaimed articles and a seminal and specialized volume titled *The New Biological Weapons: Threat, Proliferation, and Control(2001)*, it could be perhaps only him who could come up with this concise yet informative and comprehensive book *Bioterror and Biowarfare: A beginner's guide.*

Written in less than 200 small pages, the book provides an insightful peek into the problem of biological weapons. Divided into 10 chapters, the book presents an informed critique of the present biodefence and bioweapons control policies. The first four chapters are dedicated to outline a history of biological warfare since the pre-World War years upto 2004. This section underlines the critical issues, developments and policies concerning biological weapons in the said period. This also belies the idea that biological weapons are a credible but distant threat – from states using lethal biological agents indifferent campaigns to the various instances of its usage by non-state actors underlines the real risks involved and also the limitations of the arrangements such as Chemical and Biological Convention and other national policies.

Chapter five titled Biological Agents enlists and discusses the pathogens as categorized by the United States National Institute of Allergy and Infectious Disease (NIAID) and also the anti-agriculture pathogens. From the most common pathogens of smallpox and plague to the Anthrax and Botulinum, the chapter discusses the production, dissemination, effects

and cautions regarding all these deadly pathogens. Chapter six titled "The Impact of Biotechnology Revolution" traces recent developments in the genomic sciences and the challenges posed by them – "This new knowledge may help us to prevent and deal with biological warfare and terrorism by giving us better means of detection, protection and treatment....yet, preventing the malign misuse of this burgeoning technology will be a major task in coming decades."

In the last four chapters the author has discussed the likelihood of bioterror attacks, the existing prevention mechanism and the limitations of arms control and has provided with some generic yet comprehensive framework of dealing with such future threat scenarios. Dando underlines the gaps in the implementations and verification of the Biological Weapons Convention (BWC) and prescribes more public debates and awareness over these issues to influence state policies – "It certainly seems that much greater public interest and scientific and medical community attention will be required if the regime is to fare better in the coming decades." The book also looks into the intersections of international civil society, state-parties and the scientific community to grasp the reality and prevent eventualities. He emphasizes the need to update the BWC with taking into account the larger interests of all the stakeholders. The new set of threats caused by the so-called 'non-lethal agents' have also been covered in the book. Dando believes that a WMD scale use of biological agents is possible only at the level of state organized campaigns though the non-state actor could dreadfully use these pathogens to create civil and political panic for their malign purposes.

Malcolm Dando convincingly argues that in the wake of rapid technological changes and spurt of international terrorism, we can not remain in our present situation—with holes such as the law enforcement problem in the Chemical Weapons Convention (CWC) and deficiencies such as the lack of verification of the BTWC in the web of prevention and our scientific communities lacking the knowledge and awareness necessary to assist in the protection of their science from abuse. So we need to make some hard choices soon, or we may see the revolutionary new life sciences transforming the nature of conflict and greatly destabilizing international security.

Thus, this Beginner's Guide provides us with informative debate and suggestions that it becomes a necessary reference for the scholarship in the area and the policymakers alike. On the flipside, the volume falls short of analyzing the political intricacies involved and given the problems before multilateralizing any new ventures in the domain or updating the BWC, this should have been an important area of concern. Though the author emphatically underlines the failures of adopting unilateral policies for biodefence, there is definitely a need to discuss how there can be forged a realistic commonality of interests to deal with biological threats in coming times. Also, the huge commercial interests in the life sciences continue to complicate any transparent, credible and verifiable systems of prevention and countermeasures. The global corporations in the field find their way to negligence through different national legislations and other legal/ political loopholes – they also must be taken to the task.

Overall, the book stands worth of being a useful addition to the literature on the subject with its main thrust entirely convincing – the life processes at the core of human existence must not be manipulated for hostile ends.

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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.

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- 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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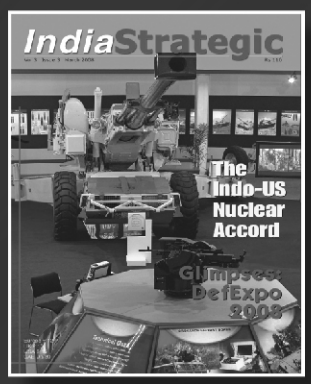

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