

The fact that all thoughts of a successful strike have to be abandoned because of the security bandobast can be as frustrating to a terrorist as is a successful terrorist strike for the security forces. That no terrorist strike happened during the Commonwealth Games can be interpreted as a success of deterrence created by the arrangement that was in place. However, the fact that it was event specific would leave other crowded localities in the city amenable to a CBRN event. It is, therefore, necessary both to conserve the trained manpower created for the occasion as well as to spawn an ever-widening network of trained personnel to continue the good work till all the highly-populated areas of the city are covered. This should be replicated in every city of India.

Safety and security concerns are very important in today's uncertain times. Phenomenon of terrorism is ubiquitous in India. We are surrounded by many unstable nations and have an active presence of many non-State entities from the subcontinent. Apart from war-torn countries like Iraq - India has suffered with perhaps the highest number of civilian victims of terror. The primary targets of terrorist activities include densely populated locations, crowded areas like markets, centres of religious faiths, religious congregations, mass transportation systems, shopping malls / streets, sensitive places like economic centres, tourist destinations, hotels, resorts, critical key infrastructures including industries, business houses, academia, strategic places, vital installations, heritage buildings, financial and technological hubs, hospitals, political meetings, symbols of political power, public functions and entertainment joints, clubs and mega sport events etc. There is plethora of such places all over where terrorist's swarming actions could wreak carnage and hold the rapt attention of the whole world.

Emerging trends

Terrorists, the world over, are not only getting more and more aggressive in their activities but also adopting newer modalities, techniques, technologies and strategies in their modes of operation to keep the surprise element in their operations. They are developing ideological, financial and logistical links with various

like-minded organisations. Their force multiplier includes connections (good networking amongst themselves as well as with rogue nations) and the fact that terrorist organisations are faster and more flexible. Over the years, the nature of terrorism has undergone fundamental changes. Terrorists no longer seemed bound by previous limits, when they sought attention to their cause, not deaths. By the 1990s, terrorists sought mass and indiscriminate killing and justified it by invoking higher, religious authorities. Present terror alert level is described as "less severe ... more complex and more diverse ... homegrown ...," as stated in "Assessing the Terrorist Threat" by Bergen and Hoffman, Bipartisan Policy Center, USA.

Conventional warfare armed conflicts by terrorists have become an exception rather than rule. During past decades India has not faced any overt war. In the non-conventional warfare there are three types of deterrent weapons of mass destruction (WMDs) - nuclear, biological and chemical (NBC) agents. The spread of WMDs and their means of delivery and the possibility that terrorists acquire them, are the principal threats facing the world. A new dimension of unannounced covert attacks (including that in low-intensity conflicts) involving CBRN agents is another imminent menace.

Developing scenario

Why would terrorists be tempted to use chemical, biological, radiological and nuclear (CBRN) agents?

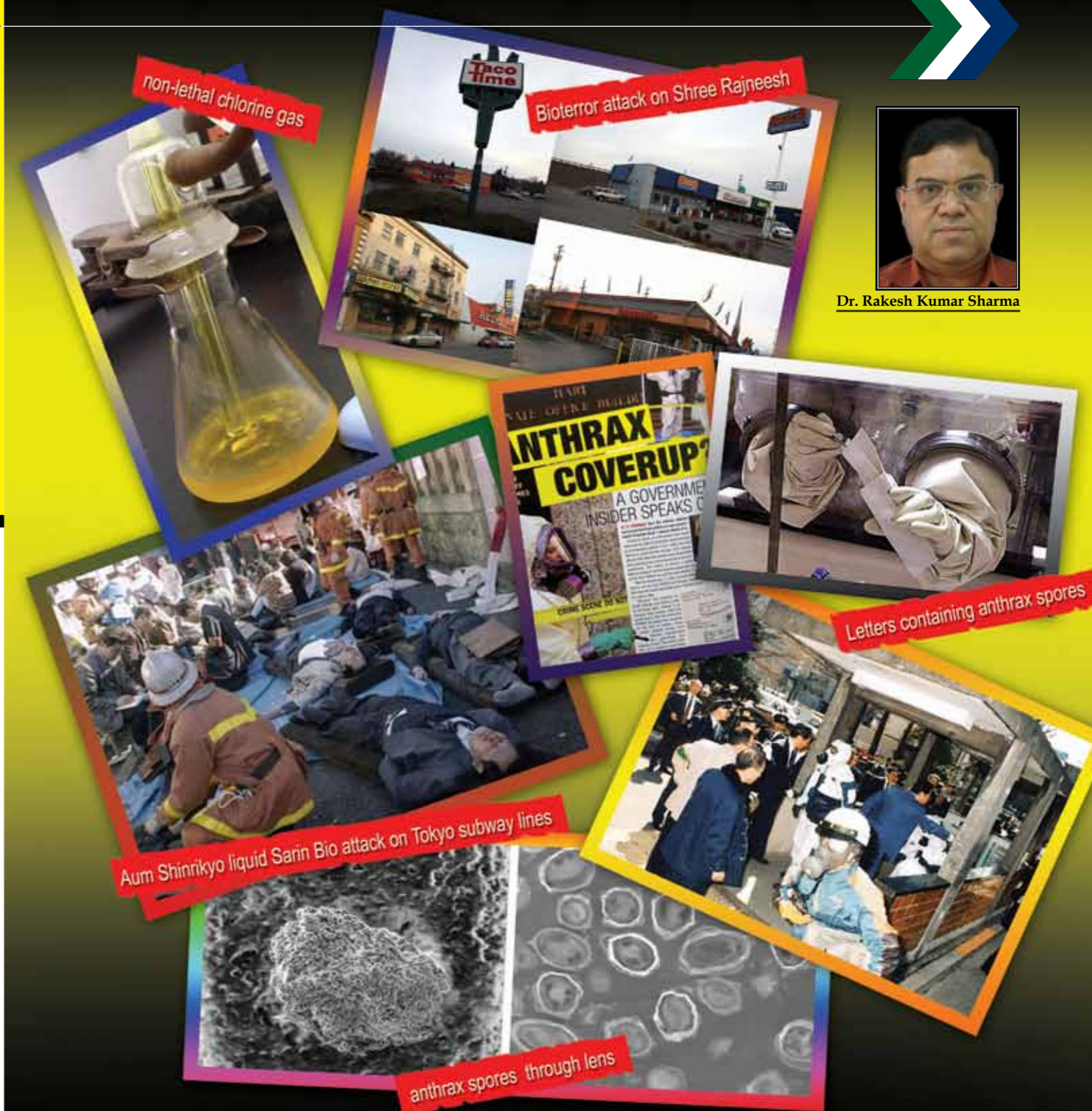
The twenty-first century has seen access to NBC technology in the hands of terrorist organisations. Even though terrorists consistently have used conventional explosives, movement adherents may also be willing to use WMD arsenal on a grand scale. Following predictions about the list of probable agents for CBRN attack (in descending order of likelihood) chronicled in the Annals of Emergency Medicine (1998) by Sharp and co-workers from CDC Science & Technology Center, are as relevant today as they were then:

1. Use of a conventional explosive
2. Release of an industrial chemical
3. Release of a military chemical agent
4. Use of a 'dirty' bomb
5. Release of a biological agent

The FBI's National Infrastructure Protection Center (NIPC) had earlier warned that "Al Qaeda and affiliated groups continue to enhance their capabilities to conduct effective mass-casualty CBRN attacks" and that Al Qaeda possesses "at least a crude capability to use" CBRN weapons.

Four CBRN attacks

There have been only four significant attacks involving use of toxic materials as unconventional weapons by terrorists during the last four decades. The first incident was in September 1984 Rajneeshee bioterror



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DRDO'S CWG shield

attack in the Deltas, Oregon, USA when Bhagwan Shree Rajneesh (now known as Osho) cult sought to depress voter turnout in a local election by clandestinely contaminating salad bars of 10 local restaurants with *Salmonella enterica* Typhimurium, sickening at

least 751 people. In June 1990, the Liberation Tigers of Tamil Eelam (LTTE) rebels in the Batticaloa district, in northern Sri Lanka attacked a Sri Lankan Armed Forces (SLAF) base with non-lethal chlorine gas canisters, injuring more than 60 military

personnel and enabling the LTTE to rout the fort. On the morning of 20 March 1995, members of an apocalyptic Japanese religious sect (Aum Shinrikyo cult) deployed 11 packages containing liquid Sarin (a nerve agent) on 5 Tokyo subway lines exposing nearly 5,000

At present, capacity in terms of adequate skilled manpower, material logistics and infrastructural facilities at various levels required for management and mitigation of such disasters is grossly far from being adequate ... There is a need to share the good practices and lessons learnt at all levels including London Olympics 2012 and Glasgow 2014 CWG etc., for raising CBRN preparedness for response during such mega sporting events. Let us take it as a challenge to create CBRN emergency resilience in all potential terrorist targets so that the occurrence of such incidents is prevented at the first place and efficiently responded to in the unfortunate event of its happening

persons (killing 12, with nearly 500 hospitalised). The 2001 anthrax attacks in the United States, occurred over the course of several weeks beginning on 18 September, 2001. Letters containing anthrax spores were mailed to several news media offices and two Democratic US Senators, killing five people and infecting 17 others.

The technical capacity of terrorist groups to produce or acquire and effectively deliver unconventional weapons varies considerably. Achieving catastrophic outcomes with unconventional weapons requires a considerable scale of operations. Only in a very few cases have groups been able to amass the skills, knowledge, material and equipment to perpetrate attacks with unconventional weapons on a scale that comes close to that of the danger posed by terrorist attacks with conventional explosives. The confluence of religiously inspired terrorism and technological diffusion "will impel terrorists to overcome technical, organisational and logistical obstacles to WMD use."

Terrorist are publicity hungry. They want a lot of people watching and a lot of people listening besides sizeable number of people affected in their encounters. During sporting events, particularly those with global appeal as recently witnessed during Commonwealth Games 2010 and ICC Cricket World Cup, fans and spectators congregate by tens to hundreds of thousands at various sporting / practice venues watching eminent athletes, officials and VIPs from across the globe. The world's elite electronic and print media are readily available to spread news at the speed of light. The terrorist organisations always lie in wait to utilise such global mega events for executing their nefarious designs.

CBRN an imperative threat

After the end of the 'Cold War' and the emergence of the non-State threat, there is a widespread fear that the dreaded WMDs would fall into the hands of terrorists. Responding to this threat, President Reagan issued Executive Order 12656, in November 1988. Federal Agencies were tasked to develop comprehensive plans to respond to the many permutations these threats posed. (Federal Register Vol. 53, No. 228, Wednesday, November 23, 1988).

It was widely believed till 1990s that terrorists would steer clear of using CBRN agents due to their perceived obsession with controlling events that they start. Terrorist were understood to harbour profound fear about dangerous toxic substances (which they knew little about) that they would harm or affect them as adversely as it would their intended target. During last two decades, the basic information about WMD resources (the spread of CBRN agents and knowledge of their means of delivery) is now easily available from open sources. The safety and security of existing CBRN materials remain tentative in many corners of the world. Knowledge of CBRN 'resources' and on Personal Protective Equipment (PPEs) to guard against unconventional weapons agents are easily available to extremists. There are clear indications that terrorists intend to acquire them for malicious purposes. Terrorist's capabilities have also increased due to the widespread availability of and easy access to dual-use technologies. The US National Strategy for Homeland Security had warned that the "expertise, technology and material needed to build the most deadly weapons known to mankind—including CBRN weapons—are spreading inexorably."

The historical record cautions against axiomatically suggesting that the Al Qaeda movement or any other terrorist group will inevitably successfully use CBRN weapons in a catastrophic attack.

Plans to thwart CBRN attack

'Preparedness' implies the state of readiness to deal with a threatening disaster situation or disaster and the effects thereof. Security has been a significant and highly visible presence. In addition to on-site protection, the Indian government sought and obtained information from other nations with respect to any possible terrorist risk. Preparing the nation to address the threat of CBRN terrorism is a formidable challenge because anticipating such attacks and dealing with the devastating consequences of the CBRN agents involved, are formidable tasks. It includes prevention, mitigation and capacity building both for human resource and infrastructure development. The key-point of thwarting potential CBRN attacks in the bud is the ability to prevent them from happening in the first place. Preventive measures are designed to foresee the problems that will demand interventions before the disasters. They include counter-terrorism strategies, risk and vulnerability assessment, surveillance and environmental monitoring, CBRN security and early warning system (EWS) and prevention of illegal trafficking of hazardous CBRN agents including waste. This calls for implementation of far greater police control. Basic issue is 'Upto what levels of insanity do we have to prepare for?' There is a global intellectual consensus that acts of terror shall not be accepted under any circumstances.

It may be impossible to prevent



the fanatic from acting on impulse, but we have to have the people and resources to make it as hard as possible for evil to be carried out against sportsmen, sportswomen and spectators. Effective response plans need to be essentially developed to manage such attacks, if and when they occur.

DRDO's contribution

Ministry of Defence and DRDO play a leading role in preparing the nation and local response forces to protect, prevent, deter and respond to acts of terrorism events involving hazardous or toxic CBRN materials. Training opportunities for governmental emergency responders (military, paramilitary and civilian) were designed to prepare these teams by generating necessary awareness and imparting training on techniques, procedures, aptitude, knowledge and skills so as to raise their preparedness to confront disaster situations involving the dreaded CBRN agents.

These courses were designed for someone with a basic level of knowledge and understanding of CBRN agents. The training course presented instruction that incorporated advanced competencies, technology and tactics that focus on the specific threats associated with CBRN material. Based on training need analysis, these courses provided the trainees with an overview of the international and domestic threats with a spotlight on detection of a CBRN event and identification and decontamination of CBRN hazards. The course also includes familiarisation with PPEs for operating in an all-hazards environment and preservation of incident scene evidence for forensic investigations. The five-day course provided the trainees

from the classroom teaching to hands-on experience to interactive sessions with experts.

Mock exercises were conducted to allow trainees to locate and identify the toxic substance, practice coordination with other responders and emergency functionaries and reinforce their new skills and knowledge in a realistic training environment. Clarity of roles and responsibilities for each agency as well as a coordinated strategy are vital. The exercise areas were enhanced with realistic props, loud and confusing noise, alarms and theatrical smoke.

Multi-agency integration and interoperability was the single largest challenge to the participants in coordinating an effective CBRN response. The trained responders took these challenges and incorporated their experiences to develop a positive heartening response. Typical feedback of a course participant was ... 'I feel that I have a better awareness about the CBRN threats and how to protect the public, manage chaos, stay prepared and respond if something of this type happens'. In addition a Quick Reaction Team was raised that used to survey the stadiums daily at night to collect the CBRN baseline data. Thumb rule of success was - when planning for covert attacks involving CBRN agents, one should think more than a terrorist, while during implementation, one should think oneself as an incident victim.

Start of new era?

The Games are over, but we should not let our guard down. And talk about a 2020 Olympic Games for India is still premature until questions about foolproof security of Games can be fully answered. Even though

the world witnessed the undisturbed and trouble-free completion of the CWG 2010, the conduct of this faultless feat cannot be solely attributed to our state of intelligence (in collaboration with counterterrorism cooperation with US, UK, Germany and Israel etc.), great prevention job done by our dedicated security forces and our overall crisis management system. We need to also thank our lucky stars in this winning spree on all fronts.

The need to prevent, to create awareness, to be prepared, to meet situations created by CBRN emergencies - all over the world, is much more today than ever before. The emergency response agencies need to avoid complacency. Concerted efforts should be made to prepare for a wide range of potential terrorist attacks that will likely include CBRN material.

At present, capacity in terms of adequate skilled manpower, material, logistics and infrastructural facilities at various levels required for management and mitigation of such disasters is grossly far from being adequate. One should not wait for any 'Wake up' attack / incident to prompt us to raise our CBRN preparedness for response and requirement of enhancing skills of all responders for a unified and coordinated reaction in the public domain.

There is a need to share the good practices and lessons learnt at all levels including London Olympics 2012 and Glasgow 2014 CWG etc., for raising CBRN preparedness for response during such mega sporting events. Let us take it as a challenge to create CBRN emergency resilience in all potential terrorist targets so that the occurrence of such incidents is prevented at the first place and efficiently responded to in the unfortunate event of its happening. **DSA**

(Disclaimer: Opinions, conclusions and recommendations expressed or implied within are solely those of the writer, and do not necessarily represent the views of the Institute of Nuclear Medicine and Allied Sciences (INMAS) or any other Indian government agency.)

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