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CBRN Terrorism: Threat Assessment

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Terrorism is a phenomenon that emphasises on the systematic use of physical violence or the threat of use of physical violence against civilians to cause a general climate of fear and uncertainty among them for political and social change. In other words, terrorists trigger fear and uncertainty among the target civilian populace to meet their political, ideological, and religious requirements. Though there is no universally accepted definition of terrorism, the phenomenon can be distinguished from other forms of violence or from ordinary crime from the fact that terrorism is political in nature as it is all about 'power' – pursuit of power, acquisition of power and use of power – to achieve political change.[1] Terrorism is aimed at elevating the targeted population's anxiety and increasing the government's expenditure on defensive measures. The prospect of Chemical, Biological, Radiological, Nuclear (CBRN) terrorism against liberal democratic countries, whose legitimacy rests on protecting the lives and property of their citizens, not only elevates the anxiety of the people to a much higher level but also forces greater defence expenses on the state.

Key Points

1. Prospect of CBRN terrorism not only elevates the anxiety of a population of a given country but also forces greater defence expenses on the state.
2. CBRN terrorism is intended for psychological effect and is considered a force multiplier for terrorists.
3. There are factors that dictate terrorist pursuit of CBRN weapons.
4. The evolution of CBRN terrorism has elicited international methodology to counter the threat.
5. India has taken the threat of CBRN terrorism seriously and has devised mechanism to deal in case of such eventuality.
6. Construction of CBRN weapons by terrorist is a possibility that cannot be ignored.

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CBRN Terrorism ...

Contemporary international politics is at a dynamic stage wherein there is constant churning partly due to the complexities of world matters and partly due to non-state actors gaining prominence in world politics. The complex interdependence in the globalised world, particularly in the post-Cold War period, is seen to be driven by challenges posed by non-state entities where they challenge the legitimacy of established nation states all over the world.[2] Besides having added new dimensions to modern-day conflicts, modern-day terrorists no longer seem to be bound by previous limits as when they sought attention to their cause rather than deaths. In other words, modern-day terrorism seeks mass and indiscriminate killings justified by invoking higher, religious authorities.

Based on the extraordinary spectacle of terrorist violence, one can safely assume that terrorists have not only become more global in their reach but have also hugely enhanced their capabilities in terms of weaponry and the lethality of their attacks. Whatever the weapons that the terrorist may use, these are often referred to as 'weapons of mass destruction' because of the ability to kill large numbers of unarmed people.[3] In this context, the contemporary discourse on terrorism has shown that CBRN terrorism is perceived to be one of the greatest threats facing the world today.

Since 9/11, it has been widely assumed that terrorists are intent on causing the highest possible numbers of casualties and that CBRN weapons present them their best opportunity for achieving such intentions.[4] As increasing numbers of reports emerged indicating terrorists' interest in CBRN weapons, numerous countries saw it as an indication of the emergence of a new threat that presented a clear and present danger of CBRN terrorism. Although the CBRN weapons used thus far by non-state entities have not yet caused mass destruction, they have had considerable effects on the societies against which they were used; which goes to show that one of the main motivations behind the use of CBRN weapons is the psychological effect on the targeted population. Additionally, the effects of terrorists' use of CBRN weapons is considered a force multiplier in that the psychological impact of these weapons on the general population of a country is so great. The threats of CBRN terrorism are becoming increasingly relevant due to the easy access to technical information, technologies, materials and specialist data on CBRN warfare agents. Subsequent use of such weapons puts the unprotected population in great danger of losing their lives as even a small amount of a CBRN agent can bring about massive devastation.

In retrospect, CBRN weapons have been used throughout the 20th century. For instance, mustard gas was used in World War I, nuclear bombs were dropped by the United States on Japan at the end of World War II, chemical weapons were used by Iraq against its own population in 1988, and Sarin gas was dispersed in the subway system of Tokyo by the religious sect Aum Shrinikyo in 1995.[5] Though there have been only a few cases of terrorists' use of CBRN weapons, an unclassified Central Intelligence Agency (CIA), report of May 2003, "Terrorist CBRN: Materials and Effects" revealed that Al Qaeda and associated extremist groups had a wide variety of potential agents and delivery means to choose from for CBRN attacks. Further, it asserted that Al Qaeda had crude procedures for making the VX[6], mustard agent and Sarin.[7] Additionally, the *Information Bulletin* of the Federal Bureau of Investigation's (FBI's) National Infrastructure Protection Centre (NIPC), alleged that Al Qaeda had experimented with procedures for making blister (mustard) and nerve (Sarin and VX) chemical agents.[8]

It has been argued that besides exogenous and internal restraints that prevent some terrorist groups from pursuing CBRN weapons, groups that seek to acquire and use them have a few key factors in common, viz. mindset of the group's leaders,

the opportunities they seize, and the technical capabilities they possess. In other words, there are factors that restrain terrorist and insurgency movements from pursuing CBRN weapons as their means of violence. Alternatively, terrorist groups may resort to the use of CBRN weapons to capitalise on what they perceive as a practical opportunity to accomplish a desired end. For instance, it has been alleged that the use of chlorine by the Tamil Tigers in its 1990 attack on a Sri Lanka Air Force fort was due to the group running low on conventional weapons.

Certain terrorist groups may be inclined toward innovation in weaponry and tactics, and risk-taking in operations or in weapon selection, but experts are of the view that many prefer to use 'tried and tested' methods which can achieve the desired effect. Innovation, particularly in the realm of CBRN, is often likely to be driven by factors other than an organisation's own curiosity or desire for experimentation, increasing availability of materials, and a penchant for mass destruction.[9] However, the emergence of 'new terrorism', religiously oriented or millenarian terrorist groups with an entirely new perspective of violence have propelled the threat of CBRN terrorism. The 'new terrorists' view their struggle as part of a battle of 'good versus evil' or as a precursor to judgment day or the apocalypse. Such groups are detached from what might be considered 'moral norms' or other social constraints and do not feel restricted in considering the possibility of CBRN weapons use.[10]

Threats of CBRN terrorism can be better understood when one considers the key assumptions, arguments, evidence and conclusions put forth primarily by three schools of thought, viz. optimist, pessimist, and pragmatist schools of thought.[11] Firstly, optimists argue that CBRN terrorism is a "very low probability and very low consequence" threat. This school of thought believes that terrorists lack the innovation and capability to acquire and use these weapons. Optimists also believe that there is an inverse relationship between a terrorist organisation's degree of interest in CBRN weapons and the capability of the group to use such weapons to cause mass casualties. They further argue that focussing on "low probability and high consequence" threats like CBRN terrorism distracts from more probable types of terrorist attacks such as car bombs, hijackings, and suicide attacks.

Secondly, though the pessimists believe that CBRN terrorism is a "low probability and high consequence threat", due to the increase in the capabilities and inventions of terrorist groups, for this school of thought, CBRN terrorism is a growing threat. They are of the view that the technical capabilities of non-state actors to acquire or develop CBRN weapons have improved as a result of globalisation, advances in science and technology, and greater availability of CBRN materials, technology and knowledge from the former Soviet Union. In addition, the rise of religiously motivated terrorist groups is seen as one factor that negates the constraints that have historically deterred secular terrorist groups from causing mass casualties and seeking CBRN weapons.

Thirdly, the pragmatist school of thought believes that CBRN terrorism is a "low probability low consequence" threat. This school of thought tends to pay less attention to the vulnerability and consequences of risk, and emphasises more on understanding how and why terrorist groups develop both the intent and capability to pursue CBRN weapons. Pragmatists perceive development and acquisition of CBRN weapons by terrorists to be sensitive to the challenges in transforming CBRN-related materials into operational weapons.

9/11 is considered a watershed event in the discourse of terrorism in the 21st century. However, even before 9/11, terrorist attacks had demonstrated an organisational capacity to plan, coordinate, and implement operations well above the threshold of competence necessary to acquire and use CBRN

weapons. After 9/11, when terrorism analysts and other specialists reexamined the patterns of terrorist attacks in an effort to get a sense of what future terrorist attacks would be like, the astounding conclusion that was drawn out of such reexamination was that the achievements of terrorists in 9/11 point towards possible future mega-terrorist attacks with CBRN weapons.

In the present-day, West Asia continues to be the region where CBRN weapons are an ongoing threat to civilians as well as troops and forces operating in the Islamic State (IS)-led conflict. Further, reports of Chemical Warfare Agents (CWAs) suggest that both the Syrian government forces and the IS have regularly used chemical weapons through 2014 and 2015.[12] Hence, CBRN weapons constitute an important part of present-day terrorism risks. Further, it has been argued that this risk is becoming a growing concern as there is evidence that the insecurity in West Asia has emboldened terrorist groups to acquire and develop such weapons of catastrophe.

Acquisition of CBRN weapons by terrorist has, thus, far proved to be expensive, and they have proved difficult to use, and largely ineffective in real-world applications.[13] A comparison of the Aum Shinrikyo chemical and biological attacks in Tokyo with the March 2004 *jihadist* attacks in Madrid demonstrates that explosives are far cheaper, easier to use, and more effective in killing people. The failure by the *jihadists* in Iraq to use chlorine effectively in their attacks also underscores the problem of using improvised chemical weapons. These problems were also apparent to the Al Qaeda leadership, which scrapped a plot to use improvised chemical weapons in the New York subway system due to concerns that the weapons would be ineffective.[14] Nonetheless, analysts are of the view that one cannot negate the fact that *jihadists* are capable of using a chemical storage site or tanker car, or use such bulk chemicals to attack targets – much as the 9/11 hijackers used fuel-laden passenger aircraft to attack their targets. Similarly, it has been argued that Radiological Dispersal Devices (RDDs) or "dirty bombs" may not be able to kill a large number of people but the devices' radiological component would result in mass panic and evacuations, and would force a long and expensive decontamination process.

Although terrorist organisations have sought scientists with applicable expertise in CBRN weapons, there are no corroborating reports that indicate such experts are advancing the terrorists' CBRN capabilities. In spite of this discrepancy, however, one cannot deny the worldwide availability of advanced military and commercial technologies and information, which combined with commonly available transportation and delivery means, may allow terrorists the opportunities to acquire, develop, and employ CBRN weapons.

With the evolving threat of CBRN terrorism, organisations like INTERPOL have devised a methodology to counter such threats worldwide. The methodology includes operational data services, investigative support, and capacity building.[15] *Operational data services* primarily deal with the publication of regular analytical reports, shared with member countries and other subscribers summarising relevant open source reporting about all aspects of CBRN crime and terrorism, thereby, providing an analytical perspective on a particular CBRN usage. *Investigative support* deals with requests to INTERPOL for providing operational support to its member countries in the form of an incident response team. Other than deploying staff with expertise in CBRN matters, INTERPOL runs a number of initiatives, projects and operations supporting the international law enforcement community in tackling the illicit trafficking of CBRN materials. INTERPOL carries out the following activities towards *capacity building: c*onducting threat assessment and analysis; engaging in efforts to increase the level of CBRN awareness in law enforcement agencies;

delivering training sessions in order to increase law enforcement capabilities; and providing prevention methodologies for use by member countries.

The threat of CBRN weapons' proliferation by terrorist organisations has become a major concern for the international community, which India also shares. In this regard, the then Defence Minister of India, A.K. Antony, when asked about India's preparedness to CBRN attacks, replied in the Parliament that India has "Quick Reaction Medical Teams" to counter asymmetric warfare scenarios like a CBRN attack. It is important to note that India is a party to the Convention on the Physical Protection of Nuclear Materials. India also supports the implementation of UN Security Council Resolution 1540 and its extension Resolution 1977, which aims to prevent terrorists gaining access to CBRNs. India is also a participant in the International Atomic Energy Agency's (IAEA's) Illicit Trafficking Database (ITDB), which disseminates information on confirmed reports about illicit trafficking and other unauthorised activities on CBRNs.

In 2012, the Government of India approved the formation of a CBRN Materials Centre that will manage potential CBRN disasters. Subsequently, with the aim of combatting the threat of CBRN weapons, the Defence Research and Development Organisation (DRDO) has developed next generation radiological defence equipment to counter the threat of a 'dirty bomb'. Additionally, DRDO has taken major steps to update capabilities to counter a CBRN weapons attack. DRDO has reportedly invented a 'portable gas chromatograph', which can detect chemical warfare agents. This has been converted into a chemical paper, which will be placed on soldiers' uniforms and any change in colour will enable the soldiers to detect chemical contamination.[16]

DRDO has also invented an antigen-based diagnostic kit to aid in the diagnosis of typhoid, leptospirosis, dengue, H1N1, malaria, plague, anthrax and other diseases. The newly invented reconnaissance vehicles and remotely-operated vehicle Daksh have also been developed with an aim to aid in identifying chemically contaminated areas and removing any potential radiation source. Mobile decontamination vehicles have also been developed by the DRDO. Further, the National Disaster Management Authority (NDMA) has formulated National Guidelines for Management of Nuclear and Radiological Emergencies. There was a proposal from NDMA for a model centre for a medical response to CBRN casualties in collaboration with the Armed Forces Medical Services and DRDO. The model CBRN centre is also to act as a model to be replicated in earmarked hospitals in other parts of the country for effective medical response in the case of a CBRN eventuality. It is also important to note that the Indian Navy has set up a CBRN defence training facility to enable its personnel to develop skills in fighting CBRN attacks during conventional wars or terror strikes.

Indian delegations have been regularly visiting the US for the purchase of the infra-red technical system which stands guard at various subway stations against CBRN threats. India has also sought cooperation from the US for use of Information Technology (IT) solutions to manage security contingencies in mass rapid transport systems. Finally, reports have emerged that India is likely to highlight the 'best practices' in the international nuclear industry and its national nuclear safety record in the Nuclear Security Summit (NSS) which will be held from March 31-April 1, 2016, at the Walter E. Washington Convention Centre in Washington, DC, USA.

In conclusion, it is important to note that case studies have been carried out by the Monterey Institute's Centre for Non-Proliferation Studies, spanning over 50 years, wherein the findings of the initial study raised doubts about the possibilities of terrorists interest in, and use of, CBRN weapons. Some of

the important observations made during these case studies reveal that the mindset of the leadership, opportunities and technical capacity are some of the most significant factors that influence a terrorist group's propensity to seek, acquire and use CRBN weapons. Media reports about the IS using mortars filled with chlorine in its operations in Iraq confirm the usage of certain elements of CBRN weapon systems by terrorist organisations. But with the rise in the level of expertise of the terrorists' explosives experts, the possibility of terrorist organisations succeeding in obtaining CBRN materials that may be used for the construction of CBRN weapons is a hard reality that cannot be ignored.

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Notes

1. For details, see Assaf Moghadam, *The Roots of Terrorism* (New York: Chelsea House, 2006).
2. Many new actors have been added to the international scene and a number of actors, not necessarily the states themselves, that are carrying out unlawful activities, have grown to include sub-national groups such as the terrorists.
3. For details, see Robert J Hayer (2006), "Introduction to CBRNE Terrorism: An Awareness Primer and Preparedness Guide for Emergency Responders," *DERA Monograph,* 20
4. James Robertson (2011), "How Appealing are CBRN Weapons to Terrorist Groups?", www.e-ir.info. Accessed on February 17, 2016, URL: http://www.e-ir.info/2011/07/26/how-appealing-are-cbrn-weapons-to-terrorist-groups/
5. Andrea Mazzone (2013), "The Use of CBRN Weapons by Non-State Terrorists," *Global Security Studies,* 4 (4): 24
6. VX is an extremely toxic substance that has no known use except in chemical warfare as a nerve agent.
7. For details, see CIA, Directorate of Intelligence (2003), "Terrorist CBRN: Materials and Effects", www.cia.gov. Accessed on March 09, 2016, URL: https://www.cia.gov/library/reports/general-reports-1/CBRN_threat.pdf
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10. Ibid.

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11. Example of optimists include the likes of Brian Jenkins, Ehud Spriznak, Milton Leitenberg, John Mueller, and Robin Frost; examples of pessimists include the likes of Richard Falkenrath, Ashton Carter, Richard Danzig, Tara O'Toole, and Graham Allison; examples of pragmatists include the likes of Jessica Stern, John Parachini, Jonathan Tucker, Jean Pascal Zanders, the Gilmore Commission, and Bruce Hoffman. For details, see Gregory D. Koblentz, "Predicting Peril or the Peril of Prediction? Assessing the Risk of CBRN Terrorism", *Terrorism and Political Violence,* 23 (4), 2011, pp. 501-520 .
12. CWA suggests that the Syrian government forces air-dropped barrel bombs of chlorine gas and ammonia on rebel-held areas in Syria through 2014 and 2015; and IS operatives bombed with chlorine at Deir Ezzor airport in December 2014. Sarin was also attributed to Syrian government attacks in 2013.
13. Scott Steward, "The Jihadist CBRN Threat", *Security Weekly,* February 10, 2010.
14. For details, see Fred Burton (2006), "The Chemical Threat to Subways: Dispelling the Clouds", www.stratfor.com. Accessed on March 11, 2016, URL: https://www.stratfor.com/sample/analysis/chemical-threat-subways-dispelling-clouds?amp%3Buuid=0162633d-5b70-4652-96e1-ccf9feaf0e28&id=%2A%7CLIST%3AUID%7C%2A
15. For details, see INTERPOL, "Preventing CBRNE Terrorism", www.interpol.int. Accessed on March 11, 2016, URL: http://www.interpol.int/Crime-areas/Terrorism/CBRNE
16. For details, see CASS-India, "Escaping Hazards", www.cassindia.com. Accessed on February 16, 2016, URL: www.cassindia.com/inner_page.php?id=28&&task=nuclear

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