How Appealing are CBRN Weapons to Terrorist Groups?

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Chemical, biological, radiological and nuclear (CBRN) terrorism is often portrayed as one of the greatest threats facing the world. Since 11th September 2001 it has been widely assumed that terrorists are intent on causing the highest possible numbers of casualties and that CBRN weapons present their best opportunity for achieving this, thus it is often claimed it is vital to take measures to prevent terrorists from gaining access to these so-called weapons of mass destruction (WMD). A comparison of Aum Shinrikyo – the perpetrators of the most lethal CBRN terrorist attack to date – and al-Qaeda – the group considered most likely to carry out an attack of this nature in future – reveals that these unconventional weapons in fact have a very limited appeal to terrorist groups, and that this appeal may in fact have diminished rather than increased over the last two decades. By exploring the circumstances which allowed Aum Shinrikyo to pursue its CBRN programme and placing them in contrast to the position of al-Qaeda since 2001 it can be shown that at least the top leadership of al-Qaeda has little to gain and much to lose by launching any form of mass casualty attack, and that in any case the use of CBRN weapons is far from guaranteed to produce this outcome. Chemical, biological and radiological weapons might be used by smaller extremist groups with links to al-Qaeda, but the operational limits on these groups would make any mass casualty outcome unlikely, and the potential benefit would be minimal in return for the difficulties and dangers of using unconventional and unfamiliar weapons.

Recent literature on CBRN terrorism has focused strongly on the issue of acquisition, working on the assumption that if terrorists can get hold of these weapons then they will not hesitate to use them. Thus much of the academic debate revolves around the ease with which terrorists could construct a WMD or steal or buy one (Bunn & Weir, 2006), and much of the policy debate around how to prevent the requisite materials from falling into the wrong hands. This has led to the alarming conclusion reached by the Commission on Prevention of Weapons of Mass Destruction Terrorism and Proliferation that 'unless the world community acts decisively and with great urgency, it is more likely than not that a weapon of mass destruction will be used in a terrorist attack somewhere in the world by the end of 2013' (2008: xv). It is important to examine the logic behind such alarmist statements and question the fundamental assumption that terrorists are not only prepared, but determined to use CBRN weapons.

Aum Shinrikyo: a unique case?

Aum Shinrikyo's release of sarin gas on the Tokyo subway system in 1995 remains the most deadly CBRN attack to date, killing twelve people. Despite fears articulated by authors such as Jessica Stern (2000: 157) that future terrorists would learn from Aum's experiments, it did not mark the beginning of a new era in terrorist methods. This can be explained through the very particular circumstances which allowed Aum to carry out this attack. Aum was uniquely well-resourced, with financial assets worth hundreds of millions of dollars (Jackson et al. 2004: 11), and facilities in several different countries including a ranch in the Australian outback where it carried out its experiments using sarin gas. These resources were essential to Aum's pursuit of CBRN weapons (Falkenrath, 1998: 23).

The cult was dedicated to 'causing great chaos and loss of life' (Tucker, 2000: 216), believing that its activities were to instigate an apocalyptic war between the United States and Japan. The psychological dimension of CBRN weapons was clearly important in the group's decision to pursue them. The chemical and biological weapons used in

all the group's attempted attacks fitted with its apocalyptic goals since '[t]he idea of infection caused by invisible agents is frightening. It touches a deep human concern about the risk of being destroyed by a powerful, evil, imperceptible force.' (Holloway et al., 2004: 183-184) Aum wanted to jolt the Japanese population into awareness of the impending apocalypse, so the shock-value of CBRN weapons had a unique appeal for them, but also key their strategy was the belief was that these weapons would also cause a huge number of casualties.

Aum's ideology not only made CBRN weapons especially appealing, but it also freed the cult of the restraints that might otherwise prevent their use. Aum was unconcerned about losing the support from any external community. The group became increasingly paranoid in the 1990s, believing the rest of society was conspiring against it, and by the middle of the decade its recruitment had slowed dramatically (Jackson et al., 2005: 13). When the sarin gas attacks were carried out, a more severe retaliation by the government was also not a concern, as Aum already believed the police were planning an imminent raid on its facilities regardless. The group believed it had nothing to lose. The preconditions for Aum to break the norms against use of CBRN weapons can be summarised as follows: a determination to carry out a mass casualty attack and a belief that CBRN weapons were an appropriate method to achieve this; a lack of important external support which could be withdrawn; and a disregard for the possibility of retaliation.

Al-Qaeda: strategic restrictions

These preconditions are clearly lacking from al-Qaeda's circumstances today. Although it is believed to be one of the only terrorist groups with the necessary resources to carry out a CBRN attack (Mowatt-Larsen, 2010: 7), it has not done so for several reasons. To begin with, even if al-Qaeda is seeking to carry out another mass casualty attack, it is now far from obvious that CBRN weapons would be the most effective means to achieve this. If terrorists have learned from the experiences of Aum, as Jessica Stern feared, the lesson seems to have been that CBRN weapons are less effective and less reliable than conventional methods. Had explosives been used in the cult's 1995 attacks the number of casualties would almost certainly have been higher. The death toll of twelve, while tragic, was far lower as a result of the inefficiency of the delivery system used. The problems resulting from the increased complexity of CBRN weapons have been supported by al-Qaeda's own experiments; it has been reported that they abandoned efforts to produce nerve gas after concluding they had been a waste of time and money (Bunn & Weir, 2006: 146). Quillen suggests that these difficulties may have dissuaded al-Qaeda from using CBRN weapons:

'It is possible that al-Qaeda's success with the September 11 attacks has set the bar too high for its current CBRN capabilities. Al-Qaeda may be concerned that a CBRN attack that "only" kills dozens of people would be perceived as a relative failure and demonstrate its weakened position relative to its pre-9/11 stature.' (2007)

The added complexities and poor historical record of CBRN attacks mean that terrorist groups 'seeking to cause large amounts of casualties… will tend to employ weapons of a more conventional nature, though will perhaps do so in more elaborate ways' (Palfy, 2003: 82).

Despite the impression that al-Qaeda has 'clearly demonstrated its willingness to engage in indiscriminate killing on a massive scale without fear of losing the support of its followers' (Quillen, 2007), the organisation has in fact shown itself to be concerned with its image across the Islamic world. Although ostensibly aimed at a Western audience, much of bin Laden's *Letter to America* sought to justify the 11th September attacks to Muslims, and the group's leadership have also distanced themselves from attacks with the potential to cause uncontrollable damage. When discussing the selection of targets for the 11th September attacks, Khalid Sheikh Mohammed stated in an interview that 'we [al-Qaeda] first thought of striking at a couple of nuclear facilities but decided against it for fear it would go out of control' (Guardian, 2003). These statements have been taken by Stone to show that 'it is evident that Muslims the world over remain concerned about some of Al Qaeda's methods, and that these concerns have been taken seriously' (2009**,** 767). It certainly seems that al-Qaeda does not have the freedom that has often been attributed to it to carry out attacks regardless of their impact on Muslim opinion.

Finally, al-Qaeda is almost certainly concerned with the possible retaliation following any further mass casualty attack. The 11th September attacks have been seen by several commentators as counterproductive from the

perspective of al-Qaeda (Mueller, 2010: 229). The invasions of Afghanistan and Iraq have proven the readiness of the West to respond with overwhelming force to mass casualty terrorist attacks, and such attacks may deter potential financial supporters. As a result of the invasion of Afghanistan the central organisation of al-Qaeda 'is on the ropes' (Friedman, 2005: 28). It is heavily dependent on its safe haven in the tribal areas of Pakistan, and will be aware of the danger that a CBRN attack 'will lead to U.S. troops on Pakistani soil (with or without Islamabad's consent) and the subsequent end of al-Qaeda's safe haven' (Quillen, 2007). Charles Curtis' argues that the only way to prevent a WMD attack on the United States using CBRN weapons is 'to diminish hatred' of the USA (2006: 32). This is demonstrably not the case, al-Qaeda is subject to a wide range of considerations and limitations that deter the leadership from launching a CBRN attack.

Al-Qaeda affiliate groups: strategic freedom, practical limitation

It must be noted that these limitations may not apply to all terrorist groups. The central organisation of al-Qaeda must be distinguished from the smaller al-Qaeda inspired groups across the world. These groups are not under direct command from the al-Qaeda leadership, and may be 'motivated less by strategic calculation than by a desire to inflict maximum damage on the West' (Stone, 2009: 770). These groups would be less concerned with the restricting influences discussed above, but limited by their smaller size and more limited resources. As Stone notes, groups seeking to carry out CBRN attacks 'would probably be small and poorly resourced, because their goals would attract relatively limited local support and would hardly recommend themselves to the likes of strategically minded individuals' (2009: 770). As a result, these groups are potentially more likely to carry out a small-scale CBRN attack. An al-Qaeda inspired group is known to have considered detonating an improvised radiological device using radioactive element americium-241 in a major European city (Times, 2006) and the New York Police Department has acknowledged the risk of the use of an improvised chemical weapon in the city following the use of chlorine gas by insurgents in Iraq (NYPD Counter Terrorism Bureau, 2007).

These potential attacks have not posed the threat of a mass casualty outcome. It is widely acknowledged that the number of smoke detectors needed for such an attack would be so astronomical as to be entirely impractical, and chlorine is regarded as a largely inefficient weapon. Its use in Iraq has again highlighted the issue with delivery systems terrorists face with CBRN weapons, as the high temperatures caused by the explosions of the bombs oxidise the chlorine, reducing its toxicity (USA Today, 2007). Despite these problems, small scale plots of this nature remain the most likely form of terrorist CBRN attack. Even when discussing these smaller groups, it is difficult to disagree with the conclusion reached by the Congressional Report Service when discussing the risks of a small-scale chemical or biological attack that 'the ease of using conventional weapons so heavily outweighs the potential benefits of using a more challenging, unconventional method that it makes [chemical/biological] terrorism unlikely.' (CRS, 2004: 6) This conclusion can justifiably be stretched to include radiological terrorism, while the difficulties of acquisition make nuclear terrorism a virtual impossibility for these smaller groups which lack the resources enjoyed by Aum Shinrikyo and al-Qaeda's central leadership.

Conclusion: great risks for little benefit

To the rational terrorist, acting with concern to the strategic considerations of external support, possible retaliation and mass-casualty outcomes, CBRN weapons are of limited appeal. Aum Shinrikyo's ideology and the circumstances by the mid-1990s acted to free it from these restrictions. Since then, the appeal of CBRN weapons as a tool of terror has diminished. It has been demonstrated through Aum's experience that CBRN does not equal WMD. Even if this was the case, the counter-productive attack of 11th September 2001 means that a group such as al-Qaeda would be concerned with the potential loss of support and the probability of retaliation following another mass-casualty attack. Those smaller al-Qaeda affiliated groups may not have the same concerns, but their comparative lack of resources means any CBRN attack would probably be on a small scale, and less deadly than a similar attack using conventional explosives. Terrorist groups have little incentive to attempt to use CBRN weapons.

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