The Credibiity of the Terrorist WMD Threat

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International terrorism poses one of the greatest strategic challenges in the modern age as groups have become able to cross borders and carry out operations globally; and has gained a renewed focus since the events of September 11th 2001. It is possible that terrorists might attempt to acquire weapons of mass destruction which could then be used anywhere in the world. The term 'weapons of mass destruction' itself is a relatively new term and normally encompasses chemical, biological, radiological and nuclear weapons (CBRN).[1] These are incredibly varied in their effects as well as their availability, and whilst terrorist groups might want to acquire such "weapons of terror", the effectiveness of such weapons compared to conventional explosives may be disputed.[2] Aum Shinrikyo for example is probably the most famous terrorist group to acquire and use weapons that would now be classified as WMDs, but was only able to do so due to its considerable financial resources, and even then "failed in all 10 of its biological weapons attacks" whilst the Sarin gas attack in 1995 caused roughly the same number of fatalities as "the average Palestinian suicide bomber attack."[3] In this essay I will examine the component parts of the term weapons of mass destruction (Chemical, Biological, Radiological, and Nuclear) individually to assess the credibility of international terrorists using such weapons. I will show that although it is credible that terrorists would want to use such weapons and may attempt to do so in the future, conventional explosives have thus far proven more effective and in my opinion, it is far more likely that conventional terrorism will remain at the forefront of terrorist tactics.

Chemical terrorism is a potentially devastating form of WMD terrorism and certainly presents a credible threat to the international community. Toxic chemical agents such as chlorine and phosgene (which were first used as chemical weapons during the First World War) are found in many industry sectors and can easily be acquired and adapted for use in chemical weapons, although these devices will not be as effective as nerve agents, which are much more difficult to produce and require sophisticated laboratories to do so.[4] Even so these weapons carry the potential to cause large amounts of casualties, although the vast majority of these would most likely be injuries rather than fatalities, and can be used effectively to create fear and encourage panic. Hamas is just one group that has pursued chemical weapons in the past, often lacing shrapnel used in suicide bombs with chemical agents, such as in December 2001 where "nails and bolts packed into explosives detonated…at the Ben-Yehuda pedestrian mall in Jerusalem were soaked in rat poison" in order to kill those survivors of the initial blast who were hit by shrapnel, and they have also attempted to acquire and use cyanide in attacks.[5] So far however the effect of these chemical weapons seems limited and have been used in conjunction with conventional explosives rather than separately. Chemical weapons are also dependent on various factors including temperature and humidity, and when dispersed outside they become unpredictable due to wind conditions. In 1990 for example the Tamil Tigers attacked a Sri Lanka Air Force fortification using chlorine gas which was released to drift over the fort, and succeeded in injuring over 60 government soldiers and enabled the Tamil Tigers to take the fort, but then drifted back over their own positions.[6] These chemical agents are rarely particularly effective, and it is noted that the Tamil Tigers used the chlorine gas simply because it was a weapon that they had to hand at the time and it suited a particular battlefield need. As a result terrorist organisations may try to utilise the potential of more deadly chemical weapons such as nerve agents, which I shall now discuss.

The cultivation of nerve agents such as Sarin or VX, is significantly more expensive than the procurement of other more basic agents, and requires considerable amount of expertise. Despite this it is still credible that terrorists could make use of such weapons as they have done in the past, most famously perhaps the Tokyo subway attack in 1995. Aum Shinrikyo had already carried out an attack using Sarin gas in 1994 in the city of Matsumoto, targeting three

judges hearing “a lawsuit over a real-estate dispute in which Aum Shinrikyo was the defendant” and which they were likely to lose, subsequently killing 7 and wounding approximately 500.[7] Following this, the Aum Shinrikyo cult group (now known as Aleph) carried out possibly the most successful chemical terrorist attack in 1995, releasing Sarin on the Tokyo subway system and causing 13 deaths and injuring approximately 6,300.[8] In a subsequent raid on Satyan 7, a “supposed shrine to the Hindu god Shiva”, it was found that the building “housed a moderately large-scale chemical weapons production facility” which was designed to produce thousands of kilograms of Sarin a year, although at the time of the Tokyo subway attack it was no longer in service.[9] This attack was the most devastating chemical attack by a terrorist group, and yet other attacks carried out using conventional explosives have been more effective, such as the bombings of US embassies in Kenya and Tanzania in 1998 where 301 people were killed and 5,000 were injured.[10] It is unlikely that a chemical attack will occur again on such a large scale due to the amount of expense involved, as Aum Shinrikyo remains at this time “the only group that had the financing and the motivation to create or obtain a true military-grade CW agent”.[11] It is also important to note that Aum Shinrikyo is an apocalyptic group, and it is relatively unlikely that a more politically motivated group, even one such as Al-Qaeda would carry out a mass casualty chemical attack. The threat of a small-scale chemical attack is very credible with the availability of resources but the effectiveness of such a weapon would be fairly limited, and would actually probably be less effective than a conventional attack.

Bioterrorism is a very real threat to the international community today as it can be both disruptive as well as destructive. There are many different forms of Biological weapons that could be used, “Some are contagious and can spread rapidly in a population, while others, including anthrax and ricin, infect and kill only those who are directly exposed.”[12] This diversity in effects can enable a group to carry out either targeted or indiscriminate attacks depending on their goals but both types, if carried out correctly, have the capability to majorly disrupt the targeted state or region. A biological attack is a much more realistic threat than a nuclear attack largely because “Unlike nuclear arms, dangerous germs are cheap and easy to come by”, whilst their effects on people can potentially reach the same scale as a nuclear bomb.[13] For a more disruptive but by no means less devastating attack, a group could potentially target crops and livestock, disrupting a state’s food supply and economy. Biological warfare itself has been in use for centuries; in the Siege of Caffa in 1346 for example the Tartar forces, who were suffering from an outbreak of plague, ordered the infected corpses loaded onto trebuchets and hurled into the city in an attempt to kill all its inhabitants.[14] In the Second World War the British planned to drop 5 million linseed cakes contaminated with anthrax spores into Germany which would then be consumed first by cattle, and then by Germans who subsequently ate the infected animals, whilst simultaneously creating a food shortage for the surviving population through the death of the remaining cattle.[15] This attack (known as Operation Vegetarian) was never put into action however Gruinard Island, the island on which the cakes were tested, was only cleared of contamination in 1990 which suggests the possible long-term effects such an attack could cause.[16] I shall now examine different types of biological weapons as well as possible future threats.

Perhaps the most well-known biological agent that has been used as a weapon is anthrax, a disease caused by bacteria called Bacillus anthracis, largely because of the relative ease with which it can be cultivated and the various ways it can cause infection which each cause different symptoms (inhalation, contact with a break in the skin, or ingestion of anthrax-tainted meat).[17] Causing infection on a large scale with anthrax is however incredibly difficult. This is perhaps best shown by Aum Shinrikyo’s failed anthrax attack in 1993, in which members of the group attempted to aerosolise a “liquid suspension of Bacillus anthracis in an attempt to cause an inhalational anthrax epidemic”, and in the process create the conditions for another world war.[18] The attack caused a foul odour and some minor cases of appetite-loss; nausea and vomiting, but failed to infect a single person, and it was only discovered that it had been an attack using anthrax during an investigation following the Tokyo subway station attack in March 1995. The most successful attack using anthrax was perhaps the 2001 anthrax attacks in the United States which occurred shortly after the events of September 11th. The attacks caused 22 cases of anthrax infection of which “Eleven of these were inhalational cases, of whom 5 died; [and] 11 were cutaneous cases (7 confirmed, 4 suspected).”[19] Although the attack did not cause mass-casualties, it did cause major disruption and caused the temporary closure of the government mail service, as well as widespread fear of finding anthrax spores in the mail. There is also the threat of terrorists using the Botulinum toxin, one of the most deadly toxins known, which “poses a major bioweapon threat because of its extreme potency and lethality; its ease of production, transport, and misuse”.[20] To cause more widespread damage terrorists could attempt to utilise contagious diseases such as the

Ebola virus or even possibly avian influenza, and there is evidence to suggest that Aum Shinrikyo did at least contemplate the possibility of using the Ebola virus as a biological weapon.[21] The use of contagious diseases in particular could become a major tactic for terrorist organisations in the future as it has the potential to cause widespread mass-casualties. The relative ease in the cultivation of agents such as anthrax and Botulinum, as well as the widespread and possibly transnational effects that contagious viruses could cause, makes bioterrorism a credible threat to the international community. However at this time it would appear that it would be extremely difficult to cause a crisis such as an epidemic and would probably therefore be limited to small scale attacks designed to cause more fear than casualties.

Radiological terrorism is perhaps one of the most credible threats to the international community, although arguably is also the least effective. The most credible use of radiological terrorism would probably be through the use of a radiological weapon, otherwise known as a 'Dirty Bomb' or a radiological dispersal device (RDD), which is designed to kill or injure "through the initial blast of the conventional explosive, and by airborne radiation and contamination (hence the term "dirty")."[22] They are realistically more weapons of mass disruption rather than destruction, but their capacity to create both large scale casualties and mass panic cannot be underestimated. A dirty bomb is a more realistic terrorist threat than a nuclear bomb largely because of the relative ease in its manufacture, as it is simply a conventional explosive with a radioactive isotope packed inside it; when the explosive detonates the isotope is dispersed over a large area thereby causing contamination over a wide area.[23] There are a vast number of radioactive isotopes that could be used to make a dirty bomb and many of them are in the public domain, one example being caesium-137, a radioactive isotope that has widespread uses including certain cancer treatments.[24] There have been two cases of terrorists attempting or threatening to use RDDs, though neither was successful in being carried out. The first occurred in 1995 in Moscow, when Chechen separatists buried a package containing Caesium-137 in Izmaylovsky Park, announcing it to the press in order to prove their ability to create and if necessary use a radiological weapon.[25] The second instance of radiological terrorism was in December 1998, when the Chechen Secret Service discovered a dirty bomb "consisting of a land mine combined with radioactive materials", which was quickly disarmed.[26]

The relative ease in which a dirty bomb could be manufactured makes it far more likely than a nuclear bomb, however there are other possible forms of radiological terrorism that are perhaps less likely but potentially more dangerous, although there are no actual records of them occurring, including distribution in ventilation systems or the use of aircraft to powdered or aerosol forms of radioactive material.[27] It is also theoretically possible that a terrorist organisation may attempt to attack a nuclear power station, following which a large enough explosion may allow the mass dispersion of a large amount of nuclear material, although safeguards and security arrangements should be able to deal with this threat. Although a successful radiological terrorist attack has not yet occurred, there are examples of the effects that radioactive materials have on humans, leading to increased fear about the possibility of attack. In September 1999 as just one example two thieves attempted to steal a container of radioactive materials from a chemical factory in Chechnya, but after half an hour one of the suspects died and the other collapsed, "even though each held the container for only a few minutes."[28] The threat to the international community from radiological terrorism is fairly credible given the relative ease in procurement and manufacture, and there is speculation that Al-Qaeda may have succeeded in creating a dirty bomb due to evidence found by British Intelligence agents and weapons researchers in 2003, although the device itself has not been found.[29]

Nuclear terrorism is perhaps the most feared, and most unlikely, form of WMD Terrorism facing the world today. It has been argued that with increased amounts of uranium and particularly plutonium in circulation, due to more emphasis being placed on nuclear power, it is becoming far more likely that terrorists could acquire and build a nuclear weapon with relative ease.[30] This argument follows that it is not only likely that terrorist organisations will attempt to acquire nuclear weapons, but they will also use them as a first resort weapon as a means of advancing their aims. In the context of Al-Qaeda, Busch notes that "bin Laden has declared obtaining nuclear weapons to be a religious duty" and that Al-Qaeda has been researching into this technology.[31] This conflicts with bin Laden's own statement made in November 2001 in which he said that he was already in possession of nuclear and chemical weapons, but that they would only be used as a deterrent, although perhaps the integrity of this statement can be debated in both its claim of ownership and professed intent.[32] Governments and media seem to have a tendency to create worst-case scenarios regarding WMDs, most of which are relatively unrealistic. Albert Mauroni, a senior policy

analyst with Northrop Grumman, notes as an example that the "US government fixates on scenarios that envision terrorist use of ten-kiloton nuclear weapons…worst-case scenarios that have little basis in reality" and this in itself can lead to the fear of the attack overshadowing the credibility or otherwise of a real attack.[33] The intent for terrorist organisations to acquire nuclear weapons is certainly real, as is the possibility that they would use them as a first resort weapon, however I shall now examine the credibility of such groups being able to actually obtain them.

There are two main areas that governments are particularly concerned about regarding the acquisition of nuclear weapons or the technology to build them by terrorists: the theft, sale, or capture of warheads; and the theft of civilian nuclear material. In the first instance there is the threat that terrorists could attempt to "Steal, buy or otherwise acquire a ready-made nuclear weapon; or take over a nuclear-armed submarine, plane or base."[34] The most likely victim of such an attack in the modern world at the moment is Pakistan, which at this time is faced with "a greater threat from Islamic extremists seeking nuclear weapons than any other nuclear stockpile on earth".[35] Pakistan's nuclear weapons facilities have come under attack at least three times in the period 2007-2008 by terrorist groups, and with both the Taliban and Al-Qaeda having relocated to the country from Afghanistan there is a significant danger of such facilities being taken over and used against a wide range of targets, including Coalition forces in neighbouring Afghanistan.[36] To counter this threat the United States has opted for a quick reaction strategy, creating a specialist force to "seal off and snatch back Pakistani nuclear weapons" in the event of terrorist groups or other militant forces manage to acquire a weapon or the materials to build one.[37] The likelihood of terrorists buying nuclear weapons is fairly low as such weapons could be traced on use to the manufacturer, providing incontrovertible evidence against the guilty party, which would usually be a state.[38]

The other method that could be used to attempt to acquire a nuclear weapon is that of the theft of civilian nuclear material from nuclear power stations or reprocessing plants. However, these isotopes cannot effectively be used as a nuclear weapon in the state they are used in nuclear power facilities. Uranium is typically only enriched to 4% in a nuclear power station whereas it needs to achieve 85% enrichment to be used as a nuclear weapon, and to "obtain weapon-grade plutonium, nuclear-weapon states have reprocessed spent uranium fuel from special production reactors."[39] International safeguards should be able to prevent illegal enrichment of uranium from occurring, and it seems unlikely that a non-state actor would be able to build the necessary facilities to achieve sufficient enrichment of uranium themselves or create weapons-grade plutonium without the nations like the United States noticing, at which point they would in all likelihood be able to destroy or capture such a facility.[40] The possibility of terrorist organisations creating nuclear fusion weapons is even more unrealistic as again such an act could not go unnoticed (due to the need to test a fission bomb first) and could easily be disrupted.[41] The threat of international terrorist organisations acquiring nuclear fission weapons is theoretically credible, although with the safeguards that are rapidly being put into place to prevent both nuclear material and weaponry from falling into the hands of terrorists; I would argue that it is simply much easier and cheaper to use more conventional weapons and at the time of writing no nuclear terrorist attack has taken place.

Weapons of mass destruction could potentially cause devastation on a scale that no other weapon at this time can achieve. A well planned chemical or biological attack could theoretically kill thousands or even millions of people, whilst a radiological weapon would cause the necessary evacuation of an area and again could possibly cause large-scale casualties. The issue with these weapons is that they only have the potential to cause such damage, and historical precedents would suggest that it is a very complicated and difficult task to achieve such devastation, even if a group is able to procure such a weapon. A nuclear weapon would have a much larger and more destructive effect, as it is the only weapon of mass destruction that also destroys buildings, but the likelihood of a terrorist group acquiring or building one is fairly low at the moment. Conventional explosives have proven to be more effective than attacks involving WMDs at this point, and though it is theoretically possible that international terrorist groups might acquire weapons of mass destruction and use them upon acquisition, I believe that the use of conventional explosives will continue to dominate terrorist attacks.

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