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Weapons of Mass Destruction — the Terrorist Threat

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Summary

The possibility of a terrorist attack using nuclear, biological, or chemical weapons is an ongoing debate in the national security policy arena. While terrorist motivations have traditionally been political ones that would not benefit from such an attack, concern is now voiced over a possible trend of inflicting greater numbers of casualties. Terrorists most likely to attempt attacks with weapons of mass destruction (WMD) are extremist religious millenarian groups and small splinter terrorist cells. Nation-states appear unlikely candidates owing to fear of severe retaliation. Some terrorist groups may also fear that WMD use would undermine support for their cause. Terrorist ability to produce or obtain WMD may be growing due to looser controls of stockpiles and technology in the former Soviet Union and the dissemination of technology and information. However, WMD are significantly harder to produce or obtain than what is commonly depicted in the press and today they probably remain beyond the reach of most terrorist groups. The Central Intelligence Agency believes that it is likely that terrorists will continue to choose conventional explosives over WMD. Two groups that have warranted special attention, because they combined the motivation to use WMD with substantial resources, are the Japanese sect Aum Shinrikyo and Usama Bin Ladin's organization, Al-Quiada. This report will be updated in the event of significant further developments. For a general discussion of terrorism, see the CRS Electronic Briefing Book [<http://www.congress.gov/brbk/html/ebter1.html>].

Background

This report briefly examines the debate over the nature and magnitude of the threat of terrorists using weapons of mass destruction. It discusses terrorist motivation to execute WMD attacks, the ease/difficulty of obtaining WMD capabilities, the possible magnitude and consequence of terrorist WMD attacks, and terrorist groups of interest.

“Super” or catastrophic terrorism has become a major issue in the national security arena, and has spurred a debate over the nature of the threat and the appropriate response. Several occurrences have contributed to this heightened attention, including: the 1995 Aum Shinrikyo's nerve agent attack in the Tokyo subway, the Oklahoma City and World

Trade Center bombings in the United States, and the 1998 bombings of the U.S. embassies in Kenya and Tanzania. Also of concern is the possible WMD proliferation from the former Soviet Union, particularly in the area of biological weapons.

After submitting an FY1999 \$294 million budget amendment in June 1998 for WMD terrorism response programs, the Administration identified \$8.6 billion in the FY2000 budget “for combating terrorism, including weapons of mass destruction,” an increase of \$3 billion from FY1999. Representative of this increase, the Department of Health and Human Services budget for WMD-related programs has increased from \$7 million in FY1996 to \$230 million in FY2000.¹ In light of the heightened attention and increased government spending, the General Accounting Office (GAO) has published two reports noting the need for additional risk assessment of the possibility of a WMD terrorist attack.²

Terrorist Motivation to Use Weapons of Mass Destruction

Traditional motivations. A number of factors are seen as having constrained terrorist use of WMD. Most terrorists groups possess political goals and have traditional, ethnic, nationalist, or ideological associations.³ These groups seek to gain politically from attacks and to draw the attention of large audiences without diminishing their basis of support. As expert Brian Jenkins noted years ago, “Terrorists want lots of people watching, not lots of people dead.” Even if a terrorist group seeks to create an atmosphere of terror by inflicting large casualties, it need not turn to WMD: 168 people died and several hundred were wounded in the attack in Oklahoma City. In comparison, only 12 people died and several hundred were injured in the nerve agent attack in the Tokyo subway. Moreover, WMD use is risky for the terrorists themselves, uncertain in its effects, and carries with it the threat of severe retaliation. However, the increasing casualty count of terrorist attacks is a cause of worry, and some have argued that the growing fanaticism and erosion of traditional constraints may lead to a departure from pragmatic calculations and override the stigma attached to use of WMD.⁴ As a consequence, although WMD terrorism remains rare, the Central Intelligence Agency estimates that terrorist interest in WMD is growing, as is the number of potential perpetrators.⁵

What type of terrorist groups are likely to attempt WMD attacks? The Center for Nonproliferation Studies at the Monterey Institute of International Studies is

¹White House Press Release, June 8 1998; *Government-Wide Spending to Combat Terrorism*, Office of Management and Budget, February 1999.

²U.S. General Accounting Office (GAO), *Combating Terrorism — Need for Comprehensive Threat Assessments of Chemical and Biological Attacks*, GAO/NSIAD-99-163, September 1999. p. 1.

³Ehud Sprintzak, “The Great Superterrorism Scare” *Foreign Policy* Fall 1999; John Parachini, *Combating Terrorism: Assessing the Threat*, Congressional Testimony (Prepared Statement) before the House Committee on Government Reform, Subcommittee on National Security, Veterans Affairs, and International Relations, October 20, 1999. For a discussion of trends and definitions see: Raphael E. Perl, *Terrorism, the Future, and U.S. Foreign Policy*, CRS Issue Brief IB95112, pp. 1-3.

⁴Walter Laqueur, “Terror’s New Face”, *Harvard International Review*, Fall 1998.

⁵GAO, *Combating Terrorism*, GAO/NSIAD-99-163, September 1999, p.18.

conducting an ongoing study of terrorist use of unconventional weapons and materials. The institute identified six characteristics among the groups involved in chemical/biological weapons (CBW) incidents: charismatic leadership, no external constituency, apocalyptic vision, loner or splinter group, sense of paranoia/grandiosity, and preemptive aggression. The two common characteristics that appeared in all cases of actual CBW use were the lack of outside constituency and a sense of paranoia/grandiosity.⁶ Only a limited number of groups were motivated enough to employ CBW, amongst them religious millenarian groups, small terrorist cells, and brutalized groups seeking revenge or facing destruction.⁷

While a limited number of groups and individuals have had the motivation to use WMD, fewer still appear to have the ability to obtain and employ them. At present, only the Aum Shinrikyo cult has managed to combine intent and a certain level of capability. (See below). The Monterey Institute study noted that groups having the motivation to use CBW have tended to be amateur and to launch ineffective attacks.

The Ease/Difficulty of Terrorist Acquisition of WMD Capabilities

Nuclear. While a nuclear weapon is extremely lethal, obtaining one poses the greatest difficulty for terrorist groups. The key obstacle to building such a weapon is the availability of a sufficient quantity of fissile material — either plutonium or highly enriched uranium. Some believe that if somehow allowed access to the necessary quantities of fissile material, extraordinarily capable groups could build a nuclear weapon, even if it were not an efficient or sophisticated one.⁸ The possibility of dispersal of radioactive waste using conventional explosive is also cited, even though such a radiological weapon is not likely to result in mass casualties. Such a device would also require very radioactive material in large quantities, a fact that makes it harder to handle for the potential terrorist.

Some experts point to Iraq, a nation with available resources, expertise, and motivation, to demonstrate the significant difficulty of building even a crude nuclear weapon. How then might a small, sub-national group design and build such a weapon?⁹ State sponsors of terrorists have been considered unlikely to turn over control of such weapons, once developed, to terrorist groups because of possible international retaliation or concern that the groups might leave their control. However, the problem of “loose nukes,” i.e., leakage of nuclear weapons material and know-how from the former Soviet Union, remains a cause of concern that some believe increases the likelihood of a terrorist group obtaining a nuclear weapon. It is important to note that even if a terrorist group were to get hold of an assembled nuclear weapon covertly, the built-in safeguards and self-destruction mechanisms would pose a serious challenge to detonating the weapon. In

⁶The Monterey Institute for International Studies is a think tank located in Monterey, CA. For more information about the database see Jonathan Tucker and Amy Sands, “An Unlikely Threat”, *The Bulletin of the Atomic Scientists* July/August 1999, Vol 55, #4; Testimony of John Parachini before the House Committee on Government Reform, Subcommittee on National Security, Veterans Affairs, and International Relations, October 20, 1999.

⁷Sprintzak, *Ibid*

⁸Richard A. Falkenrath, “Confronting Nuclear, Biological and Chemical Terrorism”, *Survival*, Autumn 1998.

⁹Karl-Heinz Kamp, “WMD Terrorism-An Exchange” *Survival*, Winter 1998/1999

addition, the size of most nuclear weapons makes them rather hard to transport, especially clandestinely.¹⁰

Biological. According to a recent GAO report, terrorists working outside a state-run laboratory would have to “overcome extraordinary technical and operational challenges to effectively and successfully weaponize and deliver a biological agent to cause mass casualties.”¹¹ While many biological agents can be obtained or grown with relative ease, several significant steps remain on the way to weaponization and effective use of these agents. The main challenge is effective dissemination, which requires an aerosol form. The formulation of agents for airborne dispersal requires dissolving optimal amounts of weaponized agents in a specific combination of different chemicals (with each agent requiring a unique formulation). This is possibly the major remaining secret of the former U.S. and Soviet BW programs.¹² Moreover, aerosol disseminators need to be operated effectively and suitable meteorological conditions must be present to carry out a successful BW attack. The Aum Shinrikyo sect again provides an example of the difficulty of conducting a successful attack. The sect had substantial resources, members who were trained chemists and bioscientists, motivation, and ample time for research. Yet, they failed to carry out an effective BW attack despite several attempts, apparently due to the agent choice, and a formulation that clogged the nozzles of the aerosol sprayers¹³

However, some experts believe that less efficient aerosol techniques may be obtained by capable non-state groups, and that even a crude delivery system could still cause casualties or injuries in the thousands, especially if the attack is carried out against a large indoor population.¹⁴

Chemical. Toxic industrial chemicals such as chlorine or phosgene are easily available and do not require great expertise to be adapted into chemical weapons. Nerve agents are more difficult to produce, and require a synthesis of multiple precursor chemicals.¹⁵ They also require high-temperature processes and create dangerous by-products, which makes their production unlikely outside of an advanced laboratory. Blister agents such as mustard can be manufactured with relative ease, but also require large quantities of precursor chemicals. The production and transfer of CW precursor chemicals

¹⁰Ibid.

¹¹GAO, *Combating Terrorism...*, p.13. Note that the working definition for “mass casualties” used by the Department of Health and Human Service is 1,000 casualties. p. 7.

¹²Raymond Zelinkas, *Assessing the Threat of Bioterrorism*, Congressional testimony before the House Subcommittee on National Security, Veterans Affairs, and International Relations, October 20, 1999. For challenges of weaponizing biological agents see also Testimony of W. Seth Carus before a Joint Hearing of the Senate Select Committee on Intelligence and the Senate Judiciary Subcommittee on technology, Terrorism and Government Information, March 4, 1998; GAO report GAO/NSIAD-99-163, September 1999, *Combating Terrorism*, pp. 13-17.

¹³Ibid

¹⁴Falkenwrath, Ibid.

¹⁵Statement of Henry L. Hinton, Jr., Assistant Comptroller General, National Security and International Affairs Division, before the House Committee on Government Reform, Subcommittee on National Security, Veterans Affairs, and International Relations, on *Combating Terrorism: Assessing the Threat*, October 20, 1990.

is internationally monitored under the Chemical Weapons Convention, providing some degree of control over their distribution¹⁶

Aerosol or vapor forms are the most effective for dissemination, which can be carried out by sprayers or an explosive device. However, agents are vulnerable to temperature, moisture and wind, and would therefore be most effectively used on an indoor population. The Aum Shinrikyo again provides an example of the unpredictable effectiveness of chemical weapons. Although the cult was able to produce the nerve agent Sarin and release it in a closed environment — the Tokyo subway — the attack resulted only in 12 fatalities and injury to hundreds of others, whereas there were 301 fatalities and 5,000 injured in the conventional bombing of the U.S. embassies in Kenya and Tanzania.¹⁷

A Future Terrorist WMD Attack?

Many believe that while terrorist WMD attacks are possible, they are by no means inevitable. While some experts believe that a terrorist large-scale WMD attack is a low - probability, high-consequence scenario, most seem to agree that possible future attacks would take the form of hoaxes and small scale attacks with chemical and biological weapons or materials, using low-tech dissemination methods, such as contamination of food sources.¹⁸ According to the GAO, the CIA notes that even though there is a growing interest amongst terrorist groups in CBW, these groups are less likely to use CBW than conventional explosives.¹⁹

Some experts emphasize that a WMD terrorist attack could, nevertheless, create a panic disproportionate to the actual casualties because chemical and biological incidents constitute a sudden unfamiliar threat with no sensory warning, carry the possibility of contagion or contamination, and play upon highly charged public fears.²⁰ Others go farther and raise concerns that a WMD event might shake or shatter the social order and threaten democratic governments. However, the 1995 Sarin attack in Japan seems to indicate otherwise; public order remained intact, and no large-scale panic occurred in the aftermath.

¹⁶GAO report GAO/NSIAD-99-163, *Combating Terrorism...* p. 12.

¹⁷John Parachini, *Combating Terrorism: Assessing the Threat*, Congressional testimony before the House Committee on Government Reform, Subcommittee on National Security, Veterans Affairs, and International Relations, October 20, 1999.

¹⁸Joseph F. Pilat, “WMD Terrorism-An Exchange” *Survival*, Winter 1998/1999; Bruce Hoffman, Seth Carus, Amy Sands, and Joseph Pilat, “The New Terrorism: Does It Exist? How Real Are the Risks of Mass Casualty Attacks?” *Chemical and Biological Arms Control Institute Conference*, April 29-30, 1999, at [www.cbaci.org/Newterrorism.htm]; Jonathan Tucker, “The Ultimate Terrorists” *Survival*, Summer 1999.

¹⁹GAO, *Combating Terrorism*, p.18.

²⁰Cleto DiGiovanni, “Domestic Terrorism With Chemical or Biological Agents: Psychiatric Aspects,” *The American Journal of Psychiatry*, October 1999; Jessica Stern, quoted in Jonathan Tucker, “The Ultimate Terrorists”.

Specific Groups of Interest

As mentioned above, few groups appear to combine the desire and capability required for a WMD attack. Two groups, however, have garnered special attention.

Aum Shinrikyo.²¹ The Japanese cult seems to have begun its quest for WMD in 1990, five years prior to the attack in the Tokyo subway. Its assets were estimated at \$1 billion, its membership numbered 50,000 world-wide (including 20 scientists with graduate degrees), and it had research facilities. Moreover, Japanese law placed serious constraints on law enforcement surveillance because Aum was a religious group, allowing virtually unimpeded research, despite complaints of suspicious activity in Aum's commune. Even with these advantages, the cult had a very difficult time developing the weapons and launching the attacks: it made 9 attempts prior to the two attacks in the subway and two after it,²² and had totally failed in using biological weapons prior to turning to Sarin gas. In conclusion, Aum Shinrikyo is an example of a terrorist group that combined motivation to use WMD as well as vast resources, help of scientists, plenty of time, and a virtually uninterrupted environment for research, yet, despite recurring attempts, it failed to use BW, and made ineffective use of CW. Now under close national and international scrutiny, the Aum are considered unlikely to repeat their earlier efforts.

Usama Bin-Laden and Al-Quaida. Al-Quaida was established by Usama Bin Laden around 1990. According to the U.S. Department of State, it may have from several hundred to several thousand members, and money making businesses, as well as \$300 million inherited by Bin Laden, to finance the group.²³ Bin Laden's motivation to use weapons of mass destruction appears unmistakable, and he has been seeking them for several years. In 1998 an indictment by a federal grand jury in New York revealed that Bin Laden was seeking nuclear weapons and materials, as well as chemical agents.²⁴ In a press conference in February 1999, National Security Advisor Sandy Berger stated that prior to the U.S. attack on the Al-Shifa pharmaceutical facility in Sudan, "We knew that Bin Laden was seeking chemical weapons," and "we know that he worked with the Sudanese government to acquire chemical weapons." Bin Laden has also made several statements that demonstrate his motivation to cause mass casualties. In 1996 he said that the enemy should be fought with one's "best abilities" and in 1998 he said he did not differentiate between the military and civilians.²⁵ Despite Bin Laden's efforts, there is no strong open source evidence indicating that he or his organization have acquired WMD.

²¹For an account of Aum's development and failed attacks see: David Rapoport, "Terrorism and Weapons of the Apocalypse" *National Security Studies Quarterly*, Summer 1995, pp. 56-58.

²²Ibid.

²³United States Department of State, *Patterns of Global Terrorism 1998*, April 1999, pp. 83-83.

²⁴For a detailed account of Bin Laden's search for WMD see: Stefan Leader, "Usama Bin Laden and the Terrorist Search for Weapons of Mass Destruction" *Jane's Intelligence Review*, 6/1/188, Vol 011, issue 006; Also, Kenneth Katzman, *Terrorism: Middle Eastern Groups and State Sponsors*, CRS Report RL30277, p. 12.

²⁵Ibid.