

**Consequence Management in the 1995 Sarin
Attacks on the Japanese Subway System**

Robyn Pangi

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ABOUT THE AUTHOR

Robyn Pangl is a Research Associate with the Executive Session on Domestic Preparedness. She previously worked with the Harvard-Sussex Program on CBW Armament and Arms Limitation. She completed a Master's thesis assessing policy options to improve the Anthrax Vaccine Immunization Program (AVIP) for the U.S. Navy. She is the co-author of "Preparing for the Worst: Mitigating the Consequences of Chemical and Biological Terrorism" and author of "Preparing for Terrorism: What Governors and Mayors Can Do". Ms. Pangl holds the degrees of Master of Public Policy in Science and Technology Policy from the John F. Kennedy School of Government, Harvard University and Bachelor of Arts from Columbia College, Columbia University.

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In the early to mid 1990s, a group known as Aum Shinrikyo amassed, and used against innocent civilians, an arsenal of chemical and biological weapons. A large body of literature details the evolution of Aum Shinrikyo, its shocking attacks on a housing complex in Matsumoto and on five subway lines in Tokyo using a chemical weapon, and Japanese society's reaction to the attacks. Not much analysis, however, has been done on the lessons learned about consequence management from the first significant terrorist attacks with weapons of mass destruction to occur in modern times.¹ Recent events in the United States including the dispersal of anthrax spores through the mail and scores of hoaxes alleging use of anthrax have brought the issue of terrorism using weapons of mass destruction (WMD) closer to home. The handling of the Aum Shinrikyo attacks offers the opportunity for policymakers, emergency response personnel, and other relevant professionals to learn about WMD consequence management.

An attack with a chemical weapon (as in Tokyo) or with a biological weapon (as in the United States) is different from a conventional attack because the potentially catastrophic effects of the attack can be substantially reduced with prompt intervention. In a large explosion, such as the aircraft bombing of the World Trade Center in New York City and the Pentagon in Washington, D.C., in September 2001, the actual impact of the explosion cannot be mitigated. The only hope is to save lives by rescuing people from the rubble and keeping potential victims away from the unstable structures. However, in a chemical or biological weapon attack, proper decontamination and rapid prophylaxis can often save lives and prevent the spread of disease or chemical exposure to the larger population.²

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¹ For the purposes of this paper, weapons of mass destruction include biological, chemical, nuclear, and radiological weapons. Attacks resulting in mass casualties have also occurred through other means, most notably the use of fuel-laden commercial aircraft to destroy the World Trade Center towers in New York City in September 2001. However, this paper focuses on the ways in which consequence management after a biological, chemical, nuclear, or radiological attack differs from after an attack with a conventional weapon like a high-yield explosive. The Aum Shinrikyo attacks represent the first significant WMD attacks in modern times.

² This is even more evident after a biological weapon attack, when rapid agent identification and appropriate medical treatment can significantly reduce the spread of the disease and the number of casualties.

The Aum Shinrikyo case study is a good learning tool for policymakers and emergency response professionals seeking to form a coherent domestic preparedness strategy.³ A review of the scenario, starting in 1994 and early 1995 with the sarin attacks, reveals potential opportunities to preempt such an attack or to mitigate its effects.⁴ This paper begins with a brief introduction to Aum Shinrikyo. It then reviews the sarin attacks in the town of Matsumoto in 1994 and in Tokyo in 1995. Following the case studies, the paper details the municipal and national governments' rescue and recovery operations. It then summarizes many of the policies that Japan has implemented since 1995 to strengthen response plans and preparedness. Finally, the paper analyzes several lessons that emerged from the experience and examines implications for the United States.

CASE STUDIES

Background

Aum Shinrikyo, or Aum Supreme Truth,⁵ based its teachings on the belief of impending armageddon. Led by Shoko Asahara, a partially blind man whose given name was Chizuo Matsumoto, cult members believed that only devout followers of Asahara (“the guru”) would be saved at the end of the world. The cult was well financed and diverse: by 1995 it had a worldwide membership of 40,000 people and assets estimated at one billion dollars.⁶ Cult members represented many different segments of society, but a characteristic that set Aum apart from other groups was that many members had a relatively high level of

³ After the sarin attack on the subway in 1995, the United States revised its assessment of the threat of terrorism to include the new threat of terrorism with a weapon of mass destruction (WMD). Since then, U.S. government spending on counterterrorism programs has risen exponentially. The various initiatives, known collectively as the domestic preparedness program, represent a major effort to improve the nation's ability to respond to an act of catastrophic terrorism.

⁴ Sarin is isopropyl methylphosphonoflouridate.

⁵ The cult lost its status as a religious organization under Japanese law in 1995. However, it retained a following and officially regrouped in 2000 under the name “Aleph”.

⁶ The members were located around the world: 30,000 in Russia, 10,000 in Japan, and the remainder in the United States, Germany, and elsewhere. David A. Kaplan, “Aum Shinrikyo,” in Jonathan B. Tucker, ed., *Toxic Terror* (Cambridge, MA: MIT Press, 2000), pp. 207-226.

education and wealth. In fact, Aum recruited at universities, focusing particularly on physics, engineering, and computer departments.⁷

Most Japanese initially dismissed the cult as an oddity. Peculiar rituals such as drinking Asahara's blood to achieve enlightenment or wearing headgear referred to as the Perfect Salvation Initiative clearly set followers apart from mainstream society.⁸ Aum was subjected to further ridicule in the 1990 elections when twenty-five Aum members, including Asahara, ran for parliament seats and suffered an overwhelming defeat, earning fewer votes than the number of cult members who were eligible voters.⁹

The elections brought Aum and the cult leadership into the public eye. Thereafter, Asahara and his followers turned down a more antisocial path.¹⁰ A series of events led to a greater isolation of cult members and radicalization of cult ideals. Part of this trend included increasingly aggressive and ultimately violent responses to internal and external critics. Members were threatened and punished for transgression against Asahara's teachings, outsiders who interfered with cult activities were abducted, and cult members experimented with biological and chemical weapons. Eventually some of those dangerous agents were put to use.

Prior to the 1995 attacks, Aum was able to escape police scrutiny largely because of institutional barriers against religious persecution in Japan. In 1951, the Japanese government passed the Religious Corporation Law, which strengthened constitutionally-guaranteed religious freedoms by relieving any organization that could be identified as "religious" of tax obligations and by providing these groups with

⁷ David E. Kaplan and Andrew Marshall, *The Cult at the End of the World: The Incredible Story of Aum* (London: Hutchinson Press, 1996).

⁸ The Perfect Salvation Initiative headgear delivered a shock of six volts to adults and three volts to children. Each treatment cost members \$7,000 per month.

⁹ During the campaign, the cult members wore white suits and giant paper mache masks that looked like Asahara.

¹⁰ "The humiliations resulting from this public rejection intensified Aum's own gradual estrangement from the world: one is tempted to speculate that this rejection, when in Aum's eyes Japanese society spurned the chance to be saved ... might well have pushed Aum's leadership into feeling that society was damned and should be abandoned. It also meant, once its hopes of influencing society through legal, democratic means such as political campaigns were wrecked, that if Asahara's contention that spiritual action was no longer enough to fulfil its mission were correct, it had to look elsewhere for the means by which to influence or control Japanese society." Ian Reader, *Poisonous Cocktail* (Denmark: Nordic Institute of Asian Studies Special Report, 1996), p. 45.

unusually strong protection from government intrusion.¹¹ “The Japanese police, like the governmental bureaucracy, exercised extreme caution in handling complaints made against official religious groups. Partly as a reaction to the harsh suppression of religious freedom by Japan’s prewar military government, the postwar constitution and police policy nationwide called for scrupulously avoiding even the appearance of religious persecution.”¹² Aum Shinrikyo exploited the laws guaranteeing religious freedom, and under the protective umbrella of these laws was left virtually untouched by authorities.¹³

Aum also benefited from a second type of restraint practiced by the government post–World War II: loosely organized and relatively weak intelligence gathering. To some extent, this resulted from limitations in the Japanese Constitution. For instance there were legal bans on police use of preventive surveillance techniques. In addition to legal restrictions, the rivalries among prefectural police forces hindered information sharing.

Shielded by this combination of civil liberties and limited governmental powers, Aum Shinrikyo was able to accumulate extensive stockpiles of cash and dangerous chemical and biological materials without raising police suspicion and Aum was able to execute not one, but two lethal attacks on civilian populations.¹⁴

¹¹ An emphasis on religious freedom is pervasive in post-war Japan. The Japanese Constitution, which was drafted and imposed by the United States during its military occupation of Japan following World War II, emphasizes the individual’s right from government intrusion.

¹² D.W. Brackett, *Holy Terror: Armageddon in Tokyo* (New York: Weatherhill, Inc., 1996), p. 13.

¹³ “Aum seemed to enjoy a curious immunity from public complaints. The police investigated each charge made against the sect promptly, yet it never went any farther and there were never any arrests.” Brackett, *Holy Terror*, p. 49.

¹⁴ “[A] contributing factor to Aum’s behavior was the degree of impunity that the cult enjoyed. Despite an extraordinary six-year crime spree, the sect met with surprisingly little resistance from Japanese officials, who were hampered by jurisdictional problems, a reluctance to probe religious organizations, and a lack of investigative initiative. Only after the Tokyo subway attack did authorities move quickly against the cult.” Ian Reader, *Religious Violence in Contemporary Japan: The Case of Aum Shinrikyo* (Great Britain: Curzon Press, Nordic Institute of Asian Studies Monograph Series No. 82, 2000), p. 223.

Cultural Context

Prior to the sarin attack in 1995, many Japanese took comfort in their perceived isolation from the high crime rates and corruption of other highly developed countries.¹⁵ Japan is a strikingly homogenous and relatively peaceful society.¹⁶ “Peace (*heiwa*) and fundamental human rights (*jinken*) are twin cultural concepts that have been enshrined in national and international security policy.”¹⁷ The Constitution “denounces any type of war” and the Self Defense Force “technically are not interpreted as a military force.”¹⁸

Until recently, terrorism was a phenomenon rarely discussed by government officials or Japanese citizens. This reticence is partially cultural: Naofumi Miyasaka, professor at the National Defense Academy, points out that, “the Manichaeian belief of peace and war hinders one from considering an in-between [such as terrorism].”¹⁹ This ethos of peace and human rights gives rise to three national ideas on terrorism. First, terrorism is believed to have root causes such as poverty or prejudice, or to be a response to an oppressive government.²⁰ Second, Japan’s antiterrorism policy is extremely risk-averse: sparing lives is paramount to the Japanese when dealing with a terrorist situation.²¹ Third, terrorism remains a

¹⁵ Japan is widely considered to be a safe society. Anthony Head explores this perception and concludes that although Japan is safer than the United States, it is not the non-violent utopia people often describe. For example, Japan is not “gun-free”; there are many illegal handguns, and Japan has more handgun deaths each year than Great Britain. Moreover, there is significant underreporting of crime in Japan, especially of rape and domestic violence, much of which results from the stigma of being a victim of crimes. Anthony Head, “Japan and the Safe Society,” *Japan Quarterly*, April–June 1995.

¹⁶ 99.4% of Japanese citizens are ethnic Japanese; 0.6% are classified as “other” and are mostly of Korean heritage. “Ethnicity and Race by Country” at <http://www.infoplease.com/ipa/A0855617.html>

¹⁷ Naofumi Miyasaka, “Terrorism and Antiterrorism in Japan: Aum Shinrikyo and After,” prepared for the Japan Society Roundtable on Terrorism: Prevention and Preparedness, October 2000, p. 3, on file with the author.

¹⁸ Shun’ichi Furukawa, “An Institutional Framework for Japanese Crisis Management,” *Journal of Contingencies and Crisis Management*, Vol. 8, No. 1 (March 2000), pp. 3-15 at p. 4.

¹⁹ Miyasaka, “Terrorism and Antiterrorism in Japan,” p. 4.

²⁰ *Ibid.*, p. 5.

²¹ *Ibid.*, p. 6. “Risk-averse policy is intuitively viewed as the best choice.” One component of a risk-averse policy is a fear of casualties: either hostages or terrorists. The operational norm for police is to not to kill terrorists. A second component is to remain neutral regarding international terrorism. Japan does not specify enemies in international society and applies the label of “terrorist” only to domestic organizations. Japan does not have a legal or officially agreed definition of terrorism, and it judges terrorist acts only in criminal or civil law.

taboo subject that is rarely discussed; incidents such as the hijacking of 1999 ANA flight 61 or the 1994 and 1995 sarin gas attacks are seen as unique cases and are not widely labeled “terrorist” acts.²²

Partly as a result of this sympathetic attitude shared by the Japanese people and government, and partly owing to the overwhelming nationwide support for a free society, “terrorism is not seen as a threat to the nation’s core values: democracy, prosperity, and national unity. Rather, antiterrorism is seen as a grave danger to peace and fundamental human rights.”²³ Only recently has broad public opinion favored harsh punishment for convicted terrorists. Thus, prior to 1995, counterterrorism policies, where they existed at all, consisted of loosely organized measures that did not give government officials much power. By and large, the only terrorism situations with which the government was prepared to deal were hostage crises.

Matsumoto attack

On June 27, 1994, a group of cult members drove a converted refrigerator truck to Matsumoto, a village of approximately 300,000 residents located 322 kilometers northwest of Tokyo. The target was a dormitory inhabited by three judges, who were about to decide a civil case over land rights to which Aum was a party.²⁴ In an effort to stop the verdict from being issued, Aum intended to incapacitate the judges.²⁵ The Aum members released sarin into the evening air. Poor dispersal technique and contrary wind patterns prevented the attack from being a complete success. However, the devastation was great: seven people were killed and 500 hospitalized as the result of the attack. Moreover, the judges were injured, resulting in the delay of the decision.²⁶

²² Ibid., pp. 6-7. “The perception of terrorists is so limited that the media did not label, for example, the maniac who hijacked ANA 061 and killed the pilot in July 1999, or the high school math teacher who bombed a neighboring school in February and March 1999, as terrorists. Furthermore, there is no consensus among people in general whether Aum is a terrorist organization or not.” Additionally, the spate of attacks in Japan in the 1970’s and 1980’s, including aircraft hijackings and hostage takings, were widely perceived not as terrorist attacks, but rather as actions taken by marginalized individuals and groups to draw attention to social inequalities.

²³ Ibid., p. 6.

²⁴ Aum believed that the judges were likely to rule against them.

²⁵ The Matsumoto attack may have been a trial run for the subway attack. A secondary effect was “to punish the judges and citizens of Matsumoto for having opposed Aum.” Reader, *Religious Violence in Contemporary Japan*, p. 209.

²⁶ Kyle Olson, “Aum Shinrikyo: Once and Future Threat?” *Emerging Infectious Diseases* Vol. 5 No. 4, July-August 1999 at <http://www.cdc.gov/ncidod/EID/vol5no4/olson.htm>

At first the local police in Matsumoto appeared incapable of understanding what had happened: a chemical weapons attack in a relatively small and quiet Japanese town...seemed beyond the bounds of comprehension. The police appeared incapable of even conceptualizing the event as a deliberate act of terrorism or mass murder, and their first step was to blame a local man.... According to the police, [main suspect] Kono [Yoshiyuki] had accidentally created the poisonous gases while mixing fertilizers in his garden.²⁷

The media were more persistent than the investigators. They emphasized the improbability of making sarin by accident and raised the possibility of a link between Aum Shinrikyo and the Matsumoto attack.²⁸ This link was substantiated in 1994 when soil taken from outside of an Aum compound revealed traces of sarin. Yet the police still refused to adopt a more aggressive stance and actively investigate Aum Shinrikyo. As a result, no arrests were made in connection with this attack until *after* the 1995 subway attack.

The sarin attack on Matsumoto had surprisingly little impact on the community, the nation, or the world. “The sarin attack on Matsumoto was a precedent-shattering episode in the history of modern terrorism, but no one, either inside Japan or out, seemed to attach much significance to the fact that a highly deadly World War Two–era nerve gas, an agent all but unknown in Asia, had been unleashed with deadly results in a remote mountain town in central Japan.”²⁹ Matsumoto, it turns out, served as a practice session for the cult’s future exploits in WMD terrorism.

Tokyo subway attack

Between 7:30 and 7:45 AM on March 20, 1995, five cult members boarded an inbound subway on one of three different subway lines – Hibiya, Chiyoda, and Maronouchi – at different stations, bound in a total of five different directions.³⁰ Beginning at 7:48 AM, each cult member pierced one or more bags of sarin

²⁷ Reader, *Religious Violence*, 2000, p. 221. Kono remained a suspect until Aum members confessed to the crime in the summer of 1995.

²⁸ *Ibid.*, p. 211.

²⁹ Brackett, *Holy Terror*, p. 53.

³⁰ The five cult members had left their hideout at around 6:00 AM in the morning in separate vehicles, each with its own driver. Each had two plastic bags filled with sarin (one member had three bags) and an umbrella with a sharpened tip. On the way to their respective subway entry points, each purchased a newspaper or bag with which to conceal the sarin.

and then fled the subway. Shortly before 8:00 AM, the five trains converged on the Kasumigaseki station of the Tokyo subway system.³¹ Kasumigaseki is home to most of Tokyo's government offices and is considered to be the power center of the city. The attack left twelve dead, hundreds injured, and thousands terrorized.

Fortunately, the enormous potential for catastrophic damage was not actually achieved. The more than thirty train lines of the public and private transit system in Tokyo sprawl through 400 miles of underground tunnels and above-ground tracks. Over nine million passengers ride the subway daily. A rush-hour attack could thus have caused chaos and massive numbers of casualties and fatalities.³² However, the sarin used in the subway attack — like that used in the Matsumoto attack — was only 30% pure; sparing most of the subway ridership the disaster of a successful attack. In its pure form, as little as one drop of sarin on the skin is colorless, odorless, and lethal. Impure sarin is less lethal, and when diluted (as in this case) it took on an odor, which alerted subway passengers and responders to the presence of a foreign chemical.³³

The rudimentary method of delivery also prevented greater devastation. Aum's scientists were unable to master the construction of an aerosol delivery vehicle. The sarin was instead poured into plastic bags that were then wrapped in paper, placed on the ground, and punctured with sharpened umbrellas. Most of the sarin was not released into the air in respirable droplets, which would have effectively entered the lungs and landed on the skin of passengers and caused mass casualties. By merely puncturing the bags, only those in immediate proximity to the release or to severely poisoned individuals suffered severe physical injuries or death.

Even with impure sarin and remedial delivery techniques, thousands of passengers were affected. Subway stations were forced to evacuate passengers *en masse*, many choking, vomiting, and blinded by the chemicals. They fled up the stairways and collapsed in the streets while fire, police, and emergency medical responders, most unprotected, ran down the stairs to assist the victims. The scene was

³¹ All of the trains involved in the attack converge at one point: Kasumigaseki. There is speculation that this attack was intended to cripple the National Police Agency: the station serves the NPA and the attack was timed to coincide with the 8:30 AM shift change.

³² Reader, *Religious Violence*, p. 23.

immediately broadcast over television and radio. Images of confusion and chaos dominated the nine o'clock news and provided Tokyo and the world with its first glimpse of an act of terrorism with a weapon of mass destruction.

CONSEQUENCE MANAGEMENT

The historical and cultural reluctance among Japanese officials to prepare for or even discuss terrorism was reflected in underdeveloped consequence management capabilities, which hindered the response effort in both sarin attacks.³⁴ Consequence management comprises those essential services that mitigate or ameliorate the effects of a disaster — in this case, catastrophic terrorism. Management of the consequences of natural or unintentional man-made disasters includes firefighting, rescue and recovery operations, medical treatment, emergency transportation, law enforcement, psychological assistance by medical professionals, securing of buildings and infrastructure, and the provision of clean water and food. After a WMD terrorism attack, additional capabilities are required, including specialized mass-casualty medical operations including triage and prophylaxis, decontamination, possible quarantine or evacuation, environmental analysis, dissemination of public information, and specialized psychological assistance.

Consequence Management in Japan: Basic Principles

In any large-scale disaster, response personnel from multiple agencies and various levels of government must work together. This includes public, private, and volunteer agencies from the local, regional, and national levels.³⁵ The first trained personnel to arrive on the scene are almost always from local or state emergency services, with state and national resources following. After the sarin attack, for example, the response involved fire, police, emergency medical services, and medical professionals from the municipal, prefectural, and national governments.

³³ Early calls to emergency assistance switchboards complained of “strange smells” and “powerful odors” in the subway system. Brackett, *Holy Terror*, p. 1.

³⁴ This assertion is supported by the general consensus expressed by participants at a conference sponsored by the Japan Society in Tokyo (2000).

³⁵ As with most disasters the earliest first responders were victims and bystanders, who were not trained to deal with the aftermath of a disaster, especially a chemical weapon attack.

Metropolitan Response

The Japanese system is set up so that “in disaster management, most functions are to be borne by local governments.”³⁶ This includes planning and implementing disaster response.³⁷ In the subway sarin attack, the Tokyo metropolitan government assumed these responsibilities. The metropolitan police have primary jurisdiction over law enforcement, investigation, maintenance of law and order, and prevention of further attacks. Under the Tokyo regional disaster plan, the Tokyo Metropolitan Fire Department (TMFD) is responsible for providing first aid to victims, selecting the hospital(s) to which victims will be transported, and providing transportation to hospitals. To fulfill its mission of providing non-hospital emergency medical care, the TMFD has 182 emergency medical teams and 1,650 emergency medical technicians ready to serve the Tokyo metropolitan area.³⁸ Each emergency medical team is staffed by one emergency life-saving technician (ELST) who provides basic medical treatment and may provide advanced treatment only with the express permission of a medical doctor. There is no system that provides for doctors to ride along with ELSTs, but the Tokyo Metropolitan Ambulance Control Center (TMACC) has a staff physician on call 24 hours a day who may permit ELSTs to perform advanced medical procedures.

The disaster response plan in place in 1995 recognized that local resources could be overwhelmed in a large-scale disaster. Thus, several provisions for extra assistance were in place. The plan called for staff from surrounding hospitals to be dispatched to the disaster scene to assist local ELSTs. Similarly, mutual aid agreements, in which other localities and prefectures lend assistance to the disaster-stricken site, were in place prior to the sarin attack.³⁹ Prefectures, which comprise (but do not have legal authority over) several municipalities, provide assistance and support when a disaster overwhelms municipal resources. As one of 12 designated “large cities” in Japan, Tokyo functions almost like a prefecture in terms of resource allocation, yet the “wards” that make up the city have less autonomy than municipalities.

³⁶ Furukawa, “An Institutional Framework,” p. 5. In Japan, “the fundamental law of disaster management” assigns responsibility for managing disasters to the emergency management offices in the wards in metropolitan areas like Tokyo, and in cities, towns, and villages.

³⁷ Tetsu Okumura, Kouichiro Suzuki, Atsuhiko Fukuda, Akitsugu Kohama, Nobukatsu Takasu, Shinichi Ishimatsu, and Shigeaki Hinohara, “The Tokyo Subway Sarin Attack: Disaster Management, Part 1: National and International Response,” *Academic Emergency Medicine*, Vol. 5, No. 6 (1998), pp. 613-617, at p. 625.

³⁸ *Ibid.*, p. 614.

³⁹ *Ibid.*

Moreover, because it is the capital of Japan, Tokyo is home to national government agencies as well as city agencies. Thus Tokyo is more able to coordinate resources and personnel across agencies and levels of government than most prefectures of other large cities.⁴⁰

National crisis management agencies

In Japan, the governor of the affected prefecture is in charge during an emergency. Local government must request assistance from the appropriate national agency in order to secure assistance from that agency.⁴¹ For instance, a request to the Japanese Self Defense Force (part of the Defense Agency) must originate from the local government. Moreover, because the legal head of the SDF is the Prime Minister, the subsidiary of the Defense Agency cannot act without the Prime Minister's consent. The SDF possesses a wide knowledge of chemical warfare agents and possesses some decontamination abilities. It also has the ability to rapidly assemble communications systems and medical triage units. There are the two bureaucratic hurdles to overcome before the SDF can enter the disaster area or carry out rescue operations: receipt of a request and approval.⁴²

If the disaster is of such magnitude that it requires national emergency measures and is labeled a "major disaster," the national government establishes a Headquarters for Major Disaster Countermeasures.

The National Police Agency plays largely a support role, but does have the authority to coordinate and command local law enforcement and to assign police from other prefectures to assist police in the affected municipality.⁴³

⁴⁰ Furukawa, "An Institutional Framework," p. 4.

⁴¹ However, a governor may not have the best information, as was the case following the great Hanshin earthquake of 1995. In other cases, the governor may be reluctant to request help for a variety of political reasons. Interview with Shun'ichi Furukawa, Institute of Policy and Planning Sciences, University of Tsukuba, November 1, 2000.

⁴² Okumura, et al, "The Tokyo Subway Sarin Attack," p. 614.

⁴³ Interview with Yoshihide Kuroki, Chief Superintendent, Special Advisor for Counterterrorism, National Police Agency, October 31, 2000.

MAJOR CONSEQUENCE MANAGEMENT ISSUES

There are several lessons to be learned from Tokyo's experience regarding actions that can be taken to mitigate the consequences of a WMD terrorist attack. Emergency response has immediate, near-term, and long-term phases. Actions may overlap from one stage to the next, but specific actions may be necessary at particular stages. This section of the paper examines the consequence management actions that were taken after the subway sarin attack and outlines the changes made to the Japanese consequence management plans in the years after the attack.

Problem Recognition

Problem recognition, or the ability to gather information, construct a pattern with that information, and disseminate both up the chain of command, is an immediate to near-term response activity. Gathering information is the responsibility of first responders, those best positioned to arrive on the scene to begin rescuing victims upon receiving report of a crisis. In the subway attack scenario, transit workers were the first responders because of their proximity to the attack sites.

There was a significant delay in recognizing the nature of the problem during both sarin attacks, as is illustrated by the chronology of the subway attacks. Sarin was released in the subway cars shortly before 8:00 A.M. Immediately after the release, sick passengers staggered from the five affected trains at several stations. By 8:10 A.M., the transit workers operating the Hibiya line recognized that something was amiss. Their announcements to passengers on the trains and in the stations progressed from "sick passenger" to "explosion occurred at Tsukiji" then "Tsukiji next stop" and finally "evacuate, evacuate, evacuate."⁴⁴ Despite these alarming announcements and the influx of emergency response personnel into the station, the Hibiya line train departed Tsukiji, headed for Kasumigaseki, only seven minutes late. Not for several more minutes did subway officials direct passengers to leave the station and halt service.⁴⁵

Meanwhile, on the Chiyoda line, passengers pointed out two packages leaking an unknown fluid onto the floor of a train car. Station employees responded by mopping up the mess with newspaper and their bare hands, and sending the train on its way. Two of these employees later died from sarin exposure. When

⁴⁴ Kaplan and Marshall, *The Cult at the End of the World*, pp. 248-49.

⁴⁵ *Ibid.*

the full impact of the situation was realized, station employees posted handmade signs outside of the stations announcing that they were closed “owing to a terrorist attack.”⁴⁶

The Marunouchi line continued to run until 9:27 AM, long after the others closed down, leaving a trail of sarin up and down the entire line.⁴⁷ This potentially contaminated several additional stations, and could have exposed countless passengers and employees to sarin.

It is not surprising that transit workers were unable to identify the nature and scope of the situation. They were not trained to identify or respond to chemical or biological weapons, and they did not have a centralized system to monitor disturbances at the various stations. Thus, in most stations, the employees thought they had isolated sick passengers or chemical spills.

Police and emergency medical technicians are better equipped to identify and respond to a crisis. However, even though the metropolitan police began receiving calls shortly after the attack, it was not until 8:44 AM that the National Police Agency (NPA) became convinced that a major problem was at hand and a serious response effort was required.⁴⁸ Before 9:00 AM, the NPA suspected that a chemical agent was the cause of illness. The NPA called upon the Self Defense Force (SDF) to send two chemical warfare experts to assist emergency operations units. Yet, even though police at all levels of government believed there was a major problem, trains continued to run until 9:27 AM, almost an hour and a half after the metropolitan police began receiving calls, and over 30 minutes after the NPA determined that a major incident had occurred.

Neither the identity of the agent nor the effectiveness of the dispersal methods were known to most victims or emergency response personnel until several hours after the attack. Police and military authorities did not identify the agent as sarin for nearly two hours after the attack.⁴⁹ They did not share

⁴⁶ Ibid.

⁴⁷ Ibid., p. 250.

⁴⁸ It is unclear whether there was a lack of reporting or a lack of recognition.

⁴⁹ Although accounts vary, most assert that police identified the agent prior to 11 AM. All agree that the diagnostic tool was chromatograph-mass spectrometer analysis.

that information with other emergency response agencies for another hour; according to many sources, hospitals were never officially informed of this assessment.⁵⁰

In Tokyo, the delay in halting service and evacuating passengers had several root causes. First, this type of attack was virtually unprecedented. Thus it presented a completely novel situation for most government employees at all levels.⁵¹ No response plans or training existed to prepare response personnel for a WMD attack.

Second, the coordinated, multi-site nature of the attack was initially unknown to train operators and other first responders. Each station thought it had an isolated sick passenger situation. When passengers pointed to the leaking bags that contained the sarin, station employees cleaned them up, assuming they were unrelated incidents. Not for one full hour after the attack were enough calls aggregated at the police emergency switchboard to allow authorities to connect the incidents and formulate an assessment of the situation.

Third, no contingency plans detailing how to respond to a WMD attack existed outside of the military. Thus, even if the inexperienced response personnel had identified the nature of the incident, they would not have had a plan to guide them in how to proceed.

Finally, bureaucratic barriers hindered the immediate recognition and response. *Tatewari*, a term that translates roughly as “compartmentalized bureaucracy,” describes the stovepiped agencies that comprise the Japanese government. The agencies do not usually work together, but rather work separate from — or

⁵⁰ Physicians at St. Luke’s Hospital asserted that, “The police did not inform us directly.” According to several reports, a physician who treated victims of the Matsumoto attack contacted St. Luke’s hospital after seeing news coverage of the subway situation and suggested the possibility that the causative agent was sarin. The physician, from Shinshu University Medical Department, personally phoned all Tokyo regional hospitals and faxed them information on sarin. See Okumura, et al., “The Tokyo Subway Sarin Attack,” p. 621. See also Haruki Murakami, *Underground* (NY: Vintage Books, 2000), p. 217-219.

⁵¹ At the time of the Tokyo attack, the Matsumoto attack was still officially labeled an accident. A link between Aum Shinrikyo and the use of sarin in Matsumoto had been established with soil samples from an Aum compound in November 1994, but police did not investigate this connection after the subway attack. The newspaper *Yomiuri Shimbun* had run a story in January 1995 outlining the link and pushing for an investigation. However, Kono Yoshiyuki remained a suspect until Aum confessed to the crime in the summer of 1995. See Reader, *Religious Violence*, p. 221.

even in competition with — one another.⁵² Even when each agency does its job, the lack of cross-agency communication and cooperation hinder effective response and recovery operations. This was particularly acute following the Kobe Hanshin earthquake of 1995 and was also evident in the aftermath of the sarin attack, when the highly independent nature of government agencies contributed to the delay of agent identification.⁵³ In both of these disasters, agencies did not communicate with one another; thus information and expertise were not readily shared.

Subsequent revision to improve problem recognition: WMD training for first responders

The first responders in the subway attack were transit workers, police officers, emergency medical technicians, firefighters, and physicians. Many of them did not have the requisite training to recognize — and function in — a contaminated environment. One lesson that was acted upon by Japanese officials after the attacks was that response personnel need WMD-specific training.

After the sarin attack, the SDF began providing information to the police and the media on dangerous chemical agents. According to a senior military official, “Since the Tokyo sarin attack, nerve agents have become a recognized measure of terrorism. Therefore, information on nerve agents has become open, and a manual for emergency medical services personnel has been published.”⁵⁴ In addition to education in agent identification, on-the-ground training for police and fire personnel is now being provided by the SDF.⁵⁵ The Tokyo municipal fire department is working with Tokyo University on emergency planning. Volunteers are being trained how to respond to chemical and biological weapons. For example, in the sarin attack it was quickly discovered that volunteer and professional responders should not rush in to help without personal protection because of the risk of secondary contamination.⁵⁶ This contradicted the

⁵² Interview with Nozomu Asukai, M.D., PhD, Department of Psychiatry, Tokyo Institute of Psychiatry, November 1, 2000.

⁵³ See also Furukawa, “An Institutional Framework.”

⁵⁴ Okumura, et al. “The Tokyo Subway Sarin Attack,” p. 626.

⁵⁵ Interview with Colonel Masaaki Iwaki, Chief, Operations Research Office, Japan Defense Agency, October 31, 2000.

⁵⁶ Interview with Makato Tsuruki, Professor, University of Tokyo, and President of the Antiterrorism Section of the Police Policy Studies Association, October 31, 2000.

working assumption that rescue workers should enter the disaster as soon as possible, in their standard professional attire, to rescue victims.

Training is being reinforced with simulations. A large-scale disaster drill in Tokyo in September 2000 provided multiple agencies at all levels of government with the opportunity to apply their new skills in a simulated catastrophe. This type of large-scale simulation is relatively new to response agencies in Japan.

Despite the progress in training and exercising, however, agencies remain divided in their training and duties. Although one SDF official notes that the SDF has a better working relationship with the police and with other countries now than it did prior to the sarin attack, collaboration has not become a regular part of the relationship between the agencies.⁵⁷

Incident Management

Incident management is an immediate priority in any disaster situation. In Tokyo, within five minutes of determining that the situation merited a serious response, which occurred at 8:44 AM, the NPA requested the assistance of two SDF chemical warfare experts. The NPA and SDF immediately established a joint police/army investigative unit. A second emergency unit was established to coordinate the police, fire, rescue, and medical responders. There were, nevertheless, significant planning, logistics, and operations difficulties that contributed to the delay in the reaction by transit workers and public safety officials.⁵⁸

Two main issues led to the lack of strong incident management. First, the delay in problem recognition meant that operations began without a properly-established incident management system (IMS):

IMS is a generic term for the design of ad hoc emergency management teams that coordinate the efforts of more than one agency under a unified command. It is a functionally based organizational template that facilitates information flow, decision-making, and operational coordination...[that] is designed to manage complex or multisite emergency events.⁵⁹

⁵⁷ Interview with Iwaki, October 31, 2000.

⁵⁸ In a WMD attack, time is crucial. For example, prophylaxis for victims of a biological attack must often be initiated in the first hours or days after exposure in order to be effective.

⁵⁹ Hank Christen, Paul Maniscalco, Alan Vickery, and Frances Winslow, "An Overview of Incident Management Systems," *Perspectives on Preparedness*, No. 4, Executive Session on Domestic Preparedness, John F. Kennedy School of Government, Harvard University (September 2001) at <http://www.esdp.org>.

Because the multi-site nature of the incident was initially overlooked, there was no effort to coordinate the provision of resources to each contaminated area. The first emergency call came into the Tokyo Metropolitan Fire Department at 8:09 AM. For the next hour calls came in from fifteen different subway stations. However, the TMFD failed to rapidly establish a link between these events. Approximately one hour after the attack, the TMFD set up emergency response operations headquarters at the affected stations. However, the rapid onset of symptoms meant that the establishment of response centers came after the most severely affected patients had been triaged.⁶⁰

Another example of the problems caused by a lack of coordinated command and control was poor unit assignment. Upon receiving the first call for assistance, the fire department sent all of their personnel to the Tsukiji station, the first station to call in the emergency, leaving minimal resources for other emergency calls. When calls began pouring in from the other affected stations, there were no firefighters left to respond.⁶¹

A second barrier to efficient incident management was the lack of established interagency relationships.⁶² Physicians who worked at St. Luke's International Hospital (SLIH) at the time of the subway attack say that, "during this disaster, the concerned organizations acted independently and there was too little communication among them."⁶³ The police, fire department, and Hygienic Department of the Tokyo Metropolitan government functioned simultaneously but without any central coordination.⁶⁴

This problem was particularly acute between agencies at different levels of government. For months following the Matsumoto attack, for example, the Self Defense Force had been unwilling to cooperate with the police.⁶⁵ The police agency had primary responsibility for crisis management, and authority to call in the SDF when support was required. However, "at the early stage of this disaster, the full abilities

⁶⁰ Okumura, et al, "The Tokyo Subway Sarin Attack," p. 615.

⁶¹ Interview with Asukai, November 1, 2000.

⁶² "The Aum affair teaches us that ... coordination among concerned governmental agencies are absolute necessities in preventing and responding to future terrorism." Miyasaka, "Terrorism and Antiterrorism in Japan," p. 8.

⁶³ Okumura, et al., "The Tokyo Subway Sarin Attack," p. 616.

⁶⁴ The Hygienic Department of the Tokyo metropolitan government is directly responsible for metropolitan disaster planning. See Okumura, et al., "The Tokyo Subway Sarin Attack," p. 626.

⁶⁵ Interview with Tsuruki, October 31, 2000.

of the Japanese Self Defense Forces were not used. Complicated formalities delayed the implementation of these forces.”⁶⁶ This was especially unfortunate given that SDF personnel had far more CBW training than did police, as well as decontamination capability.

The sharp bureaucratic divisions coupled with an organizational culture that did not emphasize cooperation also stymied the subway attack investigation. The lack of cooperation between the NPA and SDF eventually grew so problematic that some specialists quit the SDF so that the police could hire them as trained personnel to investigate the scene.⁶⁷

Subsequent revisions to incident management: Creating plans

Perhaps the most important change has been in the way officials think about terrorism, and more specifically terrorism as a subset of consequence management for all natural and manmade disaster. The government views the threat of terrorism through a broader lens and no longer focuses solely on left-wing activities and hostage taking in its response plans. Moreover, terrorism with a weapon of mass destruction has moved to the front of the stage to join hijackings on the list of “serious incidents” under the Crisis Classifications for Preparing Response Plans.⁶⁸ Japan’s government held its first bioterrorism conference in 1999, and in the same year, the SDF secured its first budget for anti-bioterrorism preparedness.⁶⁹

At the time of the subway attack, “there [were] no concrete articles in the Japanese legal system providing for a single, coordinated headquarters for disaster management.”⁷⁰ The national government has worked since 1995 to enhance not only its response capabilities, but also its overarching response plan. A formal response plan has been agreed upon, as detailed below in a graphic supplied by the Cabinet Office for National Security and Crisis Management.

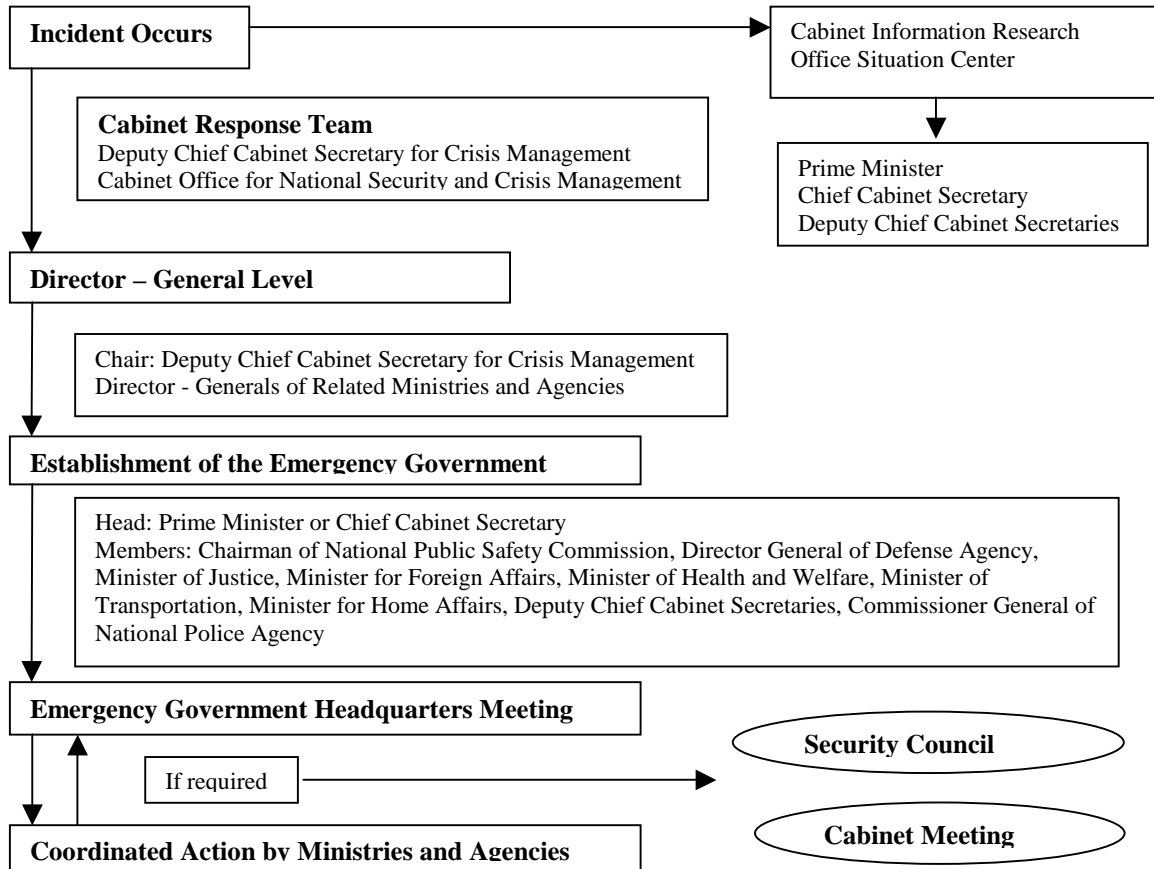
⁶⁶ Okumura, et al., “The Tokyo Subway Sarin Attack,” p. 626.

⁶⁷ Interview with Tsuruki, October 31, 2000.

⁶⁸ The two other categories are natural disasters and serious accidents. See Cabinet Office for National Security Affairs and Crisis Management handout on file with the author.

⁶⁹ Mike Green, Conference Report, “New Approaches to U.S.-Japan Security Cooperation,” proceedings from Japan Society Conference, October 30-31, 2000, p. 11, on file with the author.

Figure 1.



Subsequent revisions to improve incident management: Bridging interagency divides

In an effort to remedy the lack of an agreed-to incident management structure and the lack of interagency cooperation, revisions were made at the national level. The management issues are summarized in Figure 1. Elements of interagency cooperation that have been targeted for improvement include:

- clarifying information liaisons and establishing a chain of communication up to the Prime Minister,

⁷⁰ Okumura, et al., “The Tokyo Subway Sarin Attack,” p. 626.

- providing equipment for information transmission between ministries, agencies, and the Prime Minister;
- defining procedures for convening emergency meetings of officials at the Prime Minister's residence; and
- establishing the position of Deputy Chief Cabinet Secretary for Crisis Management.⁷¹

The fourth revision enumerated above — the post of Deputy Chief Cabinet Secretary — was created in April 1998 to “make primary decisions on initial government response to emergencies and perform overall coordination among measures taken by related ministries and agencies ... and to prepare various government response plans to different types of emergencies and coordinate those of related ministries and agencies.”⁷² A second entity, the Office for Crisis Management in the Cabinet Secretariat, was established to support the Deputy Chief Cabinet Secretary. The primary function of the two entities is to assist with preparation and coordination among national agencies. This effort to facilitate interagency cooperation represents a relatively new operating procedure for post-war Japan, and is much needed if agencies are going to break the long-standing tradition of working independent of one another.

More recently, the Council Against NBC Terrorism was created to tackle various issues related to counterterrorism. The council, a meeting of Japanese government officials chaired by the Deputy Chief Cabinet Secretary for Crisis Management, has met twice (August 2000 and April 2001). Other participants include Directors-General of ministries and agencies such as Police, Defense, Fire and Disaster Management, Foreign Affairs, Science and Technology, Health, Economy, Trade and Industry, and the Coast Guard. At the 2001 meeting, various agencies described the measures they took in response to the sarin attack, and discussed plans to improve response in the future. Indeed, these meetings are designed to facilitate discussion among the national-level agencies involved in terrorism response, as well as to create a strong national response plan. Thus, several new efforts at bridging interagency divides, at least at the national level, are underway.

The new national response plan will not solve all of the incident management problems that emerged during the response to the subway attack. Deeply entrenched political norms, some of which are embodied in the response plan, remain a hindrance to effective response.

⁷¹ Furukawa, “An Institutional Framework,” p. 6.

⁷² Kazuharu Hirano, Cabinet Councilor, Cabinet Office for National Security and Crisis Management, notes presented on October 30, 2000, at the Japan Society Conference.

First, the Japanese political system is *designed* to be cautious. After World War II, “coordination and integration functions of the administration were carefully constructed to ensure checks-and-balance systems in the inter-rivalry compartmentalization of bureaucratic organizations.”⁷³ The combination of relatively weak authority and massive bureaucracy foster slow and deliberate decision making, which can be problematic in a crisis situation.

Second, the new response plan shown above assumes a “top down” structure in which national-level agencies coordinate the immediate disaster response. However, local and regional governments are almost inevitably the first responders in a terrorist attack or a natural disaster. This is true primarily because of proximity to the disaster site, but also because local and regional response agencies are often better equipped to handle disasters because they routinely respond to natural disasters and because they possess the primary legal authority to respond. Thus national agencies should not presume that circumstances or knowledge will permit them to dictate the terms of the response from the top.

Third, the response plan is designed for national agencies. According to the Cabinet Office for National Security and Crisis Management, comparable response plans for terrorism do not widely exist at the prefecture or local level.⁷⁴ Local response plans tend to be generalized to apply to all disasters, although specific contingency plans for earthquakes typically exist. The national cabinet office is encouraging prefectures to emulate the national model establishing specific contingency plans for terrorism as one potential type of disaster.⁷⁵ Because local and regional personnel will arrive at the scene before national agencies, response plans must be developed at the local and regional levels, not just at the national level. Moreover, national response plans should be based on — or at least designed to work in concert with — local plans.

⁷³ Furukawa, “An Institutional Framework,” p. 5.

⁷⁴ Correspondence from government official (who requested anonymity) from the Cabinet Office for National Security and Crisis Management, September 7, 2001, on file with the author.

⁷⁵ Correspondence from government official, Cabinet Office for National Security and Crisis Management, September 7, 2001.

Communication

The need for strong communication spans the temporal spectrum, but is particularly important immediately following the attack when a proactive communications strategy can aid rescue and recovery efforts. A good intergovernmental communication strategy facilitates allocation of resources, implementation of response plans, and establishment of a chain of control. Communication between the government and the public can minimize panic, facilitate smooth evacuation or quarantine, and provide instructions and information to victims and others.

In the immediate aftermath of the subway attack, communication across agencies was hindered by a variety of technical and cultural barriers. On the technical front, for example, the Tokyo Metropolitan Ambulance Control Center (TMACC) could not effectively manage the dispatch of emergency medical technicians in part because “information regarding this disaster exceeded their ability to manage communications,” which led to a system overload.⁷⁶ As a result of communications overload, emergency medical technicians lost radio contact with the TMACC, and were thus unable to secure permission to perform advanced medical treatment such as intubations. This directly affected patient care: all but one victim had to wait until admission to a hospital in order to receive intubation and adequate ventilation.⁷⁷

Another result of communication system overload was that EMTs could not acquire hospital availability information, and were thus forced to find out which hospitals had beds available via public telephone, or simply to take patients to the nearest or largest hospital.⁷⁸ This method made tracking the number, location, and medical status of patients all but impossible.

Difficulties were not confined to the medical arena, nor were they all technical: communication infrastructure and information sharing were inadequate across disciplines and levels of government. Channels of communication among local emergency response workers, transit workers, and medical personnel were poor. Although police had information confirming that sarin was the source of the problem by 11:00 AM, the hospitals and the TMFD were never officially notified that sarin was the agent used in the attack. Some personnel found out by watching the news, some learned it from patients who

⁷⁶ Okumura, et al., “The Tokyo Subway Sarin Attack,” p. 614.

⁷⁷ Ibid.

⁷⁸ Ibid., p. 615.

were watching the news, and others were assisted by tips from physicians who had responded to the Matsumoto attack and recognized the symptoms described by television and radio.⁷⁹

An extended form of cross-agency communication involves working with similarly situated agencies in other countries that have reason to be concerned about the disaster. Communication with the international community about either sarin attack was all but absent. Anxious nations, including those with Aum chapters based within their borders, were not promptly briefed by Japanese officials; most learned of the attack and subsequent investigation via television and radio. Aum had members in Russia and the United States, and some members had visited Australia, where they performed experiments that left livestock dead. The United States, in particular, was worried about a possible attack due to Aum's strident anti-Western teachings. The silence persisted through the near and long-term periods following the attack. FBI officials and other members of the U.S. government were frustrated by the lack of cooperation and information sharing by the Japanese government. One American official complained that he "found out more from the morning paper than from our briefings from the Japanese."⁸⁰

Equally important is communication with the public: victims and concerned citizens alike. A public affairs campaign can provide the public information about evacuation, transportation, and treatment. This did not occur in the subway sarin attack, both because the government did not rapidly identify the nature of the situation or the appropriate response, and because no public affairs strategy had been prepared for a mass-casualty terrorist attack. The first confusing messages were transmitted to the public by the transit department. False announcements on trains added to the confusion among victims and responders. Further messages were transmitted via the media. The images portrayed on the 9:00 AM news, which may have exacerbated the nervous frustration of victims and concerned parties, were of confusion and chaos: victims were shown becoming ill, staggering around the city, and searching for answers.

⁷⁹ It was not until three hours after the incident that the Tokyo Metropolitan Police communicated the positive identification of sarin to the public at a press conference. Once the medical staff receiving patients were convinced sarin was involved, they were able to tailor patient treatment accordingly. Nozomu Asukai, MD, PhD, "Health Effects Following the Sarin Attack in the Tokyo Subway System" unpublished manuscript on file with the author. See also Okumura, et al., p. 615; Amy Smithson and Leslie-Anne Levy, "Ataxia: The Chemical and Biological Terrorism Threat and U.S. Response" Stimson Center Report No. 35 (October 2000), p. 97.

⁸⁰ Kaplan and Marshall, *The Cult at the End of the World* p. 265

Communication between the government and the Japanese people was no clearer in the early or near-term period after the attack than it was during and immediately following the attack. According to experts, “In contrast to the cult’s loud declarations of innocence, Japanese authorities seemed intent on keeping the public in the dark.”⁸¹ The silence practiced by most government agencies began immediately after the attack and continued for days. This perpetuated the general fear within the population and among victims, who only knew that the perpetrators were at large and thus could launch a follow-up attack. As a result of the government’s silence, “Aum was winning the propaganda war hands down.”⁸² Cult members even attracted throngs of teenaged groupies who clipped pictures of the charismatic young Aum spokesman and other accused members.

The media, already heavily focused on the sarin attack, became obsessed with Aum Shinrikyo. However, the emphasis was on the nature of Aum and its members, the disintegration of Japanese society and standards, and the loss of safety in society rather than on the phenomenon of terrorism or weapons of mass destruction. The continuing fixation with Aum certainly influenced society’s long-term impression of the attack. The constant media coverage and the revelation of new discoveries over several months “heightened the sense of unease [among Japanese] and called into question, [for] many people, the competence of the public authorities.”⁸³

Subsequent revisions to improve communication: Infrastructure and strategies

Underdeveloped communications systems and strategies resulted in difficulties at all three stages of response: immediate, near-term, and long-term. Since 1995, the government has undertaken several initiatives designed to repair communications deficiencies. Most of these improvements have focused on infrastructure and on the interagency relationships that need to be in place in order for that infrastructure to be useful in information sharing. There has not been a strong focus on building a public affairs strategy that would enable the government to communicate effectively with the public.

⁸¹ Ibid., p. 259.

⁸² Ibid., p. 273.

⁸³ Reader, *Poisonous Cocktail*, p. 108.

One example of a technical advancement involves “a communication system for disasters, including video and satellite communication systems, [which] has been developed in central and local governments.” In tandem with this effort, outdated systems were repaired.⁸⁴ In addition, a new disaster reporting system was instituted whereby authorized taxi drivers report details on disasters to a taxi control center via their standard radios.⁸⁵ Until the communication infrastructure is widely improved, however, a robust reporting system will exist in plans only, and will be ineffective in practice because telecommunications lines will be overwhelmed and will become disabled as they were after the sarin attack.

Improving communication is not limited to repairing and expanding physical infrastructure. Some of the biggest problems experienced after the sarin attack resulted from organizational and cultural, rather than technical deficiencies. Repairing these deficiencies is difficult, however, because many officials prefer to wait until they can provide full and accurate information before offering any information at all. Communication problems stemmed from two sources: organizational design and culture favoring the withholding of information, and professional reluctance to divulge information that might be incomplete or uncertain. In the first case, many of the organizations and individuals involved in the recovery operation in Tokyo had not often worked together previously and therefore lacked established relationships. For instance, police, fire, medical, and transportation personnel had not necessarily established a trust that could facilitate information sharing. In the second case, communication between agencies, with the public, and with the international community was limited where information was unconfirmed or incomplete. The lesson learned in Tokyo, and in many other disasters around the world, is that officials must share the information they do know in a timely manner. If the media do not have an authorized spokesperson to turn to, they will fill that void with information, correct or otherwise, from whatever sources will step up to the camera.

Personal Protection and Decontamination

Protecting personnel who enter contaminated environments and decontaminating the site are immediate and near-term concerns. In the subway scenario, primary contamination claimed the lives of 10

⁸⁴ Furukawa, “An Institutional Framework,” p. 6.

⁸⁵ Okumura, et al., “The Tokyo Subway Sarin Attack,” p. 617.

passengers and two transit workers in the subway attack. Secondary contamination —response workers sickened indirectly by exposure to victims who have been in direct contact with the chemical — incapacitated, but did not kill, many response personnel in Tokyo. Natural decomposition of sarin’s strength, and the fact that the sarin used was only 30% pure were mitigating factors that reduced the casualty count. If Aum had used pure sarin or advanced delivery technology, or if this had been an attack with a biological agent, the lack of rapid decontamination of the subway and the victims could have been fatal to far more people.

The first responders in this incident were, because of their proximity to the attack site, subway workers. Ignorant about the source of the illnesses, many well-meaning transit workers handled sick passengers or touched the sarin while cleaning up the spillage. Two workers died after they removed the newspaper that had concealed the agent and absorbed some of it.

The second wave of the response included firefighters, police, and emergency medical technicians. At 8:20 a.m. the first call came into the Tokyo emergency switchboard with a complaint of a foul odor in the Kamiyacho station on the Hibiya line. At 8:33 a.m., the fire department emergency squad received a call that six passengers had collapsed at the Nakano Sakaue Station on the Marunouchi line. Emergency workers without appropriate gear took care of severely poisoned victims. Many were overcome by sarin exposure.⁸⁶ Emergency medical service personnel at the scene were contaminated by sick victims: of 1,364 EMTs, 135 suffered acute symptoms and required medical treatment.⁸⁷ Others were contaminated while transporting victims to the hospital. After witnessing the effects of secondary contamination, police ordered response personnel to wear masks. At 9:00 a.m., police finally began blocking access to subways that transit officials had not yet closed.⁸⁸

Almost simultaneous with the influx of traditional emergency response personnel into the subways and surrounding areas was the involvement of hospital workers. Because no information that the incident was caused by poison gas was available in the first few hours of the attack, patient decontamination was not

⁸⁶ See Asukai, “Health Effects Following the Sarin Attack p. 3.

⁸⁷ Okumura et al., “The Tokyo Subway Sarin Attack,” p. 615.

⁸⁸ Smithson, *Ataxia* p. 93

initially attempted, and 23% of the 472 house staff that were exposed to contaminated patients showed signs of sarin poisoning.⁸⁹ Table 1 depicts their symptoms.

Table 1.⁹⁰

Secondary Exposure Symptoms in the Hospital Workers at St. Luke's Hospital n = 472		
Symptom	#	%
Eye symptoms	66	14
Headache	52	11
Throat pain	39	8.3
Dyspnea	25	5.3
Nausea	14	3
Dizziness	12	2.5
Nose pain	9	1.9

After St. Luke's Hospital staff learned that the victims were suffering from exposure to a nerve agent, they decontaminated patients "by having them change clothes and shower." This was a time-intensive ordeal because "it took time to determine the cause of the victims' illness ... and [there was] not enough space for changing clothes and showering."⁹¹ The hospitals lacked adequate decontamination facilities and training, and therefore had to rely on this rudimentary method of decontaminating patients.

In 1995, the only agency that possessed the ability to decontaminate an area exposed to a chemical or biological agent was a specialized task force of the Self-Defense Force.⁹² Between 4:50 PM and 9:20

⁸⁹ None were seriously affected. See Sadayoshi Ohbu, MD, Akira Yamashina, MD, Nobukatsu Takasu, MD, Tatsuo Yamaguchi, MD, Tetsuo Murai, MD, Kanzoh Nakano, MD, Yukio Matsui, MD, Ryuzo Mikami, MD, Kenji Sakurai, MD, And Shigeaki Hinohara, MD, "Sarin Poisoning on Tokyo Subway" (Tokyo, Japan) at <http://www.sma.org/smj/97june3.htm>

⁹⁰ Okumura, et all, "The Tokyo Subway Sarin Attack," p. 620.

⁹¹ Ibid.

⁹² According to a high-ranking official in the National Police Agency, the police had no decontamination capabilities.

PM⁹³ — over eight hours after the attack — the task force decontaminated the subway cars with a bleach and water mixture.⁹⁴ The subway was back in service later on the day of the attack. The SDF did not assist hospitals that were attempting to decontaminate patients.

Subsequent revisions to protection and decontamination: Equipment and infrastructure

Since 1995, the Japanese national government has invested in protective gear and decontamination equipment. One concrete example is the introduction — purchased with a one-time expenditure of one billion Yen from the national government — of protective gear, decontamination kits, and detectors into police training and response. Forty-seven local police forces benefited from this investment.⁹⁵ Another is that a special US Marine Corps unit for CBW management was deployed to Japan to assist with training.

Despite these investments, decontamination capabilities remain underdeveloped.⁹⁶ According to an official in the Cabinet for Crisis Management, the NPA decontamination capability is intended for use on police officers, not civilians or buildings. The SDF has more extensive capacity to decontaminate roads, buildings, and members of the public. However, as in both sarin attacks, the bureaucratic barriers to rapid response by the SDF may render this resource ineffective. The Fire Disaster Management Agency has some decontamination equipment that is available for both personnel and the public. Although at least three national agencies and several local police departments possess at least some decontamination equipment, the official notes that the national plan has not yet “determined the specific role or responsibility of [each] agency at the scene.”⁹⁷ Therefore, what decontamination capability exists may not be rapidly or effectively deployed.

⁹³ Smithson, *Ataxia* p. 94.

⁹⁴ This process was shown on the evening news. Interview with senior Cabinet Officer for National Security and Crisis Management.

⁹⁵ Correspondence from Yoshihide Kuroki, Special Advisor for Counterterrorism, National Police Agency, November 1, 2000.

⁹⁶ Correspondence from Tetsu Okumura, MD, Department of Acute Medicine, Kawasaki Medical School, September 19, 2001.

⁹⁷ Correspondence from government official, Cabinet Office for National Security and Crisis Management, September 7, 2001.

Finally, hospitals' decontamination capability requires further attention. The Japanese government distributed decontamination equipment and personal protection equipment to hospitals beginning in 2000. By 2002 nearly 80 hospitals will have some decontamination capability. However, the budget only allows for four personal protection suits for each hospital, and additional units must be purchased at the expense of the hospital.⁹⁸ Because of budget constraints and competing priorities, hospitals may choose not to expand on the government-initiated capacity to operate in a contaminated environment, or to create decontamination facilities.

Medical Surge Capacity

Medical surge capacity is the ability of the healthcare system to handle an influx of patients that exceeds the normal patient load. Surge capacity includes physicians, nurses, hospital staff, medication, physical space, beds, equipment, and communication infrastructure.

One component of medical surge capacity is the system's ability to attend to patients' vital needs at the disaster site: that is, to allocate immediate care capabilities by determining which patients need immediate care, which can safely wait, and which are beyond help. A complementary component is the ability of medical community to "flex" so that it can accommodate patients' needs within secure health care facilities. Approximately one hour after the subway attack, the TMFD set up emergency response operations headquarters at the affected stations. The TMFD requested assistance from the regional medical association, and forty-seven doctors, twenty-three nurses, and three clerks responded. In addition, St. Luke's hospital, the nearest medical facility, sent eight doctors and three nurses. However, the rapid onset of symptoms meant that the establishment of response centers came after the most severe patients had been attended to,⁹⁹ and by the time supplemental personnel arrived, the patients in most serious need of attention had been transported to the hospital. The hospitals, ironically, had been depleted of key personnel as they had sent them out into the field. In essence, the system "flexed" at the wrong time, and therefore in the wrong direction.

A second aspect of surge capacity is the ability to transport patients to functioning medical facilities. By the end of the day on March 20, 1995, 1,364 emergency medical technicians and 131 ambulances had

⁹⁸ Correspondence from Tetsu Okumura, September 19, 2001.

responded to patients at fifteen subway stations.¹⁰⁰ The emergency medical system and medical transportation were overtaxed: 688 patients of the sarin attack were transported by ambulances during the course of the day.¹⁰¹ Hospitals outside the center of the disaster offered to help the overcrowded hospitals such as St. Luke's, but they could not be fully used due to lack of available transportation.

In several local hospitals, capacity was also put to the test. Approximately 5,500 people went to 280 medical facilities on the days on and following the attack. In all, 1,046 patients were admitted to 98 hospitals.¹⁰² The best data comes from St. Luke's International Hospital, which saw the most patients from the attack. At 8:40 a.m., patients began flooding into St. Luke's; within an hour the hospital had received 150 patients. In total, St. Luke's saw 641 patients that day, and over 1,400 patients the following week.¹⁰³ Like other hospitals in the metropolitan area and beyond, it was overwhelmed. Exhausted physicians who had sarin victims added to their existing caseloads treated patients in hallways. At 9:20 a.m., St. Luke's Hospital administrators declared an emergency, canceling routine operations and outpatient services. All hospital facilities, including chapels and halls, were used to treat sarin victims.¹⁰⁴

Hospital communication systems were also overwhelmed. St. Luke's reported that jammed systems made it impossible to communicate from one department to the next. As a result, "hospital staff resorted to shouting down the halls or personally hunting down a particular colleague."¹⁰⁵

Part of what overwhelmed the medical system was a category of affected people called the "worried well." The worried well included exposed and unexposed individuals that sought — but did not really require — medical care. Some may have been exposed to the attack but not physically affected. Others may have heard about the attack and were concerned for their welfare even though they had not been exposed to the chemical. Still others exhibited psychosomatic symptoms that led them to believe they

⁹⁹ Okumura, et al., "The Tokyo Subway Sarin Attack," p. 615.

¹⁰⁰ Ibid., p. 614.

¹⁰¹ Smithson, *Ataxia*, p. 95.

¹⁰² Asukai, "Health Effects Following the Sarin Attack," p. 2.

¹⁰³ Okumura, et al., *The Tokyo Subway Sarin Attack*, p. 619.

¹⁰⁴ Ibid., p. 621.

¹⁰⁵ Smithson, *Ataxia*, p. 96.

were in danger. Some people associated preexisting conditions with symptoms described by sarin victims, such as eye pain or nausea. conditions with symptoms described as being experienced by victims, such as eye pain or nausea.

Of the more than 5,000 patients whose hospital visits were directly related to the attack, less than 20 patients were admitted and treated in intensive care units.¹⁰⁶ At St. Luke's, only five patients were deemed in critical condition, while forty-three men and sixty-three women were admitted in "moderate" condition: a small proportion of the 641 victims seen by medical practitioners on the day of disaster. People who did not exhibit symptoms of exposure — easily over one half of the patients seen at St. Luke's alone — represent the worried well that clogged the system and postponed treatment of affected individuals.¹⁰⁷ Because the source of the attack and the symptoms of patients were unknown, physicians were unable to distinguish exposed patients in need of medical intervention from the thousands of worried well that flooded hospitals all around Tokyo.

Subsequent revisions to medical capacity: Expanded surge capacity

There is a concern on behalf of hospital administrators and staff that if hospitals must tend to large numbers of casualties following a disaster, quality of care will suffer because the facilities are unprepared to handle the unexpected influx of patients who flood the system as a result of the disaster.¹⁰⁸ Yet this issue of building adequate medical surge capacity — the resources to handle excess casualties — is difficult to solve. According to Tetsu Okumura, MD, "because of tight medical economics, almost all hospitals in Japan do not have sufficient surge capacity."¹⁰⁹ This is unlikely to change, particularly given the fact that, "directors of Japanese hospitals think that expenses against disasters and terrorism are unprofitable."¹¹⁰

¹⁰⁶ Asukai, "Health Effects Following the Sarin Attack," p. 3.

¹⁰⁷ Headache and malaise were the most common persistent, generalized symptoms noted after discharge from the hospital.

¹⁰⁸ Correspondence from Tetsu Okumura, MD, December 1, 2001.

¹⁰⁹ Correspondence from Tetsu Okumura, MD, September 19, 2001.

¹¹⁰ Ibid.

In part as an attempt to remedy the lack of adequate medical capacity, the Tokyo National Disaster Center was founded in July 1995. This hospital represents the first disaster-oriented hospital in Japan. In non-disaster times, the hospital serves as an educational facility. In times of crisis, the hospital provides hundreds of extra beds.

Although this facility is a thoughtful step forward in creating medical surge capacity, this approach ignores the fact that surge capacity requires more than hospital beds. Medical capacity in general must be strengthened: transportation, communication, pharmaceutical supplies and delivery channels, and medical professionals all factor into this equation. Thus, Japan has yet to solve the question of how to provide adequate medical surge capacity.

Subsequent revisions to medical capacity: Hospital plans

In Tokyo at the time of the sarin attack, most hospitals did not have extra capacity or specific plans to deal with mass-casualty disasters. Even where emergency response plans were in place, resources were inadequate to handle the demand. A physician at St. Luke's observed that, "to aid the house staff in achieving and maintaining a proper level of disaster preparedness, SLIH conducts routine disaster drills. The nerve gas attack was so unprecedented in nature and site, however, that management guidelines were inadequate; we had no means of handling such an extraordinarily large number of simultaneously affected patients."¹¹¹

After the attacks, hospitals began developing plans to manage mass casualties. The planning is still in a formative stage, and varies from one facility to the next.¹¹² The Kawasaki Medical School Hospital, a teaching facility, developed a manual for managing WMD disasters. Dissemination of these standards to other Japanese hospitals will advance preparedness.

Law Enforcement

Much of the near-term and long-term response to the sarin attack consisted of law enforcement. Two different aspects of law enforcement were present: investigation, detention of suspects, and trial; and the

¹¹¹ Ohbu, et al., "Sarin Poisoning on Tokyo Subway".

¹¹² Correspondence from Tetsu Okumura, December 1, 2001.

passage of legislation intended to facilitate trial and punishment of the perpetrators of the crime, and to prevent future crimes.

In the days after the attack, more than 2,000 police officers mobilized for a nationwide investigation into the sarin attack and Aum Shinrikyo members and facilities. On March 22, 1995, only two days after the subway attack, authorities raided the Aum commune at Kamikuishiki. Preparing for the worst, police wore gas masks and carried canaries into the residence. That same day police raided the 25 offices, compounds, and complexes throughout Japan belonging to the cult. However, even though police raided Aum centers equipped with full protective gear, they refused to publicly acknowledge any link between the sarin attack and the cult.¹¹³

It was not until days later that the government revealed that Aum had a cache of weapons and weapons-grade chemicals. By the end of the first week in April, the police had gathered enough evidence to begin arresting members of Aum Shinrikyo. More than 150 cult members had been arrested by late April, but none of the arrests were based on a connection with the sarin attack. By mid-1996 over 400 cult members had been arrested on charges ranging from kidnapping to drug production to participation in the sarin attack.¹¹⁴

On October 30, 1995, the Tokyo District Court ordered the dissolution of the cult's status as a religious organization. Aum appealed, but lost the case, and on December 19, 1995, its religious status was officially revoked. Legally, this did not prevent Aum members from practicing their faith or running affiliated business ventures. Rather, the cult lost the legal protections guaranteed to religious groups, including its tax-exempt status.¹¹⁵

¹¹³ Kaplan and Marshall, *The Cult at the End of the World*, p. 255.

¹¹⁴ Mark Mullins, "The Political and Legal Response to Aum-related Violence in Japan: A Review Article," *The Japan Christian Review* (Tokyo), Vol. 63 (1997).

¹¹⁵ *Ibid.*

Subsequent revisions in law enforcement: A narrow legal framework

The sarin attack spurred the passage of several pieces of legislation. Some, such as the legislation increasing undercover police powers, had broad impact on police powers.¹¹⁶ Most, however, were narrowly tailored to apply to Aum Shinrikyo and the sarin attack.

Less than one month after the subway attack, the Japanese Parliament passed the Law Related to the Prevention of Bodily Harm Caused by Sarin and Similar Substances. The law prohibits the manufacture, possession, and use of sarin and similar substances.¹¹⁷ The laws guaranteeing religious freedom were also modified after the sarin attack. On December 8, 1995, the Diet passed revisions to the Religious Corporations Law that granted authorities “greater leeway in monitoring potentially dangerous religious organizations.”¹¹⁸ The government also began reevaluating laws restricting police actions, anti-terrorism policies, and consequence management plans. In June 1996, the Police Law was revised “to enable prefectural police to extend their authority out of their border by their own judgment and responsibility in dealing with transprefectural organized crimes.”¹¹⁹ Finally, The Group Regulation Act of 1999 was passed to regulate groups that have committed indiscriminate mass murder. The law does not directly refer to Aum Shinrikyo, but it did allow police to put Aum under surveillance for a maximum of three years.

Although several pieces of legislation were passed in direct response to the sarin attack, the government chose moderate language and limited the measures that restricted civil liberties. Some government officials suggested invoking the Anti-Subversive Activities Law of 1952 with regard to Aum Shinrikyo. The law would have prohibited Aum from recruiting and fundraising; training followers; and publishing materials promoting its beliefs. In addition, the law would have permitted ongoing surveillance of the group by the police. To invoke the law, the National Police Agency first had to exhaust all other legal remedies, and then prove that the violence committed by the group “was politically motivated and that

¹¹⁶ Abigail Haaworth, “The Naked City,” *Tokyo Journal*, July 1995, pp. 32-37, p. 37.

¹¹⁷ Brackett, *Holy Terror*, p. 155.

¹¹⁸ Mullins, “The Political and Legal Response,” p. 63.

¹¹⁹ [http:// ww.npa.go.jp/keibi2/it8.htm](http://ww.npa.go.jp/keibi2/it8.htm)

there is a strong possibility that future acts of violence will be committed.”¹²⁰ In this case, however, officials decided not to apply the law both because other remedies were available, and because they determined that Aum did not pose a credible future threat. Moreover, although there was significant political and public support for the measures that were invoked, the majority of the population did not support invoking the Anti-Subversive Activities Law, which many saw as compromising freedom of speech and other civil liberties.

One expert noted that the laws that were passed, “can be located between the Anti-Subversive Activities Law, which the government failed to apply to Aum in 1997, and ‘doing nothing’.”¹²¹ The narrow focus of the measures passed after the Aum attack means that they may not be useful should another chemical attack, or even a biological attack, take place in Japan. Although it may be difficult to secure the focus of lawmakers in the absence of an emergency situation, laws pertaining to the possession, transfer and use of biological and chemical agents should be on the books before another disaster occurs.

Compensation for Damages

The government has not taken significant steps to correct all of the shortcomings revealed in the aftermath of the sarin attacks. One shortfall has to do with financial compensation. Victims are still responsible for much of the cost of their long-term recovery.

Compensation for damages is both a near-term and a long-term concern. The families of 18 individuals who were killed or severely injured by the Matsumoto and Tokyo attacks received a total of \$424,000, which averages out to just over \$23,000 each.¹²² Many other injured Japanese were able to submit worker’s compensation claims for damages resulting from the attack. In Japan, an injury received while in transit to or from a place of employment qualifies as a work-related injury. As of September 1995 over 4,000 individuals had filed worker’s compensation claims relating to the sarin attack.¹²³ Of those claims,

¹²⁰ Mullins, “The Political and Legal Response.”

¹²¹ Miyasaka, “Terrorism and Antiterrorism in Japan” p. 7.

¹²² These figures are in 1998 dollars. Mari Yamaguchi, “For Victims of the Subway Nerve Gas Attack, the Nightmare Goes On,” Associated Press, March 18, 1998.

¹²³ In addition to the worker’s compensation claims, the restitution was made to the families of those killed in the attack in the amount of \$23,000 USD each.

almost all were recognized as “involved in the accident resulting from commutation and over 300 as having been involved in the accident in the course of duty.”¹²⁴ The Labor Ministry has incurred \$2.6 million in expenses associated with these victims.¹²⁵ However, many of the victims’ claims remain unpaid.

Aum Shinrikyo, not the national or local government, is actually responsible for paying most of the compensation. Under Japan’s worker’s compensation laws, the state can claim damages for insurance benefits it pays to a third party in a case where the damage is caused by another entity.¹²⁶ In this case, the government has refused to pay for medical or other damages suffered by the victims because Aum, the culpable third party, is considered liable for these expenses. The Health and Welfare Ministry, relying on this legal distinction, has not offered any payment for comprehensive follow-up care or other support, nor has it offered to provide these services.¹²⁷ Unfortunately, the cult’s assets at the time of dissolution were approximately one billion Yen, not even close to the five billion Yen in claims filed by victims.¹²⁸ Furthermore, Aum declared bankruptcy on December 14, 1995.¹²⁹ In the end, an estimated 80% of the claims against Aum will go unpaid.¹³⁰ Not until 1999 did Aum formally acknowledge that two of its members were involved in the attack and offer to pay some compensation to victims.¹³¹

Subsequent revisions to compensatory services: Government forfeiture

In early 1998, the state and some local governments announced that they would forfeit their claims against Aum, which total 520 million Yen. This move is an effort to allow more individual victims to

¹²⁴ The government estimates that these claims will total over Y3 million. “Victims of Sarin Incident on Tokyo’s Subway System Recognized as Eligible for Workmen’s Compensation,” *Public Policy*, Vol. 34, No. 12, December 1, 1995.

¹²⁵ Yamaguchi, “The Nightmare Goes On”.

¹²⁶ *Ibid.*

¹²⁷ Yamaguchi, “The Nightmare Goes On”.

¹²⁸ Tetsushi Kajimoto, “Aum Three Years Later: Victims struggle for redress” *Japan Times* March 18, 1998.

¹²⁹ Mullins, “The Political and Legal Response”.

¹³⁰ Kajimoto, “Aum Three Years Later”.

¹³¹ Miyasaka, “Terrorism and Antiterrorism in Japan” p. 2.

recover greater shares of the cult's assets.¹³² This government action, although thoughtful and appropriate, does not address the systemic shortcomings of the remediation system. In many instances, victims had to pay their own medical bills and were not reimbursed by the worker's compensation system. This led to some degree of financial suffering for all involved.

Psychological Recovery

Most individuals affected by the attack — both directly and indirectly — have successfully managed the trauma associated with the event. “The first anniversary of the world's largest ultraterrorist attack came and went with only modest observance and emotion. Prime Minister Ryutaro Hashimoto visited the station, transit officials and families held a brief ceremony, families laid small tributes, such as flowers.”¹³³ Subsequent anniversaries have received incrementally less attention. Most of the victims of the sarin attack have recovered physically from the sarin exposure. However, psychological effects linger for many victims and their families.

One study of victims of the sarin attack questioned thirty-five inpatients in a metropolitan hospital six months after the event. The results showed that 26% of the patients were at high risk for posttraumatic stress disorder (PTSD). The overall conclusion drawn from the study was that 20-25% of at least moderately poisoned victims suffered from PTSD or subthreshold PTSD symptoms.¹³⁴ The same hospital surveyed 20 patients who visited for a checkup two years after the event: 10% were identified as suffering from PTSD; 10% were identified as recovered from PTSD. Although a few victims have suffered permanent or long-term debilitating physical effects, the more common issue has been the psychological trauma associated with the attack.

Subsequent revisions to improve mental health care: Awareness and training

After the sarin attack there was no concerted effort to address the unique psychological challenges of WMD terrorism. Those patients who were admitted to hospitals that had psychological services were

¹³² Ibid.

¹³³ Brackett, *Holy Terror*, p. 181.

¹³⁴ Asukai, “Health Effects Following the Sarin Attack,” p. 5.

offered assistance. Patients at smaller hospitals had to seek out private treatment on their own. All care was the financial responsibility of the patient.

No official government response has occurred in the ensuing years. Five years after the attack, a group of mental health specialists offered psychiatric intervention for victims. Considering the delay in service, a surprisingly high number – 84 victims – attended the clinic on the first day of operation.¹³⁵ Psychiatrists involved in the effort acknowledge that early intervention would have been much more useful in facilitating rapid and more complete recovery for victims.

In light of this understanding, Japan is making an effort to train physicians and other emergency responders to recognize and treat symptoms of posttraumatic stress disorder. Until 2000, the Ministry of Health provided a day-long lecture on PTSD. Beginning in 2001, the training will last for three days. Thus far over 2000 people have been trained to deal with PTSD among victims.

LESSONS AND IMPLICATIONS FOR THE UNITED STATES

The islands of Japan face myriad natural disasters — including typhoons, earthquakes, and volcanoes — on a regular basis. As a response to one such disaster — the Hanshin Kobe earthquake of January 1995 — Japan had already begun revising its disaster management plans before the sarin attack occurred.¹³⁶

After Aum Shirikyo attacked civilians with sarin on two separate occasions, thereby introducing terrorism with a chemical agent in an urban setting as a new disaster threat, the Japanese government and civil organizations became much more concerned with incorporating antiterrorism efforts and WMD response planning into general disaster plans.¹³⁷

Japan has now made concrete improvements to many consequence management capabilities. This section analyzes some of the lessons of the attack and provides suggestions for further enhancements to consequence management plans that can also be implemented in the United States.

¹³⁵ “Sarin Victims Say More Must be Done,” *Asahi Shimbun*, March 20, 2000

¹³⁶ Furukawa, “An Institutional Framework,” p. 3. Over 6,000 people lost their lives in the Hanshin Kobe earthquake.

¹³⁷ Interview with Tsuruki, October 31, 2000.

Many of the lessons learned in Japan also offer insights for the United States: relationships between various players need to be built; telecommunications infrastructure strengthened; medical surge capacity enhanced; laws passed to enable appropriate surveillance and prosecution methods; and psychological care capabilities improved. The United States has confronted several of these challenges, some with greater vigor and success than others. By and large the approach has been to enhance the “all-hazards” approach to disaster management, rather than to “specialize,” and in this way prepare to handle the aftermath of a WMD terrorist attack.

There are, however, considerations that distinguish a WMD terrorist attack from a natural or other man-made disaster. They have been evident in the response to the anthrax attacks on members of Congress and journalists in the United States since September 2001, which taxed the public health and medical systems, revealed shortfalls in the ability of government officials to communicate effectively with one another and the public, and created a sense of fear across the country. Some of the considerations that are unique to WMD terrorism represent relatively new issues for the public safety community, while others reinforce the importance of issues that are already acknowledged, yet remain unsolved.

One issue that is specific to a hazardous materials or public health emergency is that primary and secondary contamination may cripple response efforts.¹³⁸ Decontamination is an issue not only for the disaster scene, but also for emergency transportation, hospital workers, and others. Numerous agencies and facilities must be able to recognize contamination, provide decontamination, and function in a “dirty” environment. In Tokyo, for instance, even though the SDF was the only organization with decontamination expertise, the SDF role was largely limited by protocol to the decontamination units that cleaned the trains after the recovery operations were over.

Second, a mass-casualty attack will require medical surge capacity, including sufficient medical personnel to attend to increased casualty loads. At the time of the Tokyo subway attack, mutual aid agreements — intended to improve response — had an unexpected adverse effect on patient care. Fifty-five doctors and twenty-six nurses were dispatched from area hospitals to affected stations. However, by the time the doctors and nurses arrived at the scene, severe cases had been transported to the hospital. Doctors and nurses in the field treated non-critical patients, a job that could have been done by the EMTs. Meanwhile, the hospitals were suffering a shortage of staff. For example, eleven personnel had been dispatched from

¹³⁸ This is especially true for biological agents that cause contagious diseases.

St. Luke's, the hospital that saw the most patients that day. The lesson from Tokyo is that, in a disaster that consumes resources from throughout the region, localized mutual aid agreements may simply pull resources from one area that needs them, to another that needs them as much, or less than, the home location. Governments must think creatively about contingency plans to provide and allocate medical surge capacity after an attack.¹³⁹

Third, well-established working relationships and a willingness to prioritize cooperation over interagency or intergovernment competition is essential to planning for and responding to a WMD attack. As evidenced by the various initiatives described above, the Japanese government is trying to build relationships that bridge interagency divides. As with many post-sarin attack initiatives, however, these efforts focus on the national government. Although the Response Plan encourages cooperation between the ministries and between local agencies, there is no avenue or mechanism to implement this suggestion.¹⁴⁰ This is an important aspect of preparedness, but it is too narrow of a focus. Local and prefectural governments must be included in planning, training, and even routine meetings. The same is true in the United States. Federal law enforcement and other federal agencies must work closely with state and local law enforcement, public health, fire and EMS, and recovery services. Although agencies such as the Federal Bureau of Investigations and the Federal Emergency Management Agency play lead federal roles, state and local agencies will be "on the ground" at the beginning and conclusion of any disaster. Communication between levels of government will facilitate the building of relationships, and alert the national government to the needs of local response agencies. Additionally, in Japan and in the United States, relationships must be established between military personnel and civilian first responders before a disaster occurs. These two groups need to plan and practice interacting with one another through drills. This is the best way to ensure that, in a mass casualty attack, the military has a clear role commensurate with the constitution and the society's expectations.

Fourth, legal preparation is a vital but often overlooked aspect of domestic preparedness. Japan was forced to pass a variety of laws after the sarin attack that were retroactively applied to Aum Shinrikyo.

¹³⁹ For more on the lack of surge capacity and the consequences for the United States, see Joe Barbera, Anthony G. Macintyre, and Craig A. DeAtley, "Ambulances to Nowhere: America's Critical Shortfall in Medical Preparedness for Catastrophic Terrorism." BCSIA Discussion Paper 2001-15, ESDP Discussion paper ESDP-2001-07, John F. Kennedy School of Government, Harvard University, October 2001.

¹⁴⁰ Correspondence from government official, Cabinet Office for National Security and Crisis Management, September 7, 2001.

The legal system in the United States would not permit retroactive application of the law. Therefore it is even more essential that laws be in place before an attack occurs. This enables the nation to determine, with appropriate rational debate, the limitations of investigation and other law enforcement powers. Additionally, robust legal preparedness affords law enforcement the necessary powers to investigate and prosecute those who possess or attempt to use dangerous but not yet illegal chemical, biological, or nuclear components or weapons.¹⁴¹

Fifth, although evidence shows that people behave rationally in the face of disaster, including the sarin attacks, there is a heightened risk of immediate panic, short-term trauma, and long-term post-traumatic stress disorder following a WMD attack. Therefore, it is important to tailor psychological intervention to the demands of the occasion. The United States has successfully set up hotlines and trauma centers following terrorist attacks. Contingency plans for WMD terrorism should be put in place so that counselors are prepared to deal with the particular traumas associated with an intentional use of weapons of mass destruction.

As the attack on the Tokyo subway system showed, most of the emergency response efforts, especially in the immediate aftermath of an attack, will be carried out by local transit police, fire, and medical personnel. Assistance from the federal level is necessary, but the federal government cannot and will not be the dominant player in the first minutes or hours after an attack. Therefore, it is essential that emergency responders in state and local government be prepared to deal with an unannounced attack with a weapon of mass destruction. At the same time, national-level coordination is vital to ensure that training and equipment are provided to localities in accordance with their needs, and exercises are carried out that involve personnel from multiple agencies and levels of government.

In addition, responders from all relevant agencies and all levels of government must practice skills in simulations that involve all aspects of response. Only in this way can these agencies, which may not be accustomed to working together, converge on the scene of a disaster and effectively carry out rescue and recovery operations.

¹⁴¹ For more information on the status of the law and recommendations for legal preparedness, see Juliette Kayyem, "U.S. Preparations for Biological Terrorism: Legal Limitations and the Need for Planning." BCSIA Discussion Paper 2001-4, ESDP Discussion Paper ESDP-2001-02, John F. Kennedy School of Government, Harvard University, March 2001.

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*Rebecca Storo, Project Coordinator, Executive Session on Domestic Preparedness
John F. Kennedy School of Government, Harvard University
79 John F. Kennedy Street, Cambridge, MA 02138
Phone: (617) 495-1410, Fax: (617) 496-7024
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The Program on Education Policy and Governance, a joint initiative of the Taubman Center and Harvard's Center for American Political Studies, brings together experts on elementary and secondary education with specialists in governance and public management to examine strategies of educational reform and evaluate important educational experiments.

The Saguaro Seminar for Civic Engagement in America is dedicated to building new civil institutions and restoring our stock of civic capital.

The Program on Strategic Computing and Telecommunications in the Public Sector carries out research and organizes conferences on how information technology can be applied to government problems -- not merely to enhance efficiency in routine tasks but to produce more basic organizational changes and improve the nature and quality of services to citizens.

The Executive Session on Domestic Preparedness brings together senior government officials and academic experts to examine how federal, state, and local agencies can best prepare for terrorist attacks within U.S. borders.

The Program on Labor-Management Relations links union leaders, senior managers and faculty specialists in identifying promising new approaches to labor management.

The Internet and Conservation Project, an initiative of the Taubman Center with additional support from the Kennedy School's Environment and Natural Resources Program, is a research and education initiative. The Project focuses on the constructive and disruptive impacts of new networks on the landscape and biodiversity, as well as on the conservation community.

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