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Combating Terrorism: Assessing the Threat of Biological Terrorism

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**COMBATING TERRORISM: ASSESSING THE THREAT
OF BIOLOGICAL TERRORISM**

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Assessing the Threat of Biological Terrorism

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Thank you, Mr. Chairman, for the privilege and opportunity to testify before the Committee. Since the tragic events of September 11th, many Americans have become concerned about the prospect of biological terrorism. After all, it seems plausible that hijackers willing to kill themselves, those aboard commercial airliners, and thousands more in the World Trade Center and the Pentagon might be willing to use biological agents to kill indiscriminately. These theoretical concerns have turned into a real fear. Reports that some of the suicide hijackers had shown an interest in crop-duster aircraft played a part in this transformation, as have the recent reports of the apparently deliberate use of anthrax spores in Florida.

The fear over biological terrorism is greater than the fear inspired by more conventional forms of terrorism. Some of this fear is justified and some of it is exaggerated. Some agents are highly contagious and lethal. Indeed, some biological agents if used in certain ways have the potential to deliver a strategic strike with casualty results similar to nuclear weapons. In fact, simply the fear they evoke imbues them with power. And perhaps the most frightening aspect of biological weapons is how they invade the body without notice. We fear threats we cannot see, hear, or feel.

However, in these uncertain times, it is important to maintain some perspective of the relative dangers. The twentieth century history of warfare, terrorism, and crime involving biological agents is much less deadly than that of the history with conventional explosives. While history is not a perfect guide to the future, it does provide a context for our thinking about the future. Dramatic advances in the biological sciences could create previously unimaginable opportunities for terrorists bent on using the life sciences for

their pernicious purposes. At the same time, biotechnology may provide tools that lessen these dangers. Remedies for enhanced or improvised conventional explosives, such as those used on September 11th, may be equally difficult to handle if not more so. Since the future is impossible to see clearly, we must anticipate a number of possible scenarios. We need to take account of history and hedge against the seeming imponderables of the future.

Given these heightened (and even exaggerated) public fears and given reports that law enforcement and intelligence officials believe that another terrorist attack of some kind is highly likely following the attacks in Afghanistan, there is a real need to conduct a thorough and sober assessment of biological terrorism. Such an assessment entails answering two interrelated questions. First, how feasible is it for terrorists groups to use biological and chemical weapons? And second, given the question of feasibility, how likely is it that terrorist groups would conduct attacks using biological or chemical weapons? The answers to both of these questions vary in terms of the actors involved, that is whether the biological is state-sponsored or whether it is the effort of sub-national groups or individuals acting in concert or independently of a state.

Given the answers to these two questions, I then turn to the question of what the government can and should do to deal with biological and chemical threats. I finish with some overall conclusions.

HOW FEASIBLE IS IT FOR TERRORIST GROUPS TO USE BIOLOGICAL WEAPONS?

When it comes to the feasibility of using biological or chemical weapons, states are more likely to have the resources, technical capabilities, and organizational capacity to assemble the people, know-how, material, and equipment to produce such weapons and to be able to clandestinely deliver them to valued targets. Nonetheless, mustering the resources and capabilities to inflict a devastating blow with biological agents has proven to be a formidable task even for states. The United States and the former Soviet Union dedicated considerable national defense resources to their biological weapons programs,

and both countries encountered significant difficulties along the way. Iraq also dedicated considerable resources to its biological weapons program; although Iraq's effort was more successful than most experts imagined possible, it still encountered a number of significant challenges. Some of these difficulties are unique and inevitable for state programs that aim to achieve a militarily significant capacity with military-grade agents. Lower standards of achievement are certainly possible. On balance, then, a state's ability to command resources and organize them for certain priority scientific and industrial objectives presents the potential for the greatest threat of bioterrorism.

When it comes to the feasibility of biological terrorism perpetrated by sub-national groups and individuals, the range of capability (and level of consequence) depends on whether the groups or individuals are state-sponsored or not. High-consequence biological attacks would require the assistance of a state sponsor or considerable resources. However, even these conditions do not ensure high-consequence attacks by sub-national groups or individuals. There are no widely agreed upon historical examples in the open source literature of states providing sub-national groups with biological weapons for overt or covert use. Money, arms, logistical support, training, and even training on how to operate in a chemically contaminated environment are all forms of assistance states have provided to terrorists. But historically they have not crossed the threshold and provided biological weapons materials to insurgency groups or terrorist organizations. Even if states sought to perpetrate biological attacks for their own purposes, they would probably not trust such an operation to groups or individuals that they do not completely control.

Some argue that Saddam Hussein's Iraq is the type of state that might cross this threshold.¹ However, what is more likely than a conscious decision by a country's command authority is that a unauthorized faction within a state might take it upon itself

¹ Laurie Myroie, *Study of Revenge: Saddam Hussein's Unfinished War against America*, (Washington, DC: The AEI Press), 2000. See also Laurie Myroie, "The Iraqi Connection", *The Wall Street Journal*, September 13, 2001, p. A20. In regard to the 1993 bombing, some of the case for state involvement is based on inferences that are disputed. See John Parachini, "The World Trade Center Bombers (1993)," in Jonathan B. Tucker, ed., *Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, (Cambridge, Massachusetts: MIT Press, 2000).

to use a sub-national group to do its dirty work. The alleged involvement of the Iranian government security services in the attack on American military personnel in Khobar Towers seems to be an example of this type of involvement. Thus, while the probability of states using sub-national groups or individuals to perpetrate a biological warfare attack on its behalf seems low, it is not zero. In these times of dramatic change, American and allied intelligence services should be attentive to this possibility, even though it is without historical precedent and seems unlikely.

Sub-national groups or individuals can develop or acquire their own biological weapon capabilities for clandestine use, but it is not easy. Terrorist groups and individuals have historically not employed biological weapons because of a combination of formidable barriers to acquisition and use and comparatively readily available alternatives and disincentives. Procurement of materials and recruitment of people with skills and know-how are formidable barriers. Even if some of the materials and production equipment are procurable for legitimate scientific or industrial purposes, handling virulent biological materials and fashioning them into weapons capable of producing mass casualties is beyond the reach of most sub-national groups or individuals.

In the last twenty years, there are only two significant cases of sub-national groups using or attempting to use biological weapons and a few cases where groups or individuals made efforts to acquire biological materials. In the first of those cases, the Rajneeshees, a religious cult group located in Oregon, sought to win a local election in 1984 by running its own candidates and sickening local townspeople who they expected would vote against them. Using their medical clinics, cult members ordered a variety of bacterial cultures from the American Type Culture Collection located in Maryland. They intentionally and indiscriminately contaminated ten salad bars with a strain of salmonella, sickening at least 751 people. They used commercially available biological agents to incapacitate people clandestinely, because it was important for them to avoid attracting attention. Indeed, the intentional character of the outbreak was not recognized for over a year, when members of the cult revealed details about the attacks to authorities in exchange for lighter sentences stemming from other charges.

The other case occurred more than ten years later, when another religious cult, a Japanese group called the Aum Shinrikyo, sought to develop and deliver biological agents against a number of targets. The Aum's unsuccessful attempts at biological terrorism came to light after it released liquid sarin on the Tokyo subway. While this attack was heralded as a sign that sub-national groups would begin breaking the taboo on use of unconventional weapons, six years have passed since the attack and no other group has done so.

The clearest explanation for this extremely small historical data set is the difficulty of acquiring and delivering biological weapons, as well as a number of disincentives to doing so.

HOW LIKELY IS IT THAT TERRORIST GROUPS WOULD USE BIOLOGICAL OR CHEMICAL WEAPONS?

The probability of a major biological attack by either a state or a sophisticated terrorist group seems remote. In contrast, smaller acts of biocriminality, such as the recent anthrax case in Florida, are much more likely biological terrorist attacks. While states can amass the resources and capabilities to wage biological terrorism, considerable disincentives keep them from doing so. A state that undertook a clandestine attack using biological weapons risks the prospect of the attack being traced back to them. The response to an attack with biological weapons could be devastating, which gives states reason for caution. While different U.S. administrations have articulated American policy on responding to known biological attacks in different ways, the basic position is that the United States reserves the right to respond with the full range of capabilities in the arsenal. Strategic ambiguity provides maximum flexibility while leaving no uncertainty about the potential magnitude of the response—devastating. The threat of retaliation is believed to deter states from using biological weapons clandestinely against other states.

However, there are three circumstances when a state might clandestinely wage biological terrorism. First, a state struggling for its existence might be willing to use biological weapons clandestinely as a means to forestall or to prevent a seemingly imminent defeat. There is no historical example of a state responding with a biological weapon in a moment of desperate struggle for its existence, but it is conceivable.

Second, if a state felt it could attack with biological weapons and be undetected, it might do so. In the twentieth century, there are a few examples of states using biological agents clandestinely except during times of war. For example, in the First World War, Germany sought to disrupt allied logistical capabilities by infecting horses with glanders—a contagious and destructive disease caused by a bacterium.² There a few other alleged wartime cases, but none in times of peace.

The third situation when a state might engage in biological terrorism would be when it sought to perpetrate an attack against its own citizens. In the 1980s, both the Bulgarian and the South African governments used biological materials to kill domestic political opponents. South Africa had a significant clandestine chemical and biological program that supported a major effort against regime opponents. Little is known about the Bulgarian program. Bulgarian operatives are believed to have assassinated a Bulgarian dissident in London with the toxin ricin, which they received from the Soviet KGB. Aside from state assassinations of perceived regime opponents, historically states have been extremely reluctant to use biological weapons overtly or covertly.³

Thus, state biological terrorism is a low probability threat, albeit one with potentially catastrophic consequences. During times of war, this threat increases in probability and is highest when a command authority perceives itself in a desperate situation in which using any means necessary may be its only option for survival.

² Mark Wheelis, “Biological sabotage in World War I,” in *Biological and Toxin Weapons: Research, Development and Use from the Middle Ages to 1945*, Edited by Erhard Geissler and John Ellis van Courtland Moon, SIPRI Chemical & Biological Warfare Studies No. 18, (Oxford, UK: Oxford University Press), pp. 35-61.

On a more general level, there are incentives and disincentives for using biological weapons, but the disincentives tend to win out. As for the incentives, the acquisition, transfer, production, and delivery of biological weapons make them comparatively easy to conceal if managed by skilled personnel. (Conversely, of course, while they are comparatively easy to conceal, some agents can be extremely contagious and some can be extremely deadly, making them difficult to handle.) Because bacteria and viruses are living microorganisms, small amounts can be used to grow much larger quantities. In addition, some biological agents, such as toxins, can be derived from naturally occurring plants or animals. Thus, the physical properties of some biological agents make them effective strategic weapons that can be assembled covertly.

Indeed, biological agents may appeal to terrorist groups because of what they can do or what they represent. As for what they can do, such agents may be desirable because they affect people indiscriminately, have a delayed impact, can be confused with natural disease outbreaks, and, in some cases, incapacitate rather than kill. As noted earlier, the Rajneeshees chose a biological material that would incapacitate people rather than kill, because they did not want their attack to provoke the scrutiny of authorities. Aum, in contrast, was fascinated with poisons. The cult's leader Shoko Asahara wrote songs about sarin. In addition to this pernicious obsession, Aum leaders had delusions of grandeur that far exceeded reality. They imagined a world they sought to create that was not constrained by the world in which they lived. To bring this imaginary world into being, they sought weapons they believed might trigger an apocalypse from which they would emerge as a dominant power. Since Aum leaders viewed their organization as a government and military in waiting, seeking to acquire some of the most potent weapons it believed states possessed. Instead of seeking lower-grade pathogens, Aum sought pathogens that are generally associated with military biological weapons programs. Aum exhibited this unique combination of obsession, delusions of grandeur, and belief in an apocalypse they could launch that would enable them to reign like leaders of a state.

³ For an insightful discussion historical discussion of weapons of mass destruction and their use by states and terrorist see, David Rapoport, "Terrorism and Weapons of the Apocalypse," *National Security Studies*

Despite the incentives for seeking and using biological weapons, there are a number of even more compelling disincentives. As noted earlier, terrorists may hesitate in using biological weapons specifically because breaking the taboo on their use may evoke considerable retaliation. In addition, state sponsors of terrorist groups may exert restraint on the weapons the group uses. State sponsors have a great incentive to control the activities of the groups they support, because they fear that retaliation may be directed against them if they are connected to a group that used biological weapons. Moreover, terrorists may be drawn to explosives like arsonists are drawn to fire. The immediate gratification of explosives and the thrill of the blast may meet a psychological need of terrorists that the delayed effects of biological weapons do not.

However, perhaps the greatest disincentive to using biological weapons is that terrorists can inflict (and have inflicted) many more fatalities and casualties with conventional explosives than with unconventional weapons. Putting aside the spectacular quality of the Aum subway attack with liquid sarin, far fewer people died or were injured than in similarly spectacular attacks with conventional explosives. In comparison to the bombings of the Murrah federal building in Oklahoma City, the Khobar Towers military barracks in Saudi Arabia, and the U.S. embassies in Kenya and Tanzania, fewer people died as a result of the sarin release. In comparison with the recent attacks on the World Trade Center and the Pentagon, the Tokyo subway incident, though clearly tragic, was simply an event of much smaller scale.

HOW SHOULD THE GOVERNMENT DEAL WITH THE THREAT OF BIOLOGICAL AND CHEMICAL TERRORISM?

Although the prospects of a major biological terrorist attack are remote, they are still possible. Small-scale biocrimes are much more likely. In this light, the challenge before the government is how to put relative dangers in proper perspective and yet still hedge against future eventualities that are unlikely, but possible.

Meeting this challenge is formidable, especially since the prospect of any biological attack, as noted earlier, tends to instill fear that is often disproportionate to the actual threat. In terms of biological terrorism, we have tended to conflate the heightened attention to the prospect of terrorist attacks with unconventional weapons brought on by the Aum subway attack. This has led us to cast the threat in terms of what we fear the most, not necessarily what terrorist can or plan to do. In the last six years, authorities have focused too much on the means by which terrorists might use rather than the outcome of mass destruction and mass casualties.

Put another way, when assessing threats, it is important to search for comparable metrics to gauge scope and magnitude of the threats. A very constructive reassessment of the lessons learned from the Aum experience has begun, which should contribute to our understanding of the scope and magnitude of the biological terrorism threat.⁴ The group turned to chemicals after failing with biological agents. A view that is gaining more credence with every new revelation is that “despite the expenditure of substantial time, effort, money and some requisite talent, their efforts totally failed.”⁵ The Aum’s attempt and failure are testament to both the difficulty of procuring or developing a biological weapons capability and the efforts a determined group will undertake in its quest for the capability.

Fears that the Aum attempt to acquire and use biological weapons heralded a new age in such terrorism have been a constant refrain in the years since the attack. Yet so much about the Aum is so unique that it is hard to imagine it ever being repeated. Japanese law enforcement authorities tend to make arrests only when they have an ironclad case against the perpetrator of a crime. There were several incidents prior to the

⁴ For three recent studies that provide a new assessments of the Aum experience and its implications for biological terrorism see, First Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, (hereafter referred to as the Gilmore Commission Report), *I. Assessing the Threat*, December 15, 1999; Milton Leitenberg, “The Experience of the Japanese Aum Shinrikyo Group and Biological Agents,” *Terrorism and Political Violence*, Vol. 11, No. 4, Winter, 1999; Amy E. Smithson and Leslie-Anne Levy, *Ataxia: The Chemical and Biological Terrorism Threat and the U.S. Response* (Washington, D.C.: Henry L. Stimson Center, 2000).

⁵ Milton Leitenberg, “Biological Weapons in the Twentieth Century: A Review and Analysis,” (<http://www.fas.org/bwc/papers/review/exp.htm>) (Viewed on October 4, 2001)

March 1995 sarin attack on the Tokyo subway that in retrospect should have raised suspicion. Additionally, Japanese legal provisions protecting religious organizations from intense government scrutiny inhibited authorities from intervening until long after the group committed a number of heinous acts. The Aum leadership presents another anomaly. Shoko Asahara, Aum's leader, was a controlling leader with an obsession with poisons. He wrote songs in praise of sarin. He also greatly admired another mass poisoner, Adolph Hitler.

While the reassessment of the Aum experience shows that U.S. planning for future biological and chemical attacks should not remain fixated on that experience, the lessons learned from that experience do raise some serious issues about dealing with such threats in general. One of these issues is intelligence. Despite the group's threats to kill the American president and accusations that the U.S. military attacked them with chemical weapons, the U.S. intelligence community overlooked this religious group in an allied country as a potential threat. The former head of the CIA's Nonproliferation Center said in Congressional testimony that the U.S. intelligence community did not view the Aum Shinrikyo as a terrorist entity of concern.⁶ At the time, the CIA focused its energies on Islamic terrorism, because many felt that an obscure religious group in an allied country was not a threat. They were wrong. Some of these intelligence "blind spots" have since been addressed, but which ones remain and what new ones have developed?

Two other aspects of the Aum biological weapons experience deserve special note when considering the threat of biological terrorism. Aum's global effort to procure biological materials for its nefarious purposes deserves much greater examination. While there is no open source information indicating that the Aum obtained any radiological, biological, or chemical materials in Russia, it certainly tried. That the group tried and succeeded in getting meetings with Russian scientists, some of whom had weapons expertise, is troubling.

In addition, Aum members traveled to Zaire believing they could obtain samples of the Ebola virus. There is no evidence to indicate that they were successful in their venture. What may have inspired their trip was a newspaper account of a Japanese tourist who developed a hemorrhagic fever after returning from a game safari in Africa. In fact, the time during which Aum members traveled to Zaire there were no reported outbreaks of Ebola. But once again, what is significant is that six years ago a group that may have been interested in acquiring the material for a biological agent traveled to a country seeking to obtain a deadly infectious disease. If the Aum were trying to obtain biological material from infected people or corpses for weapons purposes, this highlights a very different source of material than the weapons laboratories of the former Soviet Union. It is much easier to monitor scientific institutes that were once or are currently affiliated with weapons programs than it is to monitor the sites of deadly disease outbreaks that occur around the globe. Some thought and attention needs to be given to how natural disease outbreaks might be exploited for pernicious purposes.

CONCLUSIONS

The terrorists responsible for the tragic attacks on September 11th turned a comparatively ordinary vehicle of modern transportation into a weapon that produced mass destruction and mass casualties. The question the committee is considering today is whether a state, a sub-national group, or individuals would attempt to achieve the same outcome with biological materials used as a weapon. Despite the spectacular and fanatical nature of the attacks against the World Trade Center and the Pentagon, bioterrorism on a similarly grand scale remains a remote possibility. At the moment, only states are able to perpetrate clandestinely biological attacks on a similar scale, and they are extremely reluctant to do so. While some terrorist groups may attempt large scale biological attacks, perpetrating an attack on the same scale as the September 11th attacks is not likely. Limited attacks using biological agents as common as salmonella

⁶ U.S. Congress, Senate, Committee on Governmental Affairs, Permanent Subcommittee on Investigations, Global Proliferation of Weapons of Mass Destruction, Part I, (Washington, DC: US Government Printing Office, 1996) pp. 27-28.

and as rare as anthrax are possible. But the scope and scale of such attacks will be modest.

But even if the possibility is remote, the government has a responsibility to do all that it can to prevent, protect against, and respond to events that seem unlikely. The challenge is to determine how much to prepare for a low-probability, albeit potentially catastrophic, attack, while at the same time, guarding against not focusing enough on more probable events with significant, but not necessarily catastrophic, consequences. It is also possible to take a more proactive stance. As noted earlier, one of the reasons that terrorists do not use biological weapons is because they have alternatives that better serve their purposes. Such alternatives and disincentives to terrorist use of biological weapons deserve greater study. If we can augment disincentives for terrorists to choose biological weapons, we can narrow the possibility that they will do so.