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COMBATING TERRORISM: ASSESSING THE THREAT OF A BIOLOGICAL WEAPONS ATTACK

HEARING

BEFORE THE

SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS

OF THE

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COMBATING TERRORISM: ASSESSING THE THREAT OF A BIOLOGICAL WEAPONS ATTACK

FRIDAY, OCTOBER 12, 2001

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Christopher Shays (chairman of the subcommittee) presiding.

Present: Representatives Shays, Putnam, Gilman, Platts, Allen, Schakowsky, and Clay.

Staff present: Lawrence J. Halloran, staff director and counsel; R. Nicholas Palarino, senior policy advisor; Thomas Costa, professional staff member; Jason M. Chung, clerk; David Rapallo, minority counsel; and Earley Green, minority assistant clerk.

Mr. SHAYS. I would like to call this hearing to order and welcome our panel and our guests. Before September 11, assessing the threat of biological terrorism was disdained by some as little more than an academic or a bureaucratic exercise. Today, as we worry about access to crop dusters and suspicious anthrax exposures in Florida, a clear-eyed, a fully informed view of the threat imposed by weaponized pathogens is a national security imperative. But we still have no comprehensive threat assessment and achieving that essential perspective remains a challenge. Assessing the threat of bioterrorism requires a sober judgment about the motivations, intentions and capabilities of people so intoxicated with hate and evil, they would kill themselves in the act of killing others.

The questions that confound the assessment process, when and where will terrorists use biological weapons against us, how will the agent be disbursed, for what type and magnitude of attack should we be prepared. Available answers offer little comfort and less certainty in assessing the threat. Some conclude the technical difficulties of large scale production and efficient dissemination reduce the likelihood terrorists will use lethal agents to inflict mass casualties anytime soon. Others think those barriers have been or will soon be overcome. Still others believe that neither large quantities nor wide dispersions are required to inflict biological terror.

From this cacophony of plausible opinions, those charged with formulating a national counterterrorism strategy must glean a rational estimate about the irrational possibility of biological attack. Perhaps the most difficult dimension of the threat to assess is the

deep-seated, almost primal fear engendered by the prospect of maliciously induced disease.

For the terrorists, that fear is a potent force multiplier capable of magnifying a minor manageable outbreak into a major public crisis. Failure to account for this unique aspect of biological terrorism understates the threat, increasing our vulnerability. Overstating the threat based on fear alone invites overreaction in which we waste scarce resources and terrorize ourselves with Draconian security restrictions. If you live in a flood plane, you plan for the 10-year or even 20-year flood. You don't expect every flood to reach the 100-year level. If the least likely but worst case scenario dominates your planning, you would spend every day sitting on the roof in a raincoat waiting for the catastrophic deluge.

Instead, accepting some risk, you would prudently assess the likelihood of storm surge, buy an extra case of water and some flashlights and go on about your life. After September 11, we all live in a bio-terrorism flood plain and we should plan accordingly. A workable assessment of the biological threat demands an open discussion of risks, vulnerabilities and fears. It is that discussion we continue today. It is the discussion we will have again October 23, when Health and Human Services Secretary Tommy Thompson and others will appear before the subcommittee to discuss the role of vaccines in our near term and long-term preparedness against biological attack.

We truly welcome our witnesses and thank them for sharing their time, their expertise and their opinions with us today. At this time, I think we will recognize our senior and most experienced member, the gentleman from New York. You have the floor.

Mr. GILMAN. Thank you very much, Mr. Chairman. And I want to thank you for holding today's hearing to examine the overall threat posed by biological terrorism and the steps needed to be taken by our government to establish an effective response to a biological weapons attack. But I want to commend you, too, for your continual efforts to try to prepare our government for all kinds of emergencies that we may be experiencing as a result of terrorism. Your recent meeting yesterday where we shared thoughts with some of our experts on anti-terrorism, an informal meeting, but a highly experienced group that was giving us some thoughts that we shared together; the fractionalization hearing on our Government's efforts spread through so many of our agencies; lack of threat assessment; the need for force protection; domestic preparedness; detection technology; hearings on anthrax, chemical warfare.

You ought to be commended for this extremely intensive review of our government's programs to prepare our Nation better for these kinds of problems. And I don't think we can commend you enough for your continual efforts in this area. For many years, the possibility of a biological terrorist attack occurring in our Nation seemed absurd, something to be relegated to the realm of science fiction. Regrettably, the barbaric events of September 11th, have sharply focused our national attention on terrorism and have underscored our vulnerability to future attacks. Indeed, the bioterrorism debate has been transformed from a question of if to the seeming inevitably of when and how. The task of developing an overall strategy to successfully counteract any domestic act of biological

terrorism has proven to be a difficult challenge for our Federal and State policymakers.

Yet, there can be no doubt that there is now a sense of urgency for the resolution of this task that was not critical before this. Biological terrorism is now at the fore of our national agenda. There has been a great deal of debate in recent years about the nature of the biological terror, both in terms of where the threat originates, what specific agents pose the greatest danger. So far, the media has focused its attention on anthrax and smallpox, yet those represent merely two of the many agents which conceivably could be utilized by terrorists in any future attack. Since September 11th, we have been engaged in a war on terrorism. The President has told us it is going to be a long, protracted struggle which we all recognize; the very real potential of additional attacks on our own soil. The FBI just yesterday warned us of the possibility of an imminent attack.

Given that, it is in our interest to place greater effort on identifying both the capability of those who are likely to use biological weapons against us as well as to be able to develop effective counterterrorism measures and responses to any future attack. I look forward, along with my colleagues, to the testimony that we are going to hear from our distinguished panel of witnesses, and I am certain that their experience and insight will prove helpful to us and to this committee as Congress works to find its role in this suddenly urgent and vexing issues.

So once again, Mr. Chairman, thank you for your outstanding leadership on these important topics. And I hope you will continue in that vein. Thank you, Mr. Chairman.

Mr. SHAYS. Thank you, Mr. Chairman yourself. And I would say whatever compliments go to the staff. We have an excellent staff on this committee. At this time, I would recognize the vice-chairman of the committee, Adam Putnam and see if he has any statement.

Mr. PUTNAM. Thank you, Mr. Chairman. I appreciate your continued leadership on this issue. As everyone in this room knows, this subcommittee has held more hearings on the threats from terrorism, including chemical and biological weapons, more than any other committee in the Congress, and we appreciate your continued leadership and look forward to the testimony from this panel.

Mr. SHAYS. Thank the gentleman.

Mr. Platts.

Mr. PLATTS. Thank you, Mr. Chairman. I would just echo the comments of my colleagues and our appreciation for your leadership in holding these very important hearings and to convey my sincere thanks to our witnesses here today, to share your expertise on a critically important issue and at a very relevant time in our Nation's struggles against threats from others. So thank you for being here.

Mr. SHAYS. Before I recognize the witnesses, I just want to thank the members of this committee for being strong and active participants. Just recognizing our witnesses and then I will swear you all in and we will take your testimony. We have Raymond Decker, Director of Defense Capabilities Management Team, U.S. General Ac-

counting Office. He is going to talk about threat and risk assessment and how it is done, more or less.

We will have Ken Alibek, who is the former deputy head of the Soviet Union bioweapons program and an author of Biohazard and president of Advanced Biosystems, Inc. John Parachini, a policy analyst for RAND Corp., biological threat and terrorist groups. I think you will be addressing that issue and others.

Gerald Post, professor of psychiatry, political psychology and international affairs, George Washington University, who will share with us the motivation of terrorists. And it is my understanding, Dr. Post, that you have probably interviewed more terrorists than most anyone else.

We have an excellent panel. Just truly an excellent panel. I would like to invite you all to stand and swear you in. We swear in all our panelists.

[Witnesses sworn.]

Mr. SHAYS. Everyone has responded in the affirmative. Thank you very much and have a seat. I am going to ask unanimous consent that all members of the subcommittee be permitted to place an opening statement in the record and the record remain open for 3 days for that purpose. Without objection, so ordered. I ask further unanimous consent that all witnesses be permitted to include their written statement in the record. Without objection, so ordered.

We are going to go in the order that I called you. And let me say on the outset that I am very appreciative of the fine work that the General Accounting Office does. And I am also grateful, Mr. Decker, that you don't say you need to have a separate panel and that you are willing to participate in a larger panel. Maybe that doesn't seem unusual to you, but some in the government like to have their own panel. So I want to put on the record, thank you. It makes it easier for us to have a dialog. So you're on, Mr. Decker.

STATEMENTS OF RAYMOND DECKER, DIRECTOR, DEFENSE CAPABILITIES MANAGEMENT TEAM, U.S. GENERAL ACCOUNTING OFFICE; KEN ALIBEK, PRESIDENT, ADVANCED BIOSYSTEMS, INC.; JOHN PARACHINI, POLICY ANALYST, RAND CORP.; AND JERROLD POST, M.D., PROFESSOR OF PSYCHIATRY, POLITICAL PSYCHOLOGY AND INTERNATIONAL AFFAIRS, GEORGE WASHINGTON UNIVERSITY

Mr. DECKER. Chairman Shays and members of the subcommittee, I am pleased to be here this morning to discuss the issue of combating terrorism and an approach for managing the risk from terrorism directed at our homeland. Over the past several years, we have examined and reported on Federal efforts to combat terrorism to include weapons of mass destruction at the request of this committee and others. Our body of work includes over 60 products, based on information gleaned from a range of sources to include Federal, State and local governments, foreign governments and private entities. The events of last month and the long-term aspects of the national engagement to combat terrorism highlight the need for effective near and long-term actions at all levels of government as well as in the private sector.

The designation of a focal point within the Executive Office of the President to lead the Office of Homeland Security is a positive

step. As Governor Ridge begins to craft a national strategy to effectively prepare the Nation from future attacks, we believe a risk management approach is essential to underpin decisions which identify requirements, set priorities, direct actions and allocate resources. A risk management is a balanced systematic and analytical process to evaluate the likelihood that a threat will endanger an asset and identify actions to reduce the risk and mitigate the consequences of an attack.

We believe a good risk management approach should have three key elements, threat assessments, vulnerability assessments and criticality assessments. Allow me to briefly discuss each assessment. A threat assessment is an important process that identifies and evaluates threats using various factors such as capability, intention, past activity and potential lethality of attacks.

At the national level, the Central Intelligence Agency and other agencies of the intelligence community are responsible for those assessments that involve international terrorist threats. The Federal Bureau of Investigation gathers information and assesses the threat posed by domestic sources of terrorism. In 1999, and again, in our most recent report on combating terrorism, which was released last month—and this is A22, we had recommended that the FBI prepare a formal intelligence assessment that assesses the chemical and biological agents that could be used by domestic terrorists without the assistance or support of a foreign entity. The FBI concurred and expects to complete the assessment in December of this year.

Additionally, we recommended that the FBI produce a national level threat assessment using intelligence estimates and input from the intelligence community and others to form the basis for and to prioritize programs developed to combat terrorism to include weapons of mass destruction.

Again, the FBI concurred and expects to complete this classified study later this month. Mr. Chairman, as you know, in April 2000, we released a report on how other countries, Canada, United Kingdom, France, Germany and Israel are organized to combat terrorism. And we noted that these five countries place great emphasis on threat assessments which address the likelihood of attack. Since they stress their primary objective is prevention, these assessments have a significant importance in their planning and a response depending events.

However, I must caution that since all attacks may not be prevented, the following two assessments are essential in preparation. A vulnerability assessment identifies weaknesses in physical structures, security systems, plans, procedures and a variety of other areas that could be exploited by terrorists. For example, a common physical vulnerability might be the close proximity of a parking area near a building or structure with the obvious concern being a vehicle laden with explosives. Normally, a multi-disciplinary team of experts in engineering, security, information systems, health and other areas normally would conduct this vulnerability assessment. Teams within an organization can perform these assessments, which is the case used by the Department of Defense.

In a 1998 report, GAO report, we noted that a major U.S. multinational firm used the same approach to better focus its efforts in

overseas facilities. The final assessment is the criticality assessment, and these are designed to identify which assets are most important to an organization's mission or represent a significant target which merit enhanced protection.

For example, nuclear power plants, key bridges, major computer networks might be identified as critical assets based on national security or economic importance. Some facilities might be critical at certain times and not at other times. For example, sports stadiums or a shopping center filled with people might represent a critical asset. Typically, the affected organization would perform its own criticality assessment. And we note that the report of the Interagency Commission on Crime and Security in the U.S. seaports issued late last year, stress the need for these assessments in conjunction with threat and vulnerability assessments.

Mr. Chairman, simply stated, one must know as much as possible about threat, identify one's weaknesses to potential attack and determine which assets are most important and require special attention in order to make sound decisions on preparedness while leveraging limited resources. I have one caveat about threat assessments. Our national goal is to understand the threat and create assessments to guide our actions. To this end, there are continuous efforts by the intelligence and law enforcement communities to assess foreign and domestic threats to the Nation. However, even with these efforts, we may never have enough information on all threats. So there may be a tendency to use worst-case scenarios in this situation. Since worst-case scenarios focus on vulnerabilities and vulnerabilities are almost unlimited and would require exhaustive resources, we believe it is essential that a careful balance exist using all three assessment elements in preparing and protecting against threats.

In summary, threat, vulnerability and criticality assessments, when completed and evaluated together in a risk management-based approach, will allow leaders and managers to make key decisions which will better prepare against potential terrorist attacks that may include weapons of mass destruction. If this risk management approach were adopted throughout the Federal Government and by other segments of society, we believe a more effective and efficient preparation in-depth against acts of terrorism directed at our homeland could be affected.

Mr. Chairman, this concludes my statement and I will be pleased to respond to any questions that the committee may have.

Mr. SHAYS. Thank you, Mr. Decker. It is a very helpful statement. And we will definitely have questions.

[The prepared statement of Mr. Decker follows:]

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on National Security, Veterans Affairs, and International Relations; House Committee on Government Reform

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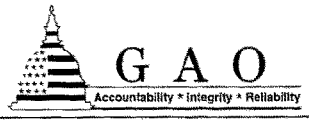
HOMELAND SECURITY

Key Elements of a Risk Management Approach

Statement of Raymond J. Decker, Director Defense Capabilities and Management



GAO-02-150T

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to be here today to discuss with you an approach to manage the risk from terrorism directed at Americans in our homeland. With the initiation of military operations against terrorist targets in Afghanistan, senior government officials indicated the need to be prepared for the potential of another attack on our homeland. There may be ways to prepare better in the event such an attack does come. We have undertaken a body of work in the area of combating terrorism, which has evaluated various facets of federal efforts to address this challenge. From this work, we identified three essential elements in an effective risk management approach to prepare better against acts of terrorism. My testimony today will focus on the three key elements that the federal government as well as state and local governments and private entities should adopt to enhance their timely preparedness against potential threats.

Summary

Risk management is a systematic and analytical process to consider the likelihood that a threat will endanger an asset, individual, or function and to identify actions to reduce the risk and mitigate the consequences of an attack. Risk management principles acknowledge that while risk generally cannot be eliminated, enhancing protection from known or potential threats can reduce it. A good risk management approach includes three primary elements: a threat assessment, a vulnerability assessment, and a criticality assessment. Threat assessments are important decision support tools that can assist organizations in security-program planning and key efforts. A threat assessment identifies and evaluates threats based on various factors, including capability and intentions as well as the potential lethality of an attack. Over the past several years, we have recommended that a comprehensive, national threat assessment be conducted by the appropriate federal agencies. Nonetheless, we will never know whether we have identified every threat, nor will we have complete information about the threats that we have identified. Consequently, we believe that the two other elements of the approach, vulnerability assessments and criticality assessments, are essential and required to prepare better against terrorist attacks. A vulnerability assessment is a process that identifies weaknesses that may be exploited by terrorists and suggests options to eliminate or mitigate those weaknesses. A criticality assessment is a process designed to systematically identify and evaluate an organization's assets based on the importance of its mission or function, the group of people at risk, or the significance of a structure. Criticality assessments are important because they provide a basis for prioritizing which assets and structures require higher or special protection from an attack. The

approach that we have described could help prepare us against the threat we face and permit better direction of our resources to areas of highest priority.

Background

As demonstrated by the terrorist attacks of September 11, 2001, the United States and other nations face increasingly diffuse threats. Potential adversaries are more likely to strike vulnerable civilian or military targets in nontraditional ways to avoid direct confrontation with our military forces on the battlefield, to try to coerce our government to take some action terrorists desire, or simply to make a statement. Moreover, according to the President's December 2000 national security strategy,[1] such threats are more viable today because of porous borders, rapid technological change, greater information flow, and the destructive power of weapons now within the reach of states, groups, and individuals who may aim to endanger our values, way of life, and the personal security of our citizens.

Hostile nations, terrorist groups, and even individuals may target Americans, our institutions, and our infrastructure with weapons of mass destruction—including biological, chemical, radiological, nuclear, or high explosive weapons. Although they would have to overcome significant technical and operational challenges to make and release many chemical or biological agents of a sufficient quality and quantity to kill large numbers of people, the possibility exists that it could be done and it has been attempted. For example, in 1995, the Aum Shinrikyo group succeeded in killing 12 people and injuring thousands by releasing the nerve agent Sarin in the Tokyo subway. Prior to the Aum Shinrikyo attack, in 1984, the Rajneeshee religious cult in Oregon contaminated salad bars in local restaurants with salmonella bacteria to prevent people from voting in a local election. Although no one died, hundreds of people were diagnosed with food-borne illness.

A fundamental role of the government under our Constitution is to protect America from both foreign and domestic threats. The government must be able to prevent and deter attacks on our homeland as well as detect impending danger before attacks or incidents occur. Although it may not be possible to detect, prevent, or deter every attack, steps can be taken to manage the risk posed by the threats to homeland security.

[1] *A National Security Strategy for a Global Age*, December 2000.

A Risk Management Approach Can Help Prepare Against Terrorism

Risk management is a systematic, analytical process to consider the likelihood that a threat will harm an asset or individuals and to identify actions to reduce the risk and mitigate the consequences on an attack. Risk management principles acknowledge that while risk generally cannot be eliminated, enhancing protection from known or potential threats can reduce it.

A risk management approach exists that may be used to enhance our level of preparedness for terrorist threats. This approach is based on assessments of threat, vulnerabilities, and criticality (importance). A variation of this approach is currently used by DOD, which we discuss in our September 2001 report on combating terrorism.[2] One of the largest U.S. multi-national corporations uses another variation of the approach. In addition, the Interagency Commission on Crime and Security in U.S. Seaports has proposed a similar approach to assess the security of U.S. seaports.

Threat Assessments Are An Important Step in Implementing the Approach

A threat assessment is used to evaluate the likelihood of terrorist activity against a given asset or location. It is a decision support tool that helps to establish and prioritize security-program requirements, planning, and resource allocations. A threat assessment identifies and evaluates each threat on the basis of various factors, including capability, intention, and lethality of an attack. Intelligence and law enforcement agencies assess the foreign and domestic terrorist threats to the United States. The U.S. intelligence community—which includes the Central Intelligence Agency (CIA), the Defense Intelligence Agency, and the State Department's Bureau of Intelligence and Research, among others—monitors the foreign-origin terrorist threat to the United States. The FBI gathers information and assesses the threat posed by domestic sources of terrorism. Threat information gathered by both the intelligence and law enforcement communities can produce threat assessments for use in national security strategy planning. By identifying and assessing threats, organizations do not have to rely on worst-case scenarios to guide planning and resource allocations. Worst-case scenarios tend to focus on vulnerabilities, which are virtually unlimited, and would require extraordinary resources to address. Therefore, in the absence of detailed threat data, it is essential that a careful balance exists using all three elements in preparing and protecting against threats.

[2] *Combating Terrorism: Actions Needed to Improve DOD Antiterrorism Program Implementation and Management* (GAO-01-909, Sept. 19, 2001).

Several federal government organizations as well as companies in the private sector apply some formal threat assessment process in their programs, or such assessments have been recommended for implementation. In 1999, and again in our recent report on combating terrorism, we recommended that the FBI prepare a formal intelligence assessment that specifically assesses the chemical and biological agents that could be used by domestic terrorists without the assistance or support of a foreign laboratory.[3] The FBI concurred and expects to complete its assessment in December 2001, although it noted a limitation in its methodology. The FBI stated that its law enforcement role placed limitations on its collection and use of intelligence data, and the Bureau added that it had little intelligence on specific domestic terrorist groups. We also recommended that the FBI sponsor a national-level threat assessment that uses both intelligence estimates[4] and inputs from the intelligence community and others to form the basis for, and to prioritize, programs developed to combat terrorism. The FBI concurred and stated last month that the assessment is being finalized. This latter assessment is expected to be classified. The Department of Defense (DOD) uses threat assessments for its antiterrorism program designed to protect military installations. DOD evaluates threats on the basis of several factors, including a terrorist group's intentions, capabilities, and past activities. The assessments provide installation commanders with a list of credible threats to their installations and can be used in conjunction with other information (such as the state of the installation's preparedness) to prepare against attack, to recover from the effects of an attack, and to adequately target resources.

Similarly, a leading multi-national oil company attempts to identify threats in order to decide how to manage risk in a cost-effective manner. Because the company operates overseas, its facilities and operations are exposed to a multitude of threats, including terrorism, political instability, and religious or tribal conflict. In characterizing the threat, the company examines the historical record of security and safety breaches and obtains location-specific threat information from government organizations and other sources. It then evaluates these threats in terms of company assets

[3] *Combating Terrorism: Selected Challenges and Related Recommendations* (GAO-01-822, Sept. 20, 2001).

[4] A national intelligence estimate analyzes issues of major importance and long-term interest to the United States and is the intelligence community's most authoritative projection of future developments in a particular subject area.

that represent likely targets. Additionally, the Interagency Commission on Crime and Security in U.S. Seaports reported that threat assessments would assist seaports in preparing for terrorist threats. [5] The Commission recommended that the federal government establish baseline threat assessments for terrorism at U.S. seaports and, thereafter, conduct these assessments every 3 years.

While threat assessments are a key decision support tool, it should be recognized that, even if updated often, threat assessments might not adequately capture emerging threats posed by some terrorist groups. No matter how much we know about potential threats, we will never know that we have identified every threat or that we have complete information even about the threats of which we are aware. Consequently, we believe that a risk management approach to preparing for terrorism with its two additional assessments can provide better assurance of preparedness for a terrorist attack.

Vulnerability Assessments Are a Way to Identify Weaknesses

A vulnerability assessment is a process that identifies weaknesses in physical structures, personnel protection systems, processes, or other areas that may be exploited by terrorists and may suggest options to eliminate or mitigate those weaknesses. For example, DuringDAA a vulnerability assessment might reveal weaknesses in an organization's security systems or unprotected key infrastructure such as water supplies, bridges, and tunnels. In general, these assessments are conducted by teams of experts skilled in such areas as engineering, intelligence, security, information systems, finance, and other disciplines. For example, at many military bases, experts have identified security concerns including the distance from parking lots to important buildings as being so close that a car bomb detonation would damage or destroy the buildings and the people working in them. To mitigate this threat, experts have advised that the distance between parking lots and some buildings be increased. Another security enhancement might be to reinforce the windows in buildings to prevent glass from flying into the building if an explosion occurs.

For private sector companies, such assessments can identify vulnerabilities in the company's operations, personnel security, and physical and technical security. The Seaport Commission recommended

[5] *Report of the Interagency Commission on Crime and Security in U.S. Seaports*, Fall 2000.

similar vulnerability assessments be conducted. It identified factors to be considered that include the accessibility of vessels or facilities, avenues of ingress and egress, and the ease of access to valuable or sensitive items such as hazardous materials, arms, ammunition, and explosives. With information on both vulnerabilities and threats, planners and decision-makers are in a better position to manage the risk of a terrorist attack by more effectively targeting resources. However, risk and vulnerability assessments need to be bolstered by a criticality assessment, which is the final major element of the risk management approach.

Criticality Assessments Are Necessary to Prioritize Assets for Protection

A criticality assessment is a process designed to systematically identify and evaluate important assets and infrastructure in terms of various factors, such as the mission and significance of a target. For example, nuclear power plants, key bridges, and major computer networks might be identified as "critical" in terms of their importance to national security, economic activity, and public safety. In addition, facilities might be critical at certain times, but not others. For example, large sports stadiums, shopping malls, or office towers when in use by large numbers of people may represent an important target. Criticality assessments are important because they provide a basis for identifying which assets and structures are relatively more important to protect from an attack. The assessments provide information to prioritize assets and allocate resources to special protective actions. These assessments have considered such factors as the importance of a structure to accomplish a mission, the ability to reconstitute this capability, and the potential cost to repair or replace the asset.

The multi-national company we reviewed uses descriptive values to categorize the loss of a structure as catastrophic, critical, marginal, or negligible. It then assigns values to its key assets. This process results in a matrix that ranks as highest risk, the most important assets with the threat scenarios most likely to occur. The Seaports Commission has also identified potential high-value assets (such as production, supply, and repair facilities; transfer, loading, or storage facilities; transportation modes; and transportation support systems) that need to be included in a criticality analysis, but it reported that no attempt has been made to identify the adverse affect from the loss of such assets. To evaluate the risk to an asset, the Seaports Commission advised that consideration be given to the mission and the military or economic impact of its loss or damage.

Conclusion

After threat, vulnerability, and criticality assessments have been completed and evaluated in this risk-based decision process, key actions can be taken to better prepare ourselves against potential terrorist attacks. Threat assessments alone are insufficient to support the key judgements and decisions that must be made. However, in conjunction with vulnerability and criticality assessments, leaders and managers will make better decisions based on this risk management approach. If the federal government were to apply this approach universally and if similar approaches were adopted by other segments of society, we could more effectively and efficiently prepare in-depth defenses against acts of terrorism against our country.

This concludes my prepared statement. I will be pleased to respond to any questions you may have.

Related GAO Products

Homeland Security

Homeland Security: A Framework for Addressing the Nation's Issues (GAO-01-1158T, Sept. 21, 2001).

Combating Terrorism

Bioterrorism: Public health and Medical Preparedness (GAO-02-141T, Oct. 9, 2001).

Bioterrorism: Coordination and Preparedness (GAO-02-129T, Oct. 5, 2001).

Bioterrorism: Federal Research and Preparedness Activities (GAO-01-915, Sept. 28, 2001).

Combating Terrorism: Selected Challenges and Related Recommendations (GAO-01-822, Sept. 20, 2001).

Combating Terrorism: Actions Needed to Improve DOD Antiterrorism Program Implementation and Management (GAO-01-909, Sept. 19, 2001).

Combating Terrorism: Comments on H.R. 525 to Create a President's Council on Domestic Preparedness (GAO-01-555T, May 9, 2001).

Combating Terrorism: Observations on Options to Improve the Federal Response (GAO-01-660T, Apr. 24, 2001).

Combating Terrorism: Accountability Over Medical Supplies Needs Further Improvement (GAO-01-463, Mar. 30, 2001).

Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy (GAO-01-556T, Mar. 27, 2001).

Combating Terrorism: FEMA Continues to Make Progress in Coordinating Preparedness and Response (GAO-01-15, Mar. 20, 2001)

Combating Terrorism: Federal Response Teams Provide Varied Capabilities; Opportunities Remain to Improve Coordination (GAO-01-14, Nov. 30, 2000).

Combating Terrorism: Linking Threats to Strategies and Resources (GAO/T-NSIAD-00-218, July 26, 2000).

Combating Terrorism: Action Taken but Considerable Risks Remain for Forces Overseas (GAO/NSIAD-00-181, July 19, 2000).

Weapons of Mass Destruction: DOD's Actions to Combat Weapons Use Should Be More Integrated and Focused (GAO/NSIAD-00-97, May 26, 2000).

Combating Terrorism: Comments on Bill H.R. 4210 to Manage Selected Counterterrorist Programs (GAO/T-NSIAD-00-172, May 4, 2000).

Combating Terrorism: How Five Foreign Countries Are Organized to Combat Terrorism (GAO/NSIAD-00-85, Apr. 7, 2000).

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Combating Terrorism: Chemical and Biological Medical Supplies Are Poorly Managed (GAO/HEHS/AIMD-00-36, Oct. 29, 1999).

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Combating Terrorism: Use of National Guard Response Teams Is Unclear (GAO/NSIAD-99-110, May 21, 1999).

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Combating Terrorism: Threat and Risk Assessments Can Help Prioritize and Target Program Investments (GAO/NSIAD-98-74, Apr. 9, 1998).

Combating Terrorism: Spending on Governmentwide Programs Requires Better Management and Coordination (GAO/NSIAD-98-39, Dec. 1, 1997).

Mr. SHAYS. Dr. Alibek.

Mr. ALIBEK. Mr. Chairman and members of the subcommittee, thank very much for inviting me here. And I think my 26-year long experience in the field of biological weapons and biological weapons defense make me, I hope, at least, experience gives me some right to discuss this issue.

Before I came to the United States in 1992, I was scientific leader of this program in the former Soviet Union. I was responsible for a large number of scientists and technicians involved in this program.

Mr. SHAYS. The rumor is it was 30,000.

Mr. ALIBEK. 30,000 people and about 40 facilities involved in research and development of biological weapons and research and development in defense against biological weapons. And we were on both sides to develop weapons and to develop defense. And now we know in this country, in the United States, we have a great deal of confusion when we discuss biological weapons and biological weapon threat. Some experts discuss and say biological weapons present very significant threat.

Some people say no, it is not a threat whatsoever. In my opinion, makes us as disarmed and we don't pay much attention to necessity to the structure of biological weapons defense. The problem is this: We discuss in many cases—we discuss anthrax. We discuss smallpox. We discuss some ways to analyze biological weapons and whether or not it is difficult. But the problem is this: This issue is much wider and bigger because when we discuss biological weapons, what we need to keep in mind are several dozen biological agents could be used in biological weapons.

There are many deployment techniques. And these techniques are not just aerosol deployment. There are many others. It is not a situation where someone has to develop a very sophisticated device to deploy biological weapons. These techniques could be, I would say, used with very primitive devices. And, you know, many such things, in my opinion, make biological weapons very dangerous, and very effective weapons could be used.

And some people ask why biological weapons? What is the difference between biological weapons, nuclear weapons or regular conventional weapons? In my opinion, biological weapons have a very significant attractiveness because of many reasons. As I said before, a number of different agents could be used; many, many different techniques. And the great diversity of biological weapons make them effective weapons. And what is important to keep in mind, biological weapons impose infectious diseases, and each biological weapon could result in absolutely different consequences. I provided, with some examples, for example, smallpox, anthrax, plague and Marburg infections. And what I would like to say it's just a small number of examples, but if you analyze all these agents and weapons, you could see how diversified these weapons are.

And unfortunately, our understanding of biological weapons is not, I would say, comprehensive enough. What we need to do now, we need to rectify our understanding and knowledge of biological weapons. As soon as we start understanding what is a real threat to biological weapons, we start understanding what kind of defense

we need to develop. The problem is this: If we still consider existing approaches in developing defense against biological weapons are perfect approaches, or plausible approaches, in my opinion, we make significant mistake. What I notice when we discuss this issue—when I read many testimonies or articles, we discuss antibiotics. We discuss vaccines. I have nothing against antibiotics.

In many cases, they could protect against bacterial biological weapons. But when we discuss vaccines, there is a very important situation why we discuss vaccines. We discuss vaccines as a possible protection for troops or in some other scenarios. Vaccines are not good protection against—in the case of bioterrorism. And you know, when we discuss and assess to spend much money to develop vaccines, it causes a significant question. Why? Vaccine needs to be introduced well in advance first. You are not capable to vaccinate entire population. You have no idea against what agent you need to vaccinate people and so on and so forth. And there is another issue. Many vaccines have not developed yet.

But we continue pushing this vaccine issue at the same time, you know, in my opinion, it shifts us toward wrong direction. What we need to keep in mind in the medical defense, there are three major areas: Prophylactics or prophylaxes we call it, urgent prophylactics and treatment. And, you know, when we spend our major resources to develop vaccines, we don't spend much time or resources to develop treatment and to develop urgent prophylaxes. In my opinion, it is a significant mistake that needs to be corrected. There is another issue—it is just one of the part of biological weapons.

Mr. SHAYS. Say that last point over again—the last point.

Mr. ALIBEK. In my opinion, when we discuss a necessity to develop new vaccines, to spend hundreds of millions of dollars to develop new vaccines, we are making a very significant mistake because vaccines are not a good protection in bioterrorism. Now we have got many agencies, many departments involved in this business. We know that these agencies and these departments have many subcontractors working in this field. But you know when we try to understand what is the scope of the problem and what the scope of the work, for example, their agencies and departments do, in my opinion, it wouldn't be possible just to create more or less comprehensive and truthful picture. In my opinion, the problem is this: We still suffer lack of coordination between these agencies. And do you know if we don't realize there is time just to develop a completely new system, we should include, in my opinion, a necessity to establish a new agency, agency which would be responsible completely just to work in the field of biodefense. And this agency would have responsibility and would have overall authority and would be able just to manage and revise what is being done by any agency, by any department in the United States.

In this case, this agency would be able to establish a system, I would say, highly centralized system to develop protection against biological weapons. The problem is this. We live in democratic country, but when we talk about national security issues or when

you talk about bioterrorism and possible huge number of casualties, there is no democracy here. It must be highly centralized and very effective system. Thank you.

Mr. SHAYS. Thank you, Dr. Alibek.

[The prepared statement of Mr. Alibek follows:]

Testimony of Dr. Kenneth Alibek
President, Advanced Biosystems, Inc.
before the
Subcommittee on National Security, Veterans Affairs, and International Relations
of the Committee on Government Reform,
U.S. House of Representatives

Topic: Combating Terrorism: Assessing the Threat of Biological Terrorism

Thank you, Congressman Shays and members of the Committee, for inviting me to testify for you today on the topic of assessing the threat of biological terrorism.

Before I left Russia in 1992, I was the deputy director of Biopreparat, the civilian arm of the Soviet Union's biological weapons program. At that time, I was responsible for approximately 32,000 employees and 40 facilities. These facilities and others in the Soviet Union were involved in developing industrial and experimental technologies for producing biological weapons based on well over a dozen different agents.

Since arriving to the United States, my personal and professional goal has been to make the greatest contribution I can to eliminating the danger of biological weapons. I have had the honor of testifying before Congress on this topic on numerous occasions, the first of which was at the invitation of Congressman Saxton before the Joint Economic Committee in 1998.

WHAT IS THE THREAT?

There is no doubt in my mind that we will see future uses of biological weapons by terrorist groups, as there have been several attempts already. One incident, in 1984, involved members of the Rajneeshee cult contaminating restaurant salad bars in Oregon with salmonella, sickening 751 people. Another involved the Aum Shinrikyo cult in Japan. Although best known for its chemical attack using sarin in the Japanese subway system in 1995, the cult also attempted to release anthrax from the rooftop of a Tokyo building in 1993. No casualties resulted, primarily because the attackers used a nonvirulent bacterial strain.* However, it is imprudent to assume that such difficulties of execution will not be overcome in the next attempt at a bioterrorist attack. We must increase our efforts to understand biological weapons and to analyze the actual threat they present.

Biological weapons can be used to achieve many goals:

- Inciting panic and fear
- Paralyzing the nation
- Overwhelming medical services
- Causing severe economic damage
- Causing illness or death
- Gaining a military advantage
- Attracting attention.

Therefore, biological weapons use would be attractive to rogue states, organized terrorist groups, and deranged individuals, although for varying reasons. Rogue nations and well-organized and well-funded terrorist groups have the greatest likelihood of mounting a successful biological attack on a large scale because of their access to microorganisms, sophisticated production and dissemination equipment, and

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* Takahashi H, Kaufmann AF, Smith KL, Keim P, Taniguchi K. The Kameido Incident: Documentation of a Failed Bioterrorist Attack. Proceedings of the 4th International Conference on Anthrax, page 27: June 2001.

scientific know-how. Such an attack would most likely be by the most efficient but most difficult dissemination route, creation of an aerosol by explosion or spraying.

Smaller terrorist groups may be able to mount a smaller attack, for instance an aerosol attack in an individual building or an attack involving an insect or human vector, or food or water contamination. Even such a limited attack would have a dramatic psychological effect and would result in disruption and a certain degree of panic. A single deranged individual is unlikely to be successful in mounting a biological attack unless he or she has particular knowledge and experience in the field.

WHAT ARE THE CHARACTERISTICS OF BIOLOGICAL WEAPONS?

Biological weapons are made up of bacteria, viruses, rickettsiae, fungi, or toxins produced by living organisms. In comparison with nuclear weapons, biological weapons are relatively inexpensive and easy to produce. Although the most sophisticated and effective versions require considerable equipment and scientific expertise, someone can produce primitive versions in a small area with minimal equipment with limited training.

Biological weapons differ from other weapons in their diversity. These weapons can be deployed by contaminating food and water sources, releasing infected vectors or creating an aerosol cloud through spraying or explosion. The consequences of biological weapons vary greatly depending on both the deployment method and the agent used: from the number and locations of people infected to the disease symptoms and the treatments required. To give you an idea of the variation involved, compare the likely results of aerosol attacks with smallpox, anthrax, plague, and Marburg.

Smallpox has a very low infectious dose—about one to five viral particles are sufficient to cause infection in 50% of exposed people. Thus, nearly all of the area that was contaminated with the primary aerosol will have a sufficient concentration to sicken people. Since smallpox is relatively stable in the environment—it can survive for days—we are likely to see additional infections from secondary aerosols that result from disturbing the sedimented agent. Smallpox is also quite contagious; in fact, its victims are contagious even before they develop symptoms. Thus, even before we know that a biological weapon has been used, the stage has been set for outbreaks in multiple locations. Finally, since there is no effective treatment currently available for smallpox, we won't be able to help those who are ill beyond providing general supportive care. The fatality rate among those who contract the disease can reach 30-50%, especially in the chaotic situation that would follow a massive outbreak. At best, we would begin a massive vaccination campaign to try to contain the outbreak

Anthrax gives us a completely different picture. First, anthrax has a relatively high median infectious dose of 10,000-20,000 spores. Therefore, a large portion of the contaminated area will not have enough bacteria to result in infection. Since anthrax is not contagious, the illness will not spread beyond those who have been in the contaminated area. With anthrax, once symptoms appear, there is no effective treatment. Inhalational anthrax is fatal in about 90% of cases. If we can identify those who were exposed before they develop symptoms, we can prevent disease by a combination of vaccination and antibiotics.

Plague presents yet another picture. With a median infectious dose of 1,000-1,500 bacteria, plague is more infectious than anthrax, but less infectious than smallpox, so we'll see a corresponding contaminated, but non-infectious, area. Like smallpox, plague is contagious, so we can expect remote epidemic foci to appear. But we will have yet another problem: contaminated rodents, which will continue to serve as reservoirs of infection. Decontamination efforts therefore must include measures directed at the rodent population. Untreated, plague is fatal up to 90% of the time. Fortunately, plague is susceptible to antibiotics. Assuming we have sufficient antibiotics readily available, the fatality rate can be diminished considerably.

Finally, Marburg virus will have still different results. With a median infectious dose of 5-10 viral particles, Marburg is nearly as infectious as smallpox, and we'll see that in the footprint of contaminated versus infectious area. Marburg in a liquid formulation is rather unstable, surviving only 15-25 minutes

after dissemination. In a dry form, it can survive for several hours. Therefore, we are not likely to see any significant secondary aerosolization. Marburg is moderately contagious, mostly through contact transmission, although transmission through infected droplets (such as those produced by a cough or a sneeze) may also be possible. This disease causes symptoms similar to Ebola and other hemorrhagic fevers. The expected fatality rate is difficult to determine, since there have been only a few small natural outbreaks of the disease. Fatalities could range from the 30-40% seen in the first, and biggest, outbreak of Marburg in Germany in 1967 to the 80-90% associated with Ebola outbreaks in Africa. For a massive outbreak resulting from a biological attack, in which medical resources are spread very thin, we would probably see fatalities towards the higher end of the range. For Marburg, there is no vaccine, no treatment short of general supportive medical care, and no cure. The outbreak will just have to run its course, much like natural Ebola outbreaks.

In addition to the wide variety of naturally occurring threat agents available, biological agents can be genetically altered, thus expanding the menu of choices. The manufacturing processes differ for producing bacterial versus viral weapons and dry versus liquid formulations; the parameters of the general processes and the characteristics of the resultant weapons differ for each threat agent.

It is difficult to state which biological agents are of greatest concern. Certainly, anthrax is of great concern because as a soil-dwelling livestock pathogen it is relatively easy to obtain, and as a spore-forming organism it is one of the easiest to disperse successfully. Smallpox is of great concern not because of the high likelihood of its use—it would be quite difficult to obtain, since few viral stocks remain in the world, and it would not be particularly easy to weaponize—but because of the tremendous potential impact of any attack with this deadly, very contagious, essentially untreatable disease.

However, a successful terrorist attack with <u>any</u> lethal agent would serve the terrorist goals of disruption, panic, economic damage, and death. Even incapacitating agents—those that cause severe illness but have low fatality rates—would achieve all of these aims except large numbers of deaths. Therefore, it is unwise to focus our defense efforts too narrowly on specific biological agents. Broad-spectrum defense efforts are key to our successful biological defense.

HURDLES TO ACQUISITION AND USE OF BIOLOGICAL WEAPONS

There are hurdles to the acquisition and use of biological weapons, but these hurdles are not insurmountable. A successful biological weapons attack requires:

- Acquisition of a virulent microorganism or toxin-producing organism
- Equipment and knowledge to produce sufficient quantities of the microorganism or toxin
- Equipment and knowledge to prepare a formulation that can be deployed as a weapon
- Equipment and knowledge to deploy the weapon

The height of the hurdle depends on the organism and methods chosen. The difficulty in acquiring a virulent microorganism or toxin-producing organism varies. For relatively common infections such as plague or anthrax, a determined terrorist could acquire the organisms with some epidemiological know-how and persistence. Acquisition from culture collections may also be possible if cloaked in legitimate research. For rarer infections, such as smallpox or Ebola, acquisition would be much more difficult.

The equipment and knowledge to produce sufficient quantities of the microorganism or toxin are quite easy to come by, and can be obtained through basic microbiology courses or scientific journal articles and other published reference materials. The equipment and knowledge to prepare a deployable formulation and to deploy the weapon, however, are another matter. The ease of acquiring these depends directly on the level of sophistication desired. To prepare liquid material for contaminating a salad bar in a restaurant, as the Rajneeshee cult did, is fairly simple. To disseminate a large amount of aerosolized agent over a large area while maintaining its virulence is far more difficult. However, it is by no means impossible, as the Soviet Union's biological weapons program clearly demonstrated. Rogue nations and well-funded terrorist groups are capable of purchasing the knowledge that these tasks require. For example, Russian biological weapons

experts are no longer contained within its borders, and some of these experts have emigrated to rogue nations such as Iraq. Nations or terrorist organizations may also be able to obtain such knowledge through their own research, given sufficient funding and time.

RECOMMENDATIONS

In my opinion, any nation or terrorist truly determined to mount a biological attack will do so. Consider the case of Iraq: despite unprecedented access to Iraqi facilities and an extensive inspection regime, attempts to wipe out Iraq's biological weapons capability were probably not successful, and also were heavily dependent on the revelations of a high-ranking defector. The Soviet Union also was able to hide an enormous biological weapons program for years. While it is important to try to prevent biological attacks, improving available defenses will have the greatest impact on our nation's security in the long run. Unlike an attack with chemical, nuclear, or conventional weapons, a biological attack would most likely go undetected until health personnel identified an unusual outbreak of disease. The medical aspects of defense against biological weapons—disease surveillance and diagnosis, medical prophylaxis and treatment—are crucial to our preparedness. We must tackle this issue from both the scientific and the organizational standpoints.

Scientifically, we need to revise our understanding of the biological weapons threat in order to develop an adequate defense. Rather than responding to specific threats, which are variable and can change rapidly by virtue of biotechnology, we should develop measures that are sufficiently broad-spectrum to address potential biological threats before they exist.

Much attention has been paid in the last few years to vaccines. However, for terrorist attacks with biological weapons, vaccines would be of little use. Vaccines must be administered days to months in advance of an attack. One or more of many possible agents could be used in the weapons, making it virtually impossible to know which agents to vaccinate against. It would also be impossible to determine which portions of the U.S. population are most vulnerable and therefore require vaccination. And there are many highly hazardous diseases for which vaccines have not even been developed yet. Although vaccination and traditional medical countermeasures (e.g. antibiotics) are all we have to counter the biological weapons threat at present, I believe it would be a far better use of our resources to develop new treatment and urgent prophylaxis methods, particularly those that are broad spectrum in nature. Similarly, I believe our detection and consequence management approaches should be broad-spectrum in nature.

Organizationally, in my opinion, it is unacceptable that our nation's defense against biological attack lacks appropriate coordination. Currently, there are multiple defense and response organizations with differing perspectives and plans. Response coordination and information-sharing among these organizations has not been adequate. Some of these organizations in fact have an incorrect and incomplete understanding of what will actually occur during a biological attack. A single specialized agency is required to solve this problem.

This agency would be focused solely on biological terrorism and biological defense, and would have authority over all other government-funded entities operating in this field. The biological defense agency would need full authority to modify the scope, mission, or focus of its subject entities, as well as to eliminate duplication of effort among entities. Such an agency would develop new concepts of bio-defense and would disseminate accurate information regarding the biological weapons threat and defense. The agency would serve as a center point for terrorist threat analysis and threat scenario development; analysis and recommendations for security measures; training for all levels of responders; standardization of disinfection methods, medical treatment recommendations, and other responses to attacks; development of new medical treatment and prophylaxis;

analysis and recommendations for security measures, and standardization of disinfection methods for various conditions. Such a biological defense agency would pull our capabilities together and reinforce them to create a highly centralized, efficient, effective national response to the threat of a biological attack.

Mr. SHAYS. We will now go to Mr. Parachini.

Mr. PARACHINI. Thank you, Mr. Chairman and members of the committee for the privilege and opportunity to testify here. 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 Pentagon might be willing to use biological agents to kill indiscriminately. Yet it is important to maintain some perspective of the relative dangers. 20th 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. We need to take account of history and hedge against the seeming imponderables of the future. When it comes to the feasibility of using biological weapons, States are more likely to have the resources, technical capabilities, 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. Mustering the resources and capabilities to inflict devastating strikes with biological agents has proved to be formidable tasks even for States.

While some terrorist groups may attempt large scale biological attempts, perpetrating an attack on a scale as that of September 11th is not likely. At the moment, only States are able to perpetrate clandestinely biological attacks and they are extremely reluctant to do so. Limited attacks using biological agents as common as salmonella and as rare as anthrax are possible. But the scope and scale of such attacks will be modest.

On balance, then, a State's ability to command resources and organize them for certain priorities scientific and industrial objectives presents the potential for the greatest threat in bioterrorism. What is more likely than a conscious decision by a country's command authority is that an unauthorized faction within a State might take it upon itself to use a subnational group to do its dirty group. The alleged involvement of the Iranian Government's security services in the attack on American military personnel in Khobart Towers seems to be an example of this type of involvement.

When it comes to the feasibility of biological terrorism perpetrated by subnational groups and individuals, the range of capability and the level of consequence depends on whether the groups or individuals are State-sponsored or not. High consequence biological attacks would probably require the assistance of a State sponsor or some other source of considerable resources. Money, arms, logistical support training, 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 material to insurgency groups or terrorist organizations.

Natural question at this time is whether an organization such as al Qaeda with the financial support of Osama bin Laden might be able to amass the resources for a significant biological attack. Think as we consider this possibility, we need to not only look at the opportunities, but the disincentives. Too often we envision what

we fear and do not take into account the thinking of somebody else. We think they are thinking like we fear as opposed to how they are thinking. And I think the most important thing I would draw your attention to is that terrorists have readily turned to more available alternatives, explosives.

And indeed, on September 11th, they took an ordinary means of modern transportation and turned it into an extraordinary killing device. The only two cases we have where terrorists have used biological weapons, one in 1984, where it was a religious cult group, the Rajneeshee, and another 11 years later by the Aum Shinrikyo. Neither of these inflicted the level of casualties that are regularly the product of conventional explosives. Both of these cases had unusual aspects to them and unusual aspects about their leadership. They were obsessed with poisoning. There were limits on what these groups could do. It is very different than that which can be perpetrated by a State.

Let me conclude by saying that the possibility is remote of a mass scale biological weapons attack. Small scale attacks, biocrimes, like we may see in Florida, are possible. The government has the responsibility to do all that it can to prevent, protect 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.

With that, Mr. Chairman, let me conclude. And I will be glad to answer any questions you or the members of the committee have.

Mr. SHAYS. Thank you very much for your testimony and we will have a number of questions.

[The prepared statement of Mr. Parachini follows:]

COMBATING TERRORISM: ASSESSING THE THREAT OF BIOLOGICAL TERRORISM

Testimony of John Parachini

Policy Analyst
RAND Washington Office

Before the Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform U.S. House of Representatives

October 12, 2001

The opinions and conclusions expressed in this written testimony are the author's alone and should not be interpreted as representing those of RAND or any of the sponsors of its research.

Statement of John Parachini
Policy Analyst
RAND Washington Office

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.

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[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.

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[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.

Quarterly, Vol. V, No. 3, (Summer).

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

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[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.

Mr. SHAYS. Dr. Post, you can end this panel and then we will start with the questions.

Dr. POST. Mr. Chairman, members of the committee, I am honored to have the opportunity of addressing you on this important topic. A great deal of attention has been paid to the vulnerability of American society and what terrorists could do. I will be confining my remarks to what terrorists would do and wouldn't do, what their motivations and incentives are and what their constraints are for committing acts of the chem-bioterrorism. First, a note of vocabulary. There is a term often in use and I hope that this committee can play a role in killing this term and that is, weapons of mass destruction terrorism. It is an unfortunate term that is all too readily used. Certainly on September 11th, we saw mass destruction terrorism, indeed catastrophic super terrorism perpetrated in the guise of conventional terrorism.

Similarly, the so-called weapons of mass destruction, chem-bio, radiological, nuclear, in fact, can be used with exquisite precision to the point of being able to kill a single individual in an assassination. Let me first take the committee rather swiftly through the spectrum of terrorism. I am going to attempt to both differentiate the threat by group and by attack type. And these remarks are elaborated in my prepared statement. You will see——

Mr. SHAYS. Now we have one in front of the table—you can't see it, but if we are looking down, don't think we are not paying attention.

Dr. POST. First, across the top and differentiating, this is really quite variegated spectrum of terrorist groups. We have crusaders, criminals and crazies. Let me emphasize as a psychiatrist who has been working and understanding terrorist psychology, terrorists are not crazed psychotics despite the often misinterpretation of the public. In fact, terrorist groups expel emotionally disturbed members from their groups. They are a security risk. At the middle tier, I note in particular State-supported terrorism. As Mr. Parachini stated a moment ago, this is of grave concern for the reasons he indicated, in terms of the resources necessary, and I will come back to that in a moment. I will be focusing on the motivations and constraints for the sub State groups.

First, across the left, we have social revolutionary terrorism. This is the groups who were particularly prominent during the 70's and 80's, red brigades, Red Army faction in this country, the Weather Underground following Marxist, Leninist doctrine. Still present, though, we have Japanese Red Army, a number Colombian social revolutionary groups as well. Right wing terrorism on the rise. In fact, a number of the small attacks of chemical biological terrorism have come from individual extremists within the right wing fringe. Nationalist separatist terrorism refers to the groups seeking to have an independent nation, be it the provisional Irish Republican Army in Northern Ireland who have heard about the troubles from their fathers and grandfathers in the publics of northern Ireland or the radical Palestinian terrorists hearing of the lands taken from their families in the coffee houses of Beirut in the occupied territories.

Of particular concern is the group that I have labeled religious extremist terrorism, both including new religions such as Aum

Shinrikyo, which gave us the event which precipitated in many ways the major concern with this, the sarin gas attack in the Tokyo subways and religious extreme and religious fundamentalist terrorism. And of particular concern now, of course, Islamist radical extremist terrorism.

Now if we could have the second graphic, please. What I would like to do now is walk you swiftly through this graphic. Down the left I have the groups I have just mentioned. Across the top, I have noted different types of attack. From my point of view, the major psychological thresholds across is not the weapon type, but the willingness to create mass casualties as was tragically demonstrated on September 11th. In fact, to echo Mr. Parachini, one could cause mass casualties with conventional weapons as has been done on a number of occasions going back to the Embassy bombings in Kenya and Tanzania.

Mr. SHAYS. Just announcing that we are going into session at 11 a.m., you know, I say that but I am not necessarily right. I am still confused by this. Am I right guys, are we going into session at 11 a.m., or is that a vote? We'll figure it out later.

Dr. POST. I have also noted CBW hoax. I emphasize this because this is insufficiently considered. One can have a very powerful—successful terrorist act without ever spreading a molecule of substance about—and we have insufficiently considered our preparation for this. And finally, small scale attacks, large scale attacks and then the catastrophic attacks of which Mr. Parachini spoke. Now for the first two types, social revolutionary and national separatist groups, they are interested in influencing the west calling attention to their cause. It would be quite counterproductive for them to have either a mass casualty attack or an attack which damaged their constituents.

It is possible but remote that they would choose to have a small scale attack that doesn't affect their constituents. Thus a Palestinian group might attack in Tel Aviv, but not in Jerusalem. For the right wing groups, we see some groups who have indeed participated lacking though, in fact, the resource and technology. Let me focus on the last two groups, the religious fundamentalist groups and the new religion terrorist. Here, in my judgment, there is little psychological constraint as has been demonstrated. Indeed, there is a desire to cause extreme casualties. In fact, some of the terrorists I have interviewed are quite interesting in saying there is no moral red line in terms of the amount of destruction.

However, here we have, again, an issue where the resources necessary to carry this out are simply not present for the group. And what would be a great hazard here would be if we had a State supporting these groups such as Iraq, which has been one of the areas of concern. In my judgment, we need to be focusing our intelligence resources in particular on the groups of greatest concern, which would be those groups responsible for more than 40 percent of the attacks in recent years where no responsibility has been claimed. They are not interested in influencing the west. They are interested in expelling the west. They don't need that New York Times headline, God knows.

And this is the group of greatest concern. But even so, it is not of major concern, from my point of view, in my analytical judg-

ment, in terms of catastrophic attacks. There is a possibility of focal attacks only. And we should not, in overreacting to this, neglect to focus on conventional terrorism because it is conventional terrorism that continues to be the source of mass casualties and continues to be the method of choice. Thank you, Mr. Chairman.

[The prepared statement of Dr. Post follows:]

Differentiating the Threat of Chemical/Biological Terrorism: Motivations and Constraints+

Testimony before the Subcommittee on National Security,
Veterans Affairs and International Relations,
Committee on Government Reform
U.S House of Representatives
October 12, 2001

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There is a heightened concern in the United States over the specter of a catastrophic domestic chemical or biological terrorist attack. Billions are being invested in training first responders for what is acknowledged to be a high consequence-low probability event. But while substantial investment is being devoted to protecting our vulnerable society from such a devastating act, there is very little attention being devoted to who might do it, and why, and, as important, who might not do it, and why not?

A number of factors have contributed to this heightened concern. The World Trade Center bombing in 1993 dented the wall of denial in the United States that "it can't happen here." However, if the wall of denial was dented by the World Trade Center bombing, the illusion of invulnerability was surely shattered by the bombing of the Alfred T. Murah Federal building in Oklahoma City in 1995, which claimed 168 lives in a dramatic act of mass casualty terrorism. And the tragic events of September 11 was an act of mass destruction unprecedented in the history of political terrorism. This was mass casualty super-terrorism. But this was, it should be emphasized, conventional terrorism.

The Aum Shinrikyo sarin gas attack on the Tokyo subway in 1995 for the first time focused the international community on the dread prospect of chemical and biological terrorism. As the story emerged, with documentation of the extensive efforts by the leadership of this millennial cult to recruit Ph.D. scientists to develop chemical, biological and nuclear weapons, increasing attention was focused on this exotic terrorism as a disaster waiting to happen. As Secretary of Defense William Cohen put it, "It isn't a question of if, but when."

On the agenda of a conference sponsored by the Department of Defense in 1998, major attention was devoted to what might happen, i.e. what terrorists could do, with learned presentations by virologists, microbiologists, infectious disease experts, and chemical warfare experts, with no attention being given to the source of and motivations for the threat, i.e. which groups might do it and why. At an American Medical Association conference in April, 2000 on responding to the threat of chemical and biological terrorism, when the author raised the question with the conference planners of the lack of attention on the agenda paid to the magnitude of the threat and to identifying the motivations, incentives and constraints for terrorist groups to commit such attacks, it was dismissed as not relevant to the question at hand.

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In fact, there is a major disconnect between the weapons technology community and the community of academic terrorism experts, with the former being focused on vulnerabilities of our society and what might happen in terms of technological possibilities, and the latter , who study terrorist motivation and decision making, being underwhelmed by the probability of such an event *for most—but not all*— terrorist groups. In the Monterey Institute of International Affairs project report, Toxic Terror edited by Jonathan Tucker, which consists of a series of detailed case studies following up on reports of chemical or biological terrorism by interviewing primary sources, including alleged perpetrators, most of the alleged cases upon close examination turned out to have reflected media hype and were not in fact *bona fide* cases of chemical or biological terrorism by organized terrorist groups. There were a number of cases of attempts by emotionally disturbed individuals, which, however, really fell more into the sphere of psychopathology or criminal extortion than political terrorism.

This testimony is in the service of differentiating the threat, focusing on which groups are significantly constrained from committing such extreme acts, and which groups might be less inhibited and indeed might find incentives to commit such acts. Moreover, it seeks to differentiate the spectrum of CBW terrorist acts, for a group that assuredly would be constrained from an act of so-called super-terrorism using CBW might well find a focused low-level attack advantageous. [2]

It is useful at this juncture to consider the term "weapons of mass destruction terrorism," usually employed to refer to chemical, biological, radiological or nuclear weapons (CBRN.) It is a semantically confusing term, for conventional weapons, such as the fertilizer bomb used by Timothy McVeigh at the Alfred P. Mural Federal Building in Oklahoma City, the bombs which destroyed the U.S. embassies in Nairobi, Kenya and Dar es Saalan, Tanzania, and the hijacked planes which flew into the World trade Center and the Pentagon can produce mass destruction. Moreover, the so-called weapons of mass destruction, especially biological and chemical weapons, can be employed with exquisite discrimination to produce low-level casualties, to the point of being employed for assassination of lone individuals.

The Spectrum of Terrorism

As reflected in Figure 1, terrorism is not a homogeneous phenomenon. There is a broad spectrum of terrorist groups and organizations, each of which has a different psychology, motivation and decision making structure. Indeed, one should not speak of terrorist psychology in the singular, but rather of terrorist psychologies. In the top tier of the graphic, we differentiate political terrorism from criminal and pathological terrorism. Studies of political terrorist psychology[3] do not reveal severe psychiatric pathology. Indeed, political terrorist groups do not permit emotionally disturbed individuals to join their groups, for they represent a security risk. Seriously disturbed individuals tend to act alone. In fact, many of the cases in Toxic Terror fall into this category.

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[2] This testimony draws on but expands upon analysis presented in Toxic Terror. A preliminary version of these remarks was presented at the annual Non-Proliferation Conference of the Carnegie Endowment for International Peace in March, 2000

[3] Post, J. "Terrorist Psycho-Logic: Terrorist Behavior as a Product of Psychological Forces" in Reich, W.(ed.) *Origins of terrorism: Psychologies, ideologies, theologies, states of mind* Cambridge: Cambridge Univ. Press, 1993

At the middle tier, state terrorism refers to the state turning its resources—police, judiciary, military, secret police, etc— against its own citizenry to suppress dissent, as exemplified by the "dirty wars" in Argentina. When Saddam Hussein used nerve gas against his own Kurdish citizens, this was an example of state CBW terrorism. State-supported terrorism is of major concern to the United States. Currently on the list annually distributed by the Department of State are Iran, Iraq, Syria, Libya, Sudan, North Korea and Cuba. In these situations, when states are acting through terrorist groups, fearing retaliation, the decision making of the state leadership will be a significant constraint upon the group acting under their influence or control.

In the lower tier, a diverse group of sub-state terrorist groups are specified: social-revolutionary terrorism, nationalist-separatist terrorism, right-wing terrorism, religious extremist terrorism, subsuming both religious fundamentalist terrorism and terrorism perpetrated by non-traditional religious groups (such as Aum Shinrikyo), and single issue terrorism

The Spectrum of Terrorist Acts

Now, in considering which groups in the spectrum of terrorist groups might be inclined to carry out acts of biological or chemical terrorism, it is important to differentiate the spectrum of such acts as well. In Figure 2, we discriminate 5 levels— large scale casualties, with conventional weapons, sham CBW attacks, low-level casualties (under 20), large scale casualties (20-hundreds), and catastrophic or super-terrorism, in which thousands of casualties may result. The crucial psychological barrier to cross concerns not the choice of weapon, in my judgment, but rather the willingness to cause mass casualties, and this threshold has been crossed for some groups. Indeed, given the skills and hazards in working with CBW, some groups might well ask, why should we move into this technologically difficult and dangerous area when we can cause mass casualties and mass terror through conventional weapons, as was vividly demonstrated in the attacks of September 11. Sham attacks are included, for the psychological constraints against CBW attacks are missing for sham attacks, which can have devastating effects, especially psychologically. With the attention being given to training first-responders in how to respond to chemical and biological attacks, insufficient attention is being given to the dilemmas of responding to what will likely be much more frequent, sham attacks such as the rash of anthrax hoaxes in 1998, as exemplified by the sham anthrax attack on the B'nai Bri'th Building in Washington, D.C. In this event, even though no actual biological weapon was used, the perpetrators called attention to their cause, dramatically paralyzing the city of Washington, with a televised humiliating public decontamination of individuals at the center of the event. This was assuredly a highly successful terrorist act. Could it be that the indiscreet inquiries concerning crop dusting airplanes by the al Qaeda terrorists before they engaged in their catastrophic mission were designed to be discovered in order to create further panic within the United States?

Writing in *Disorders and Terrorism,* Report of the Task Force on Disorders and Terrorism, more than 20 years ago, Mengel[4] distinguishes four different means by which

[4] Mengel, R.W. (1977) "Terrorism and new technologies of destruction: An overview of the potential risk" in *Disorders and terrorism*: Report of the Task Force on Disorders and Terrorism. U.S. National Advisory

terrorists attempt to achieve their goals. He observes there is a distinct difference between discriminate and random target selection. Whereas discriminate target selection can be used in support of bargaining or to make a political statement, random targeting is associated with the motivation to cause social paralysis, or inflict mass casualties. Groups motivated to cause mass casualties in his estimation are characterized by a group's realization that:

1. They do not have a position of strength from which bargaining can be successful
2. The public will no longer respond to state-(propaganda-)related attacks
3. Popular support ahs been lost because of the social paralysis caused by previous attacks

In evaluating the risk among terrorist groups for using CBW weapons, it is useful to employ this distinction in differentiating among terrorist groups. The asterisk(*) distinguishes discriminate from indiscriminate acts. Some groups might well consider CBW attacks only in a bounded area, limiting casualties, which would significantly militate against negative reactions from their constituents, both local and international. But these groups would be significantly constrained against such acts in a region in which the group's constituents might well be adversely affected as a result of physical proximity to the area of attack, and would accordingly adversely affect constituents. These bounded acts are specified as discriminate. Indiscriminate attacks, in contrast, are attacks in which no consideration is given to the selection of specific victims, or the impact of the act upon internal or external constituents.

The matrix in this graphic evaluates the nature of the act by the terrorist group type, focusing specifically on psychological incentives and constraints. In the remainder of this essay, a description of the motivations and decision making of each group type is described, evaluating the degree of risk for the spectrum of mass casualty/CBW acts. That a check mark appears in the summarizing graphic is intended to convey not that the group is at high risk for such acts, but that the balance of incentives and constraints is such that CBW acts could be rationalized as serving the group's goals, with a weakened pattern of disincentives. To say that differently, for the spectrum of terrorist groups, the constraints against use of CBW weapons on a large or catastrophic scale are great, and the likelihood of such acts is quite small. For some groups, those that are designated with a check mark, it is less improbable than for others, as they experience a lesser degree of constraint.

Moreover, this matrix is concerned only with motivations and constraints, and does not consider resource and capability. Weapons experts regularly identify weaponization as a major constraint to mass CBW terrorism. The resources and technological capability to carry out a large scale attack would, in the judgment of many in the weapons community, require resources and technological skill only found at the state level. It should be remembered that Aum Shinrikyo had gathered a remarkable Assemblage of scientific experts, but still were daunted by the dispersal problem. Some of the perpetrators in the matrix, such as individual right-wing extremists, might be highly motivated to cause mass destruction, with no psychological or moral constraint,

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Committee on Criminal Justice Standards and Goals. Washington, D.C. U.S. Government Printing Office, 443-473

but would lack the technological capability and resources to mount more than a small local attack.

Social Revolutionaries

Social revolutionary terrorism, also known as terrorism of the left, includes those acts perpetrated by groups seeking to overthrow the capitalist economic and social order. Social revolutionary groups are typified by the European "fighting communist organizations" active throughout the 1970s and 1980s (e.g., the Red Army Faction in Germany and the Red Brigades in Italy). While social-revolutionary terrorist groups have experienced a significant decline over the last two decades, paralleling the collapse of Communism in Europe and the end of the Cold War, social-revolutionary terrorism and insurgency are still underway, as exemplified by the Japanese Red Army (JRA), Sendero Luminosa (the Shining Path), Movement Revolutionaire Tupac Amaru (MRTA) in Peru, several Columbian terrorist groups who are also associated with natrco-terrorism, and Ejército Zapatista de Liberación Nacional (EZLN) of Chiapas, Mexico.

These are complex organizations, however, not groups per se. The decision-making locus is outside of the action cells. In these secret organizations, there is a tension between security and communication. This leads to rather more decision-making latitude for the action cells than might be present in a more open organization. Thus policy guidelines may be laid down, but specific planning concerning the target and the tactics has been delegated to the group. Nevertheless, for a matter so grave as the strategic decision to deploy weapons of mass destruction, the organizational decision-makers would certainly be the prime movers.

Insofar as these groups are seeking to influence their society, they would be significantly constrained from indiscriminate acts that cause significant casualties among their own countrymen, or cause negative reactions in their domestic and international audiences. But discriminate acts against government or symbolic capitalist targets could be rationalized by these groups.

Nationalist-Separatists

Nationalist-separatist terrorism, also known as ethno-nationalist terrorism, includes those groups fighting to establish a new political order or state based on ethnic dominance or homogeneity. The Irish Republican Army, the Liberation Tigers of Tamil Eelam (LTTE) of Sri Lanka, the Basque Fatherland and Liberty (ETA) in Spain, and radical Palestinian groups such as the Abu Nidal Organization and the Palestinian Front for the Liberation of Palestine-General Command (PFLP-GC) are prominent examples. Nationalist-separatist terrorists are usually attempting to garner international sympathy for their cause and to coerce the dominant group. Thus ETA is attempting to pressure Spain to yield to its demands for an independent Basque state. These causes of the nationalist-separatist terrorist groups and organizations are particularly intractable, for the bitterness and resentment against the dominant ethnic group has been conveyed from generation to generation.[5] Nationalist-separatist groups operating within their nation are particularly sensitive to the responses of their internal constituency, as well as their international audience. This provides a constraint against acts so violent or extra-normal as to offend

[5] Post, J. "Terrorist Psycho-Logic: Terrorist Behavior as a Product of Psychological Forces," in Reich, W. (ed.) *Origins of Terrorism*. Cambridge: Cambridge University Press, 1990, pp. 25-40.

their constituents, as exemplified by the attack by the Real IRA in Omagh in 1998 in which 29, mostly women and children, were killed. The resulting uproar from their Irish constituents was so extreme, that the Real IRA apologized and forswore future violence.

These groups will be significantly constrained from acts that indiscriminately involve mass casualties and will negatively affect the group's reputation with their constituents and their international audience. But discriminate acts against their adversary, in areas where their constituents are not present, can be rationalized. Just as the rash of suicide bombings in Tel Aviv and other predominantly Jewish cities in Israel was implemented by absolutist Palestinian groups (some of which were radical Islamists as well) in order to reverse the peace process, the prospect of tactical CBW weapons in such areas is quite conceivable. Such discriminate attacks could also be implemented in revenge against U.S. targets. But a CBW attack in Jerusalem, by secular Palestinian terrorists that might affect their own constituents is considered highly unlikely

Religious Extremists

Religious extremist terrorism is characterized by groups seeking to maintain or create a religious social and political order and includes two types of groups and organizations: those adhering to a radical fundamentalist interpretation of mainstream religious doctrines as well as non-traditional religious groups representing "new religions," such as Aum Shinrikyo, responsible for the 1995 sarin nerve gas attack on the subway system in Tokyo, Japan

Religious Fundamentalist Terrorism

In the 1970's and 1980s, most of the acts of terrorism were perpetrated by nationalist-separatist terrorists and social-revolutionary terrorists, who wished to call attention to their cause and accordingly would regularly claim responsibility for their acts. They were seeking to influence the West and the establishment. But in the past decades, no responsibility is claimed for upwards of 40% of terrorist acts. We believe this is because of the increasing frequency of terrorist acts by radical religious extremist terrorists. They are not trying to influence the West. Rather the radical Islamist terrorists are trying to expel the secular modernizing West. And they do not need their name identified in a New York Times headline or on a story on CNN. They are "killing in the name of God" and don't need official notice; after all, God knows.

Traditional groups include Islamic, Jewish, Christian and Sikh radical fundamentalist extremists. In contrast to social revolutionary and nationalist-separatist terrorists, for religious fundamentalist extremist groups, the decision-making role of the preeminent leader is of central importance. For these true believers, the radical cleric is seen as the authentic interpreter of God's word, not only eliminating any ambivalence about killing, but endowing the destruction of the defined enemy with sacred significance.

The radical cleric, whether ayatollah, rabbi or priest, has used sacred text to justify killing in the name of God. Ayatollah Khomeini employed a radical interpretation of the Quo'ran to provide the ideological foundation for his Islamic revolution, and selected verses to justify terrorist extremity, such as "And slay them where ye catch them, and turn them out from where they have turned you out...Such is the reward of those who suppress the faith (2:190-193) . In a radio broadcast of June 5, 1983, Khomeini exhorted

his followers: "With humility toward God and relying on the power of Islam, they should cut the cruel hands of the oppressors and world-devouring plunderers, especially the United States, from the region." To those who died fighting this holy cause, Khomeini assured a higher place in paradise. In inciting his followers during the Iran-Iraq war, he rhetorically asked: "Why don't you recite the *sura* of killing? Why should you always recite the *sura* of mercy? Don't forget that killing is also a form of mercy." He and his clerical followers regularly found justification for their acts of violence in the Qur'anic *suras* calling for the shedding of blood.[6]

These organizations are hierarchical in structure; the radical cleric provides interpretation of the religious text justifying violence which is uncritically accepted by his "true believer" followers, so there is no ambivalence concerning use of violence which is religiously commanded. These groups are accordingly particularly dangerous, for they are not constrained by Western reaction, indeed often wish to expel secular modernizing influences. They have shown a willingness to perpetrate acts of mass casualty terrorism, as exemplified by the bombings of Khobar Towers in Saudi Arabia, the World Trade Center in the U.S., the U.S. embassies in Kenya and Tanzania, the U.S.S. Cole, and the mass casualty terrorism on a scale never seen before in the coordinated attacks on the World Trade Center in New York and the Pentagon in Washington, D.C. Usama bin Laden, responsible for these events has actively discussed the use of weapons of mass destruction in public interviews.

While not a religious authority, Osama bin Laden is known for his piety, and has been granted the title emir. Like Khomeini, Osama bin Laden regularly cites verses from the Koran to justify his acts of terror and extreme violence, empoloying many of the same verses earlier cited by Khomeini. Consider this extract from the February 1998 Fatwa, Jihad Against Jews and Crusaders, World Islamic Front Statement:

> **In compliance with God's order, we issue the following fatwa to all Muslims:**
>
> **The ruling to kill the Americans and their allies -- civilians and military -- is an individual duty for every Muslim who can do it in any country in which it is possible to do it, in order to liberate the al-Aqsa Mosque and the holy mosque [Mecca] from their grip, and in order for their armies to move out of all the lands of Islam, defeated and unable to threaten any Muslim. This is in accordance with the words of Almighty God, "and fight the pagans all together as they fight you all together," and "fight them until there is no more tumult or oppression, and there prevail justice and faith in God." We -- with God's help -- call on every Muslim who believes in God and wishes to be rewarded to comply with God's order to kill the Americans and plunder their money wherever and whenever they find it.**

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[6] Robins, R. and Post, J. *Political Paranoia: The Psychopolitics of Hatred.* New Haven, CT: Yale Univ. Press, 1997, pp 153-154.

Note it is not Osama bin laden who is ordering his followers to kill Americans. He is the messenger, relaying the commands of God, which are justified with verses from the Koran.

While from the theoretical perspective of "pure culture" religious fundamentalist terrorism, there would be no constraint upon these groups, in fact, some of the radical Islamist groups, such as Hamas and Islamic Jihad, responsible for most of the suicide bombings in Israel, do in fact have domestic constituencies which would provide a measure of constraint against indiscriminate mass casualty acts, and against "super terrorism."

But as the events of September 11 make clear, for the al Qaeda organization, there is no constraint against mass casualty terrorism. And it is the willingness, indeed the goal to take as many causalities as possible that is the dynamic of the "true believers" of the al Qaeda group under the destructive charismatic leadership of Osama bin Laden that places this group at high risk to move into the area of CBW terrorism, for they have already crossed the threshold of mass casualties using conventional terrorism, demonstrating a willingness to perpetrate super-terrorism.

In his prepared statement released after the U.S./British attack on Taliban military targets on the night of 7 October, bin Laden emphasized the climate of terror in the United States-"America has been filled with fear from North to South, from East to West, thank God. " And he ended his statement by asserting his intent to keep the Un+ited States in a continuing state of insecurity-"America and those who live in America won't dream of having security before we have it in Palestine and all infidel armies depart from the land of Muhammad." At this point in time, a mass casualty attack with the requisite technological skills and preparation would not be required to produce mass panic in the United States. As this testimony is being prepared, anthrax has been diagnosed in a second employee of the supermarket tabloid publisher, America Media Corporation, in West Palm Beach, Florida, which is only 40 miles from the airstrip where some of the al Qaeda terrorists made inquiries concerning crop dusting equipment. While the initial indications are that this is a criminal matter, that this could represent a small CBW attack is by no means out of the question, and would fit Osama bin Laden's espoused goals of keeping the United States in the throes of continuing insecurity.

Non-traditional religious extremist groups

Non-traditional religious extremist groups, such as Aum Shinrikyo, must also be considered. These generally closed cults are in a struggle for survival against a demonized enemy that must be destroyed. While the majority of millennial apocalyptic cults are waiting for the millennium, some religious belligerents are seeking to force the end, and, in the case of Aum Shinrikyo, to precipitate the final struggle. Charismatic leaders of closed cults, like Shoko Asahara, the leader of Aum Shinrikyo, who see themselves in a God-like role, a self-perception rewarded by the God-like reverence with which they are treated by their followers, can become obsessed with power. Asahara's fascination with high technology led him to recruit nuclear physicists, nuclear engineers, chemists, and microbiologists, simultaneously exploring nuclear, biological and chemical weapons. Especially for closed religious cults, the dynamic is one of a charismatic leader who holds total sway over his followers. What he declares is moral and required *is* moral and required. The followers yield their individual judgment to the leader and become

deskilled, acting as if they have no independent critical faculties of their own. No doubt or doubters are permitted in these powerful hermetically sealed closed organization. The price for defection in Aum Shinrikyo was death. This too had a high-tech aspect to it, for apprehended defectors were incinerated in an industrial microwave oven, ensuring the conforming loyalty of witnessing members.

Asahara, in mounting WMD programs, was attempting to precipitate the final apocalyptic conflict. At the cusp of the millennium, apocalyptic millennial cults can be expected to proliferate and experience a heightened sense of urgency, which may lead other groups to pursue the path of weapons of mass destruction aggression to precipitate the final struggle. As was demonstrated by Aum Shinrikyo, such groups can justify indiscriminate CBW attacks producing mass casualties, and that same rationale could serve as the justification for "super-terrorism." But, Aum Shinrikyo is quite unusual within the spectrum of millennial cults, for most such cults are not religious belligerents seeking to precipitate the apocalypse, as was the case with Aum, but rather tend to withdraw from society, passively awaiting the " final days."

Right-Wing Groups

Right-wing terrorism includes those groups seeking to preserve the dominance of a threatened ethnic majority or to return society to an idealized "golden age" in which ethnic relations more clearly favored the dominant majority. These groups generally espouse fascist ideologies, including racist, anti-Semitic, and anti-government "survivalist" beliefs. These groups in the United States fear the federal government, which they see as contributing to the decline of the majority's dominance. In their view, the government is dominated by Jews – hence ZOG, the Zionist Occupied Government – and accordingly is illegitimate.

Because of this dehumanization of their enemies, discriminate attacks on target groups, such as blacks, or, in Europe, on enclaves of foreign workers, are justified by their ideology. Because of their delegitimation and dehumanization of the government, discriminate attacks on government facilities are certainly feasible by such groups, including attacks on the seat of the federal government, Washington, D.C., as represented in *The Turner Diaries.*

Right-Wing Community of Belief

Many of the case studies developed by the Center for Non-Proliferation Studies at the Monterey Institute for International Studies, the first group of which was published as *Toxic Terror,* were committed by individuals hewing to a right-wing ideology, but not belonging to a formal group or organization per se. The case study by Jessica Stern of Larry Wayne Harris, a former neo-Nazi is a case in point. Timothy McVeigh is an exemplar of such individuals seeking to cause mass casualty terrorism, using onventional weapons. McVeigh was enthralled by *The Turner Diaries*, which he sold below cost at gun shows. At the time of his capture, glassined, highlighted pages from this bible of the radical right were found in his car. Individuals in this category are a significant threat for low level CBW attacks, but, because of resource limitations, probably do not represent a threat of mass casualty CBW terrorism.

The role of the internet in propagating the ideology of right wing extremist hatred is of concern, for an isolated individual consumed by hatred can find common cause in the right-wing web sites, feel he is not alone, and be moved along the pathway from thought to action, responding to the extremist ideology of his virtual community.

Implications

Reviewing the spectrum of terrorist groups in terms of motivation, incentives and constraints, for nearly all groups, the feared catastrophic CBW superterrorism, against the prospect of which the United States is preparing, would be highly counter-productive. The constraints are particularly severe for large scale mass casualty terrorism for groups that are concerned with their constituents—social revolutionary and nationalist separatist terrorists—although discriminate low level attacks are possible. Right-wing extremists, including individuals who are members of the right-wing virtual community of hatred, because of their tendency to dehumanize their victims and delegitimize the federal government, represent a distinct danger for low level discriminate attacks against their demonized targets: Jews, blacks, and ethnic minorities, as well as federal buildings. Concerning non-traditional religious extremist groups, should other non-traditional groups resembling Aum Shinrikyo emerge, they would be at great risk, but most millennial cults are not led by religious belligerents, but rather passively await the final days.

Religious fundamentalist terrorist groups, who follow the dictates of destructive charismatic religious leaders, are not constrained by their audience on earth, as their acts of violence are given sacred significance. They are more at risk for mass casualty attacks, although to the degree they have a constituency, as does Hamas, they are also constrained. Having demonstrated an unconstrained goal of committing mass casualty destruction, and of maintaining America in a continuing state of insecurity. The al Qaeda group of Osama bin Laden is not constrained and is particularly dangerous. Because of the series of successes, with ever increasing violence of al Qaeda, and the expanding mission of its grandiose leader, Osama bin laden, this organization is considered at the highest risk to move into CBW terrorism, as Osama bin Laden is innovative and continually seeking to create ever greater terror. Because of the resource and technological constraints, however, small focal attacks are the most likely, rather than CBW super-terrorism. This limitation would be removed were the group supported by a state with the necessary technological resources.

Given the severe constraints against catastrophic CBW terrorism for most groups, this argues for continuing to protect against the greatest danger—conventional terrorism—and to devote significantly increased intelligence resources to monitoring much more closely the groups at greatest risk for CBW terrorism: right-wing extremist groups and religious extremist groups, both non-traditional cults similar to Aum Shinrikyo and especially religious fundamentalist terrorist organizations.

Figure 1. Typology of Terrorism

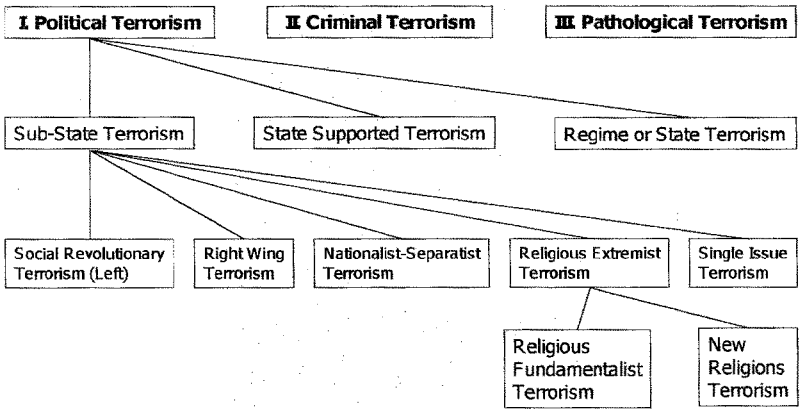

Figure 2. Differentiating Motivations and Constraints for CBW Terrorism by Group Type

Group Type	Large-scale Conventional	CBW Hoax	Small-scale CBW Use	Large-scale CBW Use	Catastrophic CBW Use (Superterrorism)
Social-Revolutionary	✓*	✓	✓*	X	X
Nationalist-Separatist	✓*	✓	✓*	X	X
Right-Wing	✓	✓	✓	✓	X
Right-Wing Community of Belief	✓	✓	✓	X	X
Religious-Fundamentalist	✓	✓	✓	✓	✓
Non-traditional Religious Extremists (closed cults)	✓	✓	✓	✓	✓

* Discriminate acts: acts which do not alienate supporters or endanger constituents, usually taking place outside regional base/home territory.

X Significantly constrained against such acts, extremely unlikely

✓ Less constrained, and while still unlikely, could rationalize such acts. The check

does not indicate likelihood of committing such an act, but refers to motivation only. Thus many right-wing extremists might be highly motivated to commit such an act, but would lack the necessary resource and capability to carry it out.

Mr. SHAYS. My staff is a little disappointed with you, Dr. Post, because they were enjoying your testimony hoping you would read it. You were talking about religious fundamentalist terrorism and you say they were seeking to influence the west in the establishment. But in the past decades no responsibility's claimed for upwards of 40 percent of terrorist acts. We believe this is because of the increasing frequency of terrorist acts by radical religious extremist terrorists. They're not trying to influence the west, rather, the radical Islamic terrorists are trying to expel the secular modernizing west and they do not need their name identified in a New York Times headline or in a story on CNN. They are "killing in the name of God," and don't need official notice. After all, God knows.

Somehow my staff thought that was rather an ingenious statement. So it is on the record, OK, Larry. At this time, I will call on Mr. Putnam.

Mr. PUTNAM. Thank you, Mr. Chairman, and I thank the panel for their outstanding opening remarks. My first question is for Dr. Alibek. You have related the history of the Castro regime's involvement in bioweapons development since the early 1980's, including a comment that you gave to the Miami Herald in 1999. As a Floridian, I am very concerned because Cuba has a hostile regime 90 miles off shore. What information do you have for us on the status of the Cuban regime's production of bioweapons?

Mr. ALIBEK. I think of this question because in 1999, it was quite a confusing situation because when I gave that interview, the State Department issued information saying that they had no information about any Cuban offensive biological weapons problem. But at the same time, Defense Intelligence Agency included Cuba in a group of countries involved in biological weapons activity. But my personal opinion and my personal experience of this, we have some information about this Cuban activity. We knew Cuba was interested in biological weapons research and development work. We knew that there were several centers; one of them was located close to Havana involved in, I would say, in military biological technology. And what was most amazing to us, we consider Cuba is not a well-developed country. But at the same time, Cuba has a very perfectly developed system of engineering and is capable to develop genetic engineering agents. They've got the desire to develop genetically engineered biological weapons. In my opinion, I strongly believe, and I still believe, this country discovered this capability and what the size of this program and what the level of achievement, of course, it is up to our intelligence services.

Mr. PUTNAM. In the course of your work in the Soviet Union and your contacts with some of the Soviet satellite States, was there ever any motivation to develop biological or chemical weapons for the purpose of destroying agricultural crops or agriterrorism as opposed to inflicting mass casualties?

Mr. ALIBEK. You are certainly right when you ask this question because in the Soviet Union, for example, there was a huge program. And this program included several directions and one direction, for example, to develop biological weapons to infect and kill human beings, troops and civilian population. Another was the program by the minister of agriculture.

Mr. SHAYS. Another problem or program?

Mr. ALIBEK. Another program to develop anti-crop and anti-livestock biological weapons. And there were several institutions involved in this business. And they developed, for example, biological weapons like rinderpest, African swine fever, foot in mouth disease, specifically intended to infect livestock. There was another part of this program to destroy crops, wheat, rye, rice and corn. Biological weapons program, they are huge programs and they include many different directions. And undoubt, agricultural weapons are usually a part of large biological weapons programs.

Mr. PUTNAM. Is it safe to say that a number of the researchers who were working on those agricultural programs have now spread out through a number of other nations and regimes since the collapse of the Soviet Union?

Mr. ALIBEK. Yes, you're right. Many of them are now overseas and work for some other countries.

From my personal experience I know in the West, just in the West, we've got tens to hundreds of scientists with quite sophisticated biological weapons knowledge. How many of them now in the Middle East or some other countries, we have no idea. But there was some information that some of them left for Iran, for Iraq and for some other countries.

Mr. PUTNAM. Dr. Post, I have a very brief amount of time remaining and so much to ask.

From a psychological perspective is there a desire for a number of these regimes to focus on agricultural terrorism, attacking food safety scenarios, or are they more focused on the spectacle of an explosion and bodies in the streets and casualties and things of that sort?

Dr. POST. One has to differentiate among both the regimes and the groups. For groups seeking to strike out and damage us, there certainly could be a motivation to strike out in the agricultural area. For groups seeking that terrorist spectacular, to have attention and notice paid to them, that would be much less likely just because of the nature of the manner in which the threat has persisted. This is certainly an area of significant concern from my point of view which has yet not been sufficiently addressed.

Mr. PUTNAM. Thank you, Mr. Chairman.

Mr. SHAYS. Thank the gentleman.

Mr. Allen, do you have a question?

I'm sorry. I would like to acknowledge that Mr. Allen is here and Ms. Schakowsky and Mr. Clay.

Mr. ALLEN. Thank you, Mr. Chairman; and thank you all for being here today.

I was struck by some of the differences I detected in Mr. Decker's testimony and Dr. Alibek's, so I would like to sort of push it back to you. I thought I heard Mr. Decker saying—I hope I heard Mr. Decker saying—that we need to go through a risk management process. We need to evaluate all the different threats out there. I thought the outline that you raised was a good one to look at a threat assessment, a vulnerability assessment and a criticality assessment.

That's not what we've been doing in this country, and I can't help but think that the whole debate over missile defense would continue to be very different—if we actually looked at the threat of an

ICBM being fired at this country in the context of all the different threats we face from states and from terrorist groups, we would approach it differently. And if it didn't feel so much like a crusade on the part of the advocates, those of us who are skeptics might have reacted a little differently.

I thought I heard Dr. Alibek saying there really are thousands of different biological agents out there that could be used.

The question that I'm interested in is how is it possible for us as a government and as a country, two different things, to start to do real risk management and bringing it to bear in this debate?

Here's what I'm thinking: I think the GAO 2 years ago recommended that a threat and risk assessment be developed by the FBI. The FBI said we would do it. I don't know if it's being done. I would like Mr. Decker to respond to that, the status of the recommendations and so on.

But my overall question for any of you is, should we be asking different agencies like the FBI or the CIA or the Department of Defense to do separate threat and risk assessments and then try to get those separate assessments, kind of evaluate them, or do we want these different agencies to set up a structure that will allow them to do the threat and risk assessments together?

Because I think we are in trouble if we just let the media take whatever threat is out there, whether it's anthrax 1 day or some other biological agent another day or whatever, if we keep moving from crisis to crisis based on the latest story, we will not be doing our job well. That's a bit rambling. But what I'm looking for is some advice on the approach we could take to get to a more disciplined analysis of the threats and vulnerabilities that are out there.

Maybe, Mr. Decker, you should begin. I have taken too much time. I apologize.

[The prepared statement of Hon. Thomas H. Allen follows:]

SUBCOMMITTEE ON NATIONAL SECURITY VETERANS AFFAIRS, AND INTERNATIONAL RELATIONS
COMMITTEE ON GOVERNMENT REFORM
OCTOBER 12, 2001

THANK YOU MR. CHAIRMAN FOR HOLDING THIS HEARING. THANK YOU ALSO FOR YOUR HARD WORK ON THE ISSUE OF TERRORISM AND PREPAREDNESS. YOU HAVE BEEN TIRELESS IN YOUR DEDICATION TO RESPONDING TO THIS VITAL NATIONAL SECURITY CONCERN. I LOOK FORWARD TO CONTINUING TO WORK WITH YOU TO MAKE THIS COUNTRY SAFE FROM TERRORISM.

MR. CHAIRMAN THIS HEARING IS ABOUT BIOTERRORISM, A SUBJECT MUCH IN THE NEWS RECENTLY. THE MEDIA HAS BEEN SPECULATING ABOUT THE POSSIBILITY OF A CHEMICAL OR BIOLOGICAL ATTACK ON OUR HOMELAND.

IN THIS SUBCOMMITTEE WE DON'T HAVE THE LUXURY OF SPECULATION. WE MUST DEAL IN FACTS. WE MUST SEPARATE THE RHETORIC FROM REALITY, THE PERCEPTION FROM THE PROOF. WE MUST FOCUS ON THE ENORMOUS AND PERILOUS CHALLENGE AHEAD OF US, AND CALM IRRATIONAL FEARS.

WE KNOW THAT FEAR AND PANIC ARE THE ENEMIES OF OUR WAY OF LIFE. THE GOAL OF THE TERRORISTS IS TO CREATE FEAR AND PANIC. WE CANNOT LET IT HAPPEN.

WE CANNOT IGNORE THREATS, ESPECIALLY THOSE THAT ARE CREDIBLE. THE PUBLIC HAS A RIGHT TO KNOW THE THREATS, AND THE RIGHT TO PREPARE AS BEST WE CAN.

WE NEED A NATIONAL THREAT ASSESSMENT. WE NEED A NATIONAL STRATEGY FOR DEALING WITH LIKELY THREATS. WE NEED A PLAN TO HELP STATE AND LOCAL PUBLIC SAFETY OFFICERS RESPOND TO A TERRORIST ATTACK. WE NEED TO LEARN THE LESSONS OF SEPTEMBER

THAT IT NEVER HAPPENS AGAIN. WE *DO NOT* NEED TO PANIC.

WE AS A NATION NEED TO ASK: ARE WE SECURE FROM A BIOLOGICAL ATTACK? IF NOT, THEN WE NEED TO *MAKE* OURSELVES SECURE. WE NEED TO ASK: DO WE HAVE A PLAN TO DEAL WITH A BIOLOGICAL ATTACK? IF NOT, THEN WE NEED TO *DESIGN* A PLAN. WE NEED TO ASK: WHAT DO OUR STATES, OUR CITIES, OUR COMMUNITIES NEED TO DEAL WITH THIS THREAT? THEN WE HAVE TO *MEET* THOSE NEEDS. THAT IS THE TASK OF THIS NATION'S LEADERS. CLEARLY WE HAVE OUR WORK CUT OUT FOR US.

I LOOK FORWARD TO THE PANEL'S TESTIMONY, AND I TRUST THAT IT WILL HELP US ACCOMPLISH OUR MISSION.

Mr. DECKER. Sir, let me start with one piece of this. In kind of looking at what Governor Ridge has to do, he's leading an Office on Homeland Security. We're not sure what that homeland security truly means. But if you read the Executive order, clearly it's to combat acts of terrorism. That's pretty clear.

One aspect of working on a national strategy has to be an understanding of the threat. Understanding the threat and threat assessments are two slightly different issues.

One, the understanding of threat is something that is continuous, it's long term, it has hooks into the past, just like Mr. Parachini mentioned, that allows you then to do a threat assessment which I would make the analogy is more like a snapshot in time. It gives you an appreciation for a lot of different factors that can be used in a quantifiable way to make certain decisions.

Now, the issue that I would raise, sir, is there are agencies, organizations that are better prepared and better structured and based on their mission to do threat assessments. I do think that the threat assessments, that process in the intelligence community and to a lesser degree with the law enforcement community, there is a difference in approach and model.

But with the intelligence community they probably do good assessments at the national level, looking at specific issues, long-term issues, and these are typically call national intelligence estimates. These estimates, these assessments provide a road map, if you will, on understanding an issue that I would submit other experts should use when you do risk management.

Risk management basically is a discussion. It's a conversation with people of different disciplines, different backgrounds, different perspectives, that are experts in an area to be able to make sense out of what the threat implication is to our assets. And to make sense out of that, you have to know a lot about yourself. What's vulnerable and has most important?

So, at the national level, you could have a threat assessment and a real good one of everything that you know to date and then you have to put that into context. How would it affect my vulnerabilities? How does it exploit my weakness? What is most important that I have to protect and at what degree? And that's where leadership comes in to make those hard decisions. What is an acceptable level of risk once I consider all these factors?

Mr. ALLEN. So you're talking about sorting out the large number of risks that Dr. Alibek was referring to, for example?

Mr. DECKER. Yes.

Mr. ALIBEK. If I may, I'm not against a necessity that you do risk assessment.

I am not against a necessity to do a risk assessment. But, you know, I feel always a sort of resistance, reluctance when we discuss a necessity to develop a sort of priority, what is more likely and what is less likely and so on and so forth.

Let me give you a couple of examples. In the early 1980's, before I came to the United States, there was a work—I would call it risk assessment work in the field of biological weapons. This work was done by some intelligence services here in the United States, and the recommendations was sent to the Department of Defense. And, you know, according to that assessment, the most threat in biologi-

cal weapons in the future would be bacterial biological weapons and toxin biological weapons.

Resulting from this assessment, the entire division of the Institute of Medical Defense, medical research, was eliminated, division which was responsible for protection against biological weapons in 1980's. And for 10 years it didn't exist.

After some people came from the East and said, OK, guys let's analyze what we are having here in this field, what was the result? Yes, biological weapons would—the most effective biological weapons would be bacterial and viral biological weapons. Toxins in terms of military deployment wouldn't be very effective. It was the result of many years study done in the Soviet Union and, unfortunately, in some other countries.

In this case, you can imagine this type of approach led to the entire destruction of the entire division and entire direction in biological weapons defense. If we use this approach, in my opinion, we—again, we're going to make the same mistake we already made before in our history.

Mr. SHAYS. Could I just jump in, if the gentleman would yield, even though his time has run out, I would like them all to go through and answer your question. But I would just intuitively respond that maybe the assessment wasn't done properly. And I would also say that it would strike me that you have to update your assessment every year. So that if you had updated your assessment every year, you might not have found the result that you ended up with.

Mr. ALIBEK. Of course, the problem is this: My position when we discuss biological threat and bioterrorism, you know, I am saying, that's right. There are many different agents would be used. There are many techniques could be used. But it's not a situation in which we are not able to do a comprehensive analysis and to develop a new understanding, contemporary modern understanding of biological weapon threat. It's not something impossible. We can do this. It's only a problem in this case to find right professionals to do this assessment.

Mr. SHAYS. Mr. Parachini and Mr. Post, you both want to respond to his question? Then I will go to Ms. Schakowsky.

Mr. PARACHINI. I was struck in Mr. Decker's response by his emphasis as an important part of the threat assessment being intentions. And to underline your comments, Mr. Allen, you spoke about some of the skepticism.

Let's go back to the cold war. We tended in retrospect to overevaluate the threat from the Soviet Union because we were paying too much attention to capability and insufficient attention to intention. In dealing with closed societies and closed groups and organizations such as al Qaeda, we are significantly impaired from making intelligence estimates of intention and therefore tend to go to the worst-case scenario. This really emphasizes how crucial it is to be able to get into the heads of our adversaries more effectively than we have been at the present time.

Mr. SHAYS. The challenge with that, though, is intentions can change from moment to moment but capability may be a little more long term. So we could—it would strike me we could think we know their intention but their intention could change overnight.

Dr. POST. I don't see it quite that way, that intentions change from moment to moment. There is a linear track.

Now, having said that, certainly Osama bin Laden is a remarkably innovative leader. He has spoken in almost taunting fashion about his willingness to use such weapons, which in itself is often terrifying.

Mr. ALLEN. The only thing I would add to that in response is that when you're trying—it's different, I think, trying to gauge the intention of a terrorist group, which has a pretty clearly stated mission in this case, as compared to a state, a country which isn't going to move anywhere. And part of the debate about missile defense and the question of intentions is the fact that missiles that are launched can be traced right back to the site from which they were launched. But I don't mean to drag that whole debate into this one.

Dr. POST. Just to elaborate on your point, though, the goal of no state is to terrorize. They will use terrorism to support their foreign policy goals, but when it becomes counterproductive for the state they are deterred just by the factors you illuminate.

When you have a group whose primary goal is in fact to create terror in the service of coercion—and I think it should be remembered terrorism is at heart psychological warfare. It's violence as communication. It's designed to accomplish goals through creating terror, not through proliferation of bodies.

Mr. SHAYS. Ms. Schakowsky, you have been very patient. Thank you very much. You have the floor.

Ms. SCHAKOWSKY. Thank you, Mr. Chairman; and thank you for continuing what you started well before September 11th in looking into these matters.

In that regard, I want to credit Representative Tierney for some questions that he asked and wanted to ask today that—he is not here right now. On June 5th and July 11th, this subcommittee held hearings on the biological weapons convention; and this international treaty, which was signed in 1972, has 143 signatories prohibiting states from developing biological agents for offensive purposes. The problem that was acknowledged was that this treaty contains no inspection provisions and relies on international political pressure to ensure that there is compliance. And, as you stated in your recommendations, Dr. Alibek, that for many years the Soviet Union was able to hide an enormous biological weapons program. So, clearly, inspections is an issue.

The last administration developed a protocol that would establish an inspection regime; and the current administration has, for unknown reasons, "concluded that the current version of the protocol would be inefficient in stopping cheating."

At the July 10th hearing Mr. Tierney asked the administration witness, Ambassador Mahley, if he had prepared an analysis of the objections to this draft protocol which would require inspections. He said he had. He said that he would provide it. There was a motion that was adopted in the subcommittee, and then there was a request in writing.

Three months have passed, and so Mr. Tierney has asked that the subcommittee take active measures, Mr. Chairman, to obtain that report by Ambassador Mahley that was promised months ago.

While we understand that these are very busy times for the administration, but it seems to me that just delivering a report that was already done is a reasonable request. So I want to——

Mr. SHAYS. Would the gentlelady yield? It's an absolutely reasonable request. We have requested it, and we'll go back and ask that it be provided.

Ms. SCHAKOWSKY. Thank you, Mr. Chairman, on behalf of Mr. Tierney and myself as well.

I wanted to then ask the panel if it is your belief, considering we've been talking about how you develop threat assessment, the relationship of state programs and terrorist programs developing biological weapons, whether or not this protocol requiring inspection would give us, in fact, another level of protection and if it's possible in your view to implement such a protocol effectively. Anyone who wishes to respond.

Mr. PARACHINI. I think part of the question is whether the protocol helps or hurts. And the intention is clearly to help, but it in itself will not be sufficient. I think part of the problem of arms control in the post cold war period is that our expectations have been very high. Yet it has been very difficult to pinpoint in a multilateral context the security problems that we face with an arms control tool. So the arms control tool will be useful but not sufficient.

My understanding of what Ambassador Mahley has said was that the administration wants to think about this in a much broader way and not be locked into just seeing the BWC as the way to address the problem, that there is a whole range of other tools such as regulating more effectively commerce and infectious diseases. We have some regulations in the United States, but on an international basis it's an open market. Pathogens are traded around the world without any of the normal controls.

Disease surveillance, something that the committee I know has looked at several times, we're getting a little better at it here in the United States. But we're in a global environment. Global surveillance in other parts of the world where emerging infectious diseases are appearing is not near at the level ours is, and most public health officials in the United States say ours is not adequate. So these are very different tools other than arms control to address this problem.

Ms. SCHAKOWSKY. Is there a counterproposal to the protocol?

Mr. PARACHINI. That is part of the challenge that the administration is on the hook for, to provide that. These are not easy solutions, and it's not easy to come up with a package of new things. This is a totally new environment, and I commend the administration for trying to do some new thinking. Their challenge is to do it in a speedy fashion.

Mr. ALIBEK. If I may, a small addition, in 1999, I was a part of this process called a three-lateral agreement between the United States, Great Britain and the Soviet Union to inspect or visit some biological weapons facilities—or suspected of being biological weapons facilities. Now I know one of the biggest problems was to prove whether or not one or another facility was actually—is it a BW facility or defense facility? It's one of the problems.

But when we discuss a new protocol, I envision three major problems.

First problem is this: Terrorist organizations, they don't sign any treaties. And for them, of course, it doesn't matter what kind of protocol we sign. It's not going to affect their activity.

Second problem, we say, for example, one of the reasons a new administration——

Ms. SCHAKOWSKY. To the extent they may use state-run facilities to advance their agenda.

Mr. ALIBEK. Yes, that is right. But the problem is this when we discuss biological weapons—you know, my biggest concern is this. When people say biological weapons require many efforts, we wouldn't see any significant events. We use some examples cited, Aum Shinrikyo—I feel a very significant resistance because we use absolute incorrect examples.

The problem is this. When we use example of Aum Shinrikyo, nobody pays attention. But Aum Shinrikyo was not capable to get a virulent strain. What they did, they used a non-virulent strain. That's why they were not able to get any casualties.

When we discuss about likelihood of—small likelihood of create a significant terrorist attack, I completely disagree. I know the real power of biological weapons, and I know what kind of results we can get.

But you know when we discuss this treaty, one of the biggest problems is this. For example, existing administration, current administration is saying we cannot put our pharmaceutical industry in danger because it will let some inspectors come and see our production facilities and it would cause some significant harm. It's incorrect.

As a biotechnologist, if I come to a new facility or any facility and see some equipment, for example, to manufacture one or another product, it says absolutely nothing to me. What I need to know, I need to see specific documentation just to determine whether or not I am able to get some information to use in my own country.

Mr. SHAYS. Could I interrupt the gentleman? You said such a strong statement that no one else has concurred with you. You said it provides you absolutely no information.

Let me just make my point. I wouldn't suggest it tells you everything, but it tells you something. I have had more pharmaceutical people tell me that the shape of the pipes, where the pipes—where they connect and so on say a lot about the process that they use to develop the particular pharmaceutical drug.

Mr. ALIBEK. That's not true. First of all, all of technology processes——

Mr. SHAYS. May I ask you a question? Were you on both sides of this equation or on one side of the equation?

Mr. ALIBEK. On both. Because the problem is this. By technological processes, production facilities, they have quite similar equipment. There are some differences in equipment design, some computer programming to program production facilities. You could see some equipment, for example, special equipment to purify one product. But, you know, the—a major know-how is inside of these columns, not outside.

Mr. SHAYS. I just want to move on. I'm not disagreeing with you now. You said you've been on both sides and your statement will stand on the record.

Mr. ALIBEK. If I may, one more thing. When we include in this protocol, a necessity to inspect, for example, suspected facilities, having four member team and 2-week notice, in my opinion is a mockery. Because for 2 weeks it's possible to hide any BW production.

Mr. SHAYS. Could I just ask, is it possible to hide it in a day?

Mr. ALIBEK. In small production could be hidden very easily within 1 to 2-week period.

Mr. SHAYS. Thank you.

Mr. Clay, you're on.

Mr. CLAY. Thank you, Mr. Chairman.

Let me also thank the witnesses for being here to share with us their knowledge and experience.

The purpose of the hearing is among the highest priority that we may have as a country. We have to examine the factors that should be considered in assessing the risk of biological terrorism. Just months ago the subject would have been as serious but would not have had the urgency and the knowledge that this has to be addressed and acted upon post haste. September 11, 2001, changed any perception that biological terrorism was only a possibility. It is now a probability and, depending on the results of the investigation ongoing in Boca Raton, FL, it may be a reality. However, we must not assume answers before the investigation is complete.

The threat is real. It will remain real for the foreseeable future. The American people need both procedures and actions for the knowledge of how to implement those procedures that are established.

Mr. Decker, you have repeatedly reported that we as a country lack a comprehensive assessment of the terrorist threats against us. The problem as you describe it is that, without this assessment, we haven't done a comparison and prioritization to allow us to plan intelligently. Is that a correct description of your findings?

[The prepared statement of Hon. Wm. Lacy Clay follows:]

STATEMENT OF THE HONORABLE WILLIAM LACY CLAY BEFORE THE SUBCOMMITTEE ON NATIONAL SECURITY, VETERANS AFFAIRS AND INTERNATIONAL RELATIONS

Hearing on
"Combating Terrorism, Assessing the Threat of Biological Terrorism"
October 12, 2001

THANK YOU, MR. CHAIRMAN. I THANK THE WITNESSES FOR BEING HERE TODAY TO SHARE THEIR KNOWLEDGE AND EXPERTISE. THE PURPOSE OF THE HEARING IS AMONG THE HIGHEST PRIORITIES THAT WE MAY HAVE AS A COUNTRY. WE HAVE TO EXAMINE THE FACTORS THAT SHOULD BE CONSIDERED IN ASSESSING THE RISKS OF BIOLOGICAL TERRORISM.

JUST MONTHS AGO, THIS SUBJECT WOULD HAVE BEEN AS SERIOUS, BUT WOULD NOT HAVE THE URGENCY AND THE KNOWLEDGE THAT THIS HAS TO BE ADDRESSED AND ACTED UPON POST HASTE. SEPTEMBER 11, 2001 CHANGED MY PERCEPTION THAT BIOLOGICAL TERRORISM WAS ONLY A POSSIBILITY. IT IS NOW A PROBABILITY AND DEPENDING ON THE RESULTS OF THE INVESTIGATION ONGOING IN BOCA RATON, FLORIDA, IT MAY BE A REALITY. HOWEVER, WE MUST NOT ASSUME ANSWERS BEFORE THE INVESTIGATION IS COMPLETE.

THE THREAT IS REAL. IT WILL REMAIN REAL FOR THE FORESEEABLE FUTURE. THE AMERICAN PEOPLE NEED BOTH PROCEDURES FOR ACTIONS AND THE KNOWLEDGE OF HOW TO IMPLEMENT THOSE PROCEDURES THAT ARE ESTABLISHED.

THE FIRST THING THAT WE MUST DO IS MAKE SURE THAT ALL INFORMATION IS AVAILABLE TO THOSE THAT HAVE TO PLAN AND MAKE DECISIONS. THAT MEANS THAT ALL OF OUR POLICE AGENCIES, WHETHER INFORMATION GATHERING AGENCIES, ENFORCEMENT AGENCIES, OR BOTH, WILL HAVE TO HAVE ACCESS TO THE INFORMATION THAT THE OTHER HAS IN ORDER TO GET A COMPLETE PICTURE OF THE THREATS. WE CANNOT WAIT FOR A TRAGEDY THAT COULD HAVE BEEN AVERTED EXCEPT FOR

SELFISHLY SUPPRESSED INFORMATION. WHEN IT COMES TO THE PROTECTION OF THE AMERICAN PEOPLE, THERE IS NO PLACE FOR JURISDICTIONAL TURF BATTLES.

WE MUST REMEMBER THAT PLANS MUST BE ADDRESSED FROM THE LOCAL LEVELS UP. THE FIRST PERSONS ON THE SCENE, THE "FIRST RESPONDERS", MUST HAVE THE NECESSARY KNOWLEDGE AND EQUIPMENT TO ADDRESS THE PROBLEMS THAT THEY CONFRONT UPON ARRIVAL. THOSE FIRST FEW MINUTES AND HOURS ARE OFTEN TIMES THE MOST IMPORTANT. THESE AND SEVERAL OTHER ISSUES HAVE TO BE STUDIED, PLANS FORMULATED AND PROCEDURES ESTABLISHED.

MR. CHAIRMAN, I ASK UNANIMOUS CONSENT TO PLACE MY STATEMENT INTO THE RECORD.

Mr. DECKER. Congressman Clay, that is correct.

Mr. CLAY. OK. And, as a result, there is a risk that our spending and preparation may be misaligned, is that right?

Mr. DECKER. I would hope that our investment returns the most interest for the Nation, and I'm not sure that's the case without that threat assessment.

Mr. SHAYS. Your answer was really a yes, right?

Mr. DECKER. Yes.

Mr. CLAY. You know, let's talk about preparedness of the American public. I've heard that you can acquire a vaccine for anthrax. Should there be a run on getting that vaccine by the American public? Should we be concerned? And anyone on the panel can answer.

Mr. DECKER. I'd let my distinguished colleague, Dr. Alibek, comment on that.

Mr. CLAY. Should there be a run on the anthrax vaccine? Should the American public start——

Mr. ALIBEK. Let's imagine the situation. We're able to manufacture enough doses of vaccine to vaccinate the entire population of the United States. Theoretically, it's possible, but it would be a significant problem, financial problem, logistical problem and so on and so forth, a medical problem as well.

But, at the same time, let's imagine the situation, as I said before, there are many different agents and you vaccinate just against anthrax, it means somebody who has a desire to deploy biological weapons would use something else. Having people vaccinated against anthrax we would force these terrorist groups to develop and to deploy something else—plague, tuberculosis, something else. When we talk about this, in my opinion it's not a perfect idea to vaccinate people because—keeping in mind that the number of agents is quite large. Any time you vaccinate against one agent you are in danger to be infected by another one.

Mr. CLAY. One more question, Mr. Chairman.

Mr. SHAYS. You have no problem.

Mr. CLAY. We agreed that numerous technical problems are there with acquiring, producing and weaponizing biological agents.

Mr. Decker, you stated in a past report, "a leading expert told us that the whole process entails risk. For example, anthrax powders easily adhere to rubber gloves and pose a handling problem. Effectively disseminating the agent can pose technical challenges in that proper equipment and energy sources are needed. A less sophisticated product in dissemination method can cause illness or death."

As a result of these conclusions, would you say that terrorists or rogue states are more likely to seek out legitimate covers for their illegitimate activities such as pharmaceutical plants or the like?

Mr. DECKER. Sir, I have no direct evidence to be able to support that, but it would seem likely.

Mr. CLAY. Likely that they would use these plants as covers?

Mr. DECKER. I can only state that it would seem logical, but I have no factual documentation to support that.

Mr. CLAY. All right. Thank you.

Thank you, Mr. Chairman.

Mr. SHAYS. Thank the gentleman.

I haven't done my round yet. I'm going to do 5 minutes, then another 5, then we'll just go back to the other Members. I'd like to go fairly quickly if I can. If we have agreement, so then we not discuss those things, only where there might be disagreement.

Mr. Decker has come forward with the whole concept that risk management is a systematic and analytical process to consider the likelihood that a threat will endanger an asset and so on. Then he broke it down into three: threat assessment, vulnerability assessment and critical assessment. The bottom line to a threat assessment is a threat assessment is used to evaluate the likelihood of a terrorist activity against a given asset or location. Then he basically said a vulnerability assessment is a process that identifies weaknesses in fiscal structures and so on. Then he said a criticality assessment is a process designed to systematically identify and evaluate important assets and infrastructures in terms of various factors such as the mission and so on.

Do any of you disagree with this as being a framework with which the committee could work in dealing with management, risk management? Does this make sense to you, Dr. Alibek; to you, Mr. Parachini; to you, Dr. Post?

Mr. ALIBEK. In general, it makes sense.

Mr. PARACHINI. Just make sure I understand.

Mr. SHAYS. He's giving us a way to process this. I want to know if you are comfortable with it or whether you would amend it.

Mr. PARACHINI. An important part of this, if I understand what has been proposed, is to factor in motives into the vulnerability assessment. I think that's what Dr. Post has talked about. Too often, we just focus on the vulnerability or we just focus on the criticality, and we don't think what the capabilities put together with motives might produce. So that's an important point.

Mr. SHAYS. OK, did you want to make a point Dr. Alibek?

Mr. ALIBEK. In my opinion, that is correct. But when we discuss risk assessment, my position is still the same. We need to analyze the entire problem and to see what all possible ways to deploy and to develop biological weapons and what agents could be used. You know, I would use a broader definition for risk assessment.

Mr. SHAYS. OK. Well, I'm going to come right back to you in a second.

Dr. Post, your issue on motivation, anything else?

Dr. POST. I would concur with what John Parachini has just said. And to me this is the weakest aspect of our capability of conducting a thorough risk assessment at this point, an insufficient ability to have the data to make a good evaluation of intentions.

Mr. SHAYS. Let me expose my ignorance, Mr. Decker. I have basically said continually whenever I've had the opportunity that we've had three commissions that have come before us. They said, we don't have a proper assessment of the terrorist threat, we don't have a strategy to deal with a threat, and we aren't organized to maximize our resources to be effective to implement the strategy and succeed against the threat. Now, I've just made this blanket "we don't have a proper assessment of a threat." You're breaking that first one down into parts, correct?

Mr. DECKER. Not exactly, sir. What I'm saying is, threat assessment by itself is not enough——

Mr. SHAYS. OK.

Mr. DECKER [continuing]. To craft a cogent national strategy with effective actions.

Mr. SHAYS. So we need more than threat assessment.

Mr. DECKER. Yes.

Mr. SHAYS. So you have termed it risk management, and you have divided it into these three things—the threat assessment, vulnerability assessment and criticality assessment.

You jumped in, Mr. Parachini, and said, motives go in there. Where would motives go in those three or is it a separate identity? Would it go under threat or would it go—it would go under threat, I guess.

And you, Dr. Alibek, would take these three and add something else to it. You spoke too general for me for it to be helpful.

Mr. ALIBEK. In my opinion, what needs to be said—not just threat assessment. Threat assessment, defense assessment is very important.

Mr. SHAYS. What, our capability to respond?

Mr. ALIBEK. Our capability to respond.

Mr. SHAYS. Help me out, Mr. Decker. Where would that go in your line of thinking?

Mr. DECKER. The risk management approach is when you're looking at preparedness.

Mr. SHAYS. OK.

Mr. DECKER. We're really talking primarily about the defense, the preparedness of the homeland.

Mr. SHAYS. We're talking about the detection and prevention part of it.

Mr. ALIBEK. Not just the detection and prevention. Of course, prevention is very, very important. When we talk about defense assessment or our preparedness, we need to keep in mind three major issues—detection, prevention and treatment.

Mr. SHAYS. What was the last word?

Mr. ALIBEK. Treatment.

Mr. SHAYS. Treatment?

Mr. ALIBEK. Treatment, yeah.

Mr. SHAYS. How you treat it. OK. My staff understands. Then they make me feel ignorant here. That meant nothing to me. He said it five times—treatment, treatment, treatment—but it doesn't help. What do you mean?

Mr. ALIBEK. The problem, one of the major things, biological weapons cause infectious diseases. In terms of protection——

Mr. SHAYS. Do you mean response instead of treatment?

Mr. ALIBEK. No, when we discuss response, we need to keep in mind three major directions in medical response. I would say—but not general response. Detection is a technical response, then protection is a medical response, and medical and technical response and treatment.

Mr. SHAYS. Oh, I see. I misunderstood. I was thinking you meant detect the attack. You mean detect—so in that—I understand treatment in that basis. You're saying once there is the like—if you've detected that someone has a pathogen, that they are—they have been ill, you want to detect it, you want to protect them and treat them.

Mr. ALIBEK. That's correct.

Mr. SHAYS. OK. Now I understand. No wonder you thought I was an idiot here.

I'm fascinated by your chart, Dr. Post. Because—let me just first get it here—it seems to me you're almost doing what the FBI has done. I'm not being really fair to you, so you'll get a chance to enlighten me. The FBI has said, there will be an attack, you know. It's like we needed to pay the FBI to tell us there will be an attack. We all know there is going to be an attack. We all know it could happen in the next 2 days. We all know it is serious, and we all know it could happen weeks from now.

What you did on your scales—on your markings of the X and the star, you basically—you have the check as being less constrained and while still unlikely could rationalize such an act. So the check does not indicate likelihood of committing such an act but refers to motivation only. Well, that maybe answers my question.

You're saying that these are not likely but that—help me out.

Dr. POST. I'm glad you picked up on that. Because I think the check is somewhat misleading. This doesn't mean they are likely to do this. They are less psychologically and motivationally constrained. Having said that, they still need resource and technology. And if they are succeeding abundantly with conventional terrorism and don't have the handling risk, there is really very little incentive to move forward.

The one major caveat in terms of that as I have studied Osama bin Laden, I've regularly been struck by—I think we can reliably predict we will be surprised by him. And he is remarkably innovative. Spends a great deal of time preparing, and then we have a terrorist spectacular. So I am by no means confident he would not move in this direction, not that he can't cause mass casualties with conventional terrorism but because he recognizes the terror that such an act would inflict.

Mr. SHAYS. You want to say something, Mr. Parachini?

Mr. PARACHINI. Let me contrast with Dr. Post on this point. I think there is a certain psychic thrill from the explosion or the dramatic event that a terrorist does not get in the delayed gratification of making people sick with disease. And if there was a way that bin Laden could think about to get that immediate response and there was that immediate sense of fear it might be of greater interest to him, but there are other alternatives that he turns to that he does achieve that.

Mr. SHAYS. Well, a mass exodus of a city because people think there's a biological or chemical attack would give him quite a thrill. Because that would be pretty——

Dr. POST. I do agree with that. I don't want to accuse you of practicing without a license here——

Mr. SHAYS. You just did.

Dr. POST [continuing]. But I do think indeed that part of what has been quite gratifying in his several interviews where he has actually suggested the questions about can bioterrorism has been that this is a way of inflicting terror and the notion of terrorizing the United States is a major source of satisfaction in his mission to be commander in chief of the Islamic world against the West.

Mr. PARACHINI. I think if you look at all those interviews it's actually journalists who raise the question first and then he then responds to it.

Dr. POST. That's actually not correct. That was my initial reaction. I've traced that back. The question——

Mr. SHAYS. This is based on interviews you've had with different——

Dr. POST. No, no. These are CNN, ABC, CBS interviews.

Mr. SHAYS. Did I give you credit for something undeserved? My understanding is that you have had contact and interviewed a number of——

Dr. POST. We just completed a project interviewing 35 incarcerated Middle Eastern terrorists both in Palestinian and Israeli prisons and have a number of really quite dramatic quotes from them.

I also served as expert witness in New York in the Federal trial of Osama bin Laden.

Mr. SHAYS. So this is something you have done a lot of research on.

Dr. POST. Yes. But on your point I agree with you. There is a satisfaction to the big bang.

Having said that, it's quite clear to me that a major motivation for Osama bin Laden, as his last two statements indicated, is inflicting terror. And one gets a great deal—the mere act of doing that in and of itself is sufficient. But that leads me to believe that even a focal chem-bio attack which was then attributed to him would be powerfully magnifying of his stature.

Mr. PARACHINI. Here is where Dr. Alibek makes a very helpful point about treatment and protective measures. It is in our capacity to control the impact of a biological attack which is fundamentally different from a chemical attack where you would have an immediate response. Bin Laden has consistently moved ahead with explosives. He has killed lots of people. The only people who—the only subnational entities that have used biological agents have been people who were obsessed with poisons.

And Aum, which is the one we fear the most because they are like bin Laden, had lots of resources, failed in all their attempts, including the case of anthrax where what they used was veterinarian vaccine anthrax. It was not a virulent agent. So this is not as easy to do unless you're possessed to try and do it.

Bin Laden is not possessed. He is an operator that we really have to deal with.

Dr. POST. To add to that in one other point, several of the radical Islamic terrorists we spoke to indicated that the Koran proscribes the use of poison. And that was a disincentive. Most of the terrorists we interviewed said there was—they would do it if they were ordered to do it, but in fact give me a good Kalashnikov and there was no real consideration of this as a tactic among the radical Islamic terrorists that we had interviewed.

Mr. SHAYS. Let me just say we're going to get back to this whole issue of treatment. Because I have had too many people—and not right this minute, though, but because I want to give Mr. Gilman a chance and Mrs. Schakowsky to come back.

But I just preface it by saying to you, so when I come to my next round, that when I saw the attack on September 11th I almost

physically fell to my knees in the horror of it, like all of us did. The absolute horror of seeing the attack, to see the plane go on another, to see the building just implode, to hear the explosion at the Pentagon. But I think I fell more to my knees because I've had so many hearings where I've had people say to me, credible witnesses, that they have the capability—pleasant sound—we have the capability. And I thought they did, but the only restraint on them was they wouldn't want to have killed so many people. And that went—you know, that just totally—it just flipped on that moment. They were willing to annihilate 50,000 people.

So I understand your point that these weapons of biological and chemical can be very precise so they can be—they can very much be pinpointed and not a weapon of mass destruction. But they can also be very indiscriminate.

Dr. POST. This is true. And your point about the willingness to take mass casualties, one of the questions we asked in our interviews was was there any moral red line in terms of the extent of destruction, the extent of casualties; and for several of the groups, in fact, there are significant red lines that would be counterproductive for their cause.

Let me just read: The more an attack hurts the enemy, the more important it is. That is the measure. The mass killings, especially the suicide bombings, were the biggest threat, and so most efforts were devoted to these. The extent of the damage and the number of casualties are of primary importance. In a jihad, there are no red lines.

I find that a rather chilling comment.

Mr. SHAYS. It is chilling.

Mr. Gilman.

Mr. GILMAN. Thank you, Mr. Chairman.

Mr. SHAYS. You're going to have 10 minutes.

Mr. GILMAN. I'm impressed by Dr. Alibek's focus of attention on the fact that we don't have a proper, appropriate coordination amongst our agencies and recommends a single specialized agency to take over. I note that we have organizations with some responsibility in our government. DOD, Defense, Health and Human Services, Centers for Disease Control, Department of Commerce, Department of Justice, FBI, CIA, NSA and FEMA, all have some responsibility. But there is no coordination, as we found in other areas that we're addressing.

I think his recommendation that there should be an agency focused solely on biological terrorism, biological defense is a meritorious one, and I'd like to pursue it, but I'd like our other panelists to give us their views on Dr. Alibek's proposal. Mr. Decker.

Mr. DECKER. Congressman Gilman, this is the—I think Dr. Alibek's proposal is analogous to some of the comments from the Hart-Rudman Commission when they talk about consolidating certain functions under one organization to deal with border security issues. And the analogy would be obviously dealing with bioissues or——

Mr. GILMAN. Do you support the proposal?

Mr. DECKER. Sir, our agency has not done enough work in this area to determine is it better for the country to have an apparatus like this versus improving what we currently have.

Mr. GILMAN. Mr. Parachini.

Mr. PARACHINI. This is sort of a novel concept. It's the sort of thing one expects from Dr. Alibek, sort of new thinking. You know, Governor Ridge could take this challenge on, among others.

Mr. GILMAN. Ridge is going to have a myriad of responsibilities.

But Mr. Alibek is recommending that there be one specialized agency. What is your feeling? Yes or no.

Mr. PARACHINI. It might be too narrow of a task. There are already a number of entities within the Pentagon that work on biological defense and critically DARPA does a lot of the research that Dr. Alibek is pointing to. So I would be reluctant to create yet another government agency to address this problem when I think already within the Pentagon there is a fairly robust agency.

Mr. GILMAN. Well, besides the Pentagon, all of those other agencies I just recited that have some part of it—HHS, DOC, DOJ, CIA, FBI and NSA, FEMA—it seems to me you need some centralized authority.

Mr. PARACHINI. There is a natural inclination to find a central organization to coordinate. If we can accomplish integration without necessarily overlaying another layer of——

Mr. GILMAN. How do you get integration with all of these agencies out there?

Mr. PARACHINI. Some of the interagency processes I think function very well. It's a matter of leadership to task them in the right way.

Mr. GILMAN. How do you feel, Mr. Post?

Dr. POST. Having an intelligence background, having sat in on many national intelligence meetings, I would think that something would be lost in having too much of a homogenization of functions. There is a utility to having different organizations, and often it would be a greater clarity emerges from the clash of ideas.

Mr. GILMAN. So I take it the consensus is you have some reservations about pursuing it.

Dr. Alibek.

Mr. ALIBEK. If I may, to clarify this idea. You know, I am dealing with many agencies. I talk to many experts from different agencies and departments. The problem is this. I didn't mean to—just to have an agency just to conduct this work. It's a completely different idea. The idea, because as I said before the problem of biological weapon threat and biological weapons defense is so comprehensive, is so complex, it's absolutely impossible to have a huge number of agencies or departments responsible for different pieces of this huge puzzle.

And when we start collecting all these pieces of puzzle in sort of picture what we see now, we see a lot of duplication, I mean, just many agencies doing the same work. Many government contractors, they do absolutely the same projects. We see a huge number of absolutely the same efforts run by different agencies and departments. And, you know, when you start collecting you realize we have a lot of work under different leadership, under different agencies, same work. While at the same time you can see a lot of holes in this puzzle of biological weapon threat analysis and defense.

Mr. GILMAN. Dr. Alibek, let me interrupt you. Dr. Alibek, you were the head of an agency in the Soviet Union that concentrated

all of the efforts on biological and chemical warfare in your agency, is that correct?

Mr. ALIBEK. Yes, that's absolutely correct.

Mr. SHAYS. Would the gentleman suspend a second? Does it also include defense as well as offensive?

Mr. ALIBEK. It includes both offensive and defensive issues. Just my personal experience, I don't want a supercentralization, I would say, but you know when you've got an agency, it's not a superagency which is capable to do everything and to remove people and so on and so forth—but when you've got an agency which is controlling all situation—the entire situation in this field, when it knows what kind of agency involved in what kind of work, what subcontractors are doing what kind of work—now, for example, I can say again you mentioned specific agencies. I see, for example, there is an entity, a large government contractor running the project who develop so-called encyclopedia of biological weapons. We might be in a senseless work. We spent millions of dollars to do this. But at the same time there is another agency running another project with similar tasks.

Mr. GILMAN. A lot of overlap.

Mr. ALIBEK. Not just overlap. A lot of senseless work. A lot of overlap. In this case, of course, when we say about $240 or $300 million in this field, just if you start analyzing all this puzzle, you would see that 50 percent of this money is overlapping each other.

Mr. GILMAN. In your agency in the Soviet Union you had over 30,000 workers all concentrating on biological and chemical warfare.

Mr. ALIBEK. 30,000 workers, about 40 facilities concentrated there both biological weapons research, biological weapon development, biological weapon production, biological weapons defense.

Mr. GILMAN. How long did that agency exist in the Soviet Union?

Mr. ALIBEK. It existed from 1973 to 1992. But now a similar agency exists under the Minister of Defense. It's similar agency but dealing with military issues of biological weapons and biological weapons defense. But it's a military agency.

Mr. GILMAN. Mr. Chairman, I hope that we can take another look at all of this since you were so forceful in your leadership on the fractionalization with other authorities with regard to terrorism and other aspects of chemical warfare.

Let me ask the panelists, how do we force all of our agencies to share information? For example, you told us that there was a lack of sharing of intelligence between the FBI and the INS with regard to the hostage plane, that one of the hostage planes had taken place and had there been a sharing it could have been prevented. What are your thoughts? How do we improve the sharing of intelligence?

Dr. POST. It seems to me, if I might note, that one of the better outcomes of this tragic event was cooperation on two levels which has been deficient in the past, both within the U.S. Government among agencies where there really is a significant press now to fully cooperate and share information and, at least as importantly, among the international community. One simply cannot assess this problem independently, either in any agency within the government or the United States alone without active sharing of informa-

tion. And I think we are moving—there has been a kind of quantum leap as I have come to understand that cooperation.

Mr. GILMAN. Any mandates necessary domestically to do that? Should we have some mandate that there be forceful sharing of intelligence in——

Dr. POST. There are, of course, problems with the different perspectives of the agencies which will always be present—having an informant versus having a witness, is this a crime or is this a developing information. Understanding—I have been regularly been struck at interagency meetings between Defense, CIA and FBI that one has three different perspectives coming to bear. Terrorism is crime. Terrorism is political action. Terrorism is a low-intensity conflict.

But the issue you're drawing attention to is absolutely crucial, and any efforts that can be brought to improve that cooperation I think would be welcome.

Mr. GILMAN. Dr. Alibek, if reports are correct that the Soviet Union used the biological weapon Glanders against the Mujahadin in 1982, what is the likelihood that terrorist groups from Afghanistan would use those kind of weapons against their adversaries?

Mr. ALIBEK. Yes, you are absolutely right. There was credible information about the use of Glanders in 1992 against Mujahadins in some remote locations of Afghanistan. Glanders is a bacterial infection, very easy to grow, very easy to concentrate. If not treated, it has up to 30 percent mortality rate. Very stable in aerosol and has some persistent forms.

In this case, just when we talk about difficulties, in my opinion, it's not difficult. Likelihood I would say is high.

Mr. GILMAN. Glanders is a—they tell me that is a bacteria that's highly lethal, is that correct?

Mr. ALIBEK. It's not highly lethal. I would call it incapacitating agent. If it stayed well we would have about a 5 percent mortality rate. Without treatment, it would increase up to 30 percent.

Mr. GILMAN. Has any——

Mr. SHAYS. If the gentleman—it has gone about 12 or 13 minutes.

Mr. GILMAN. Thank you, Mr. Chairman.

Mr. SHAYS. Let me ask you, do you gentleman have until 12:30? Does anybody have a problem until 12:30? I'm going to quickly vote while Ms. Schakowsky—I'm going to let her recess. I'm going to let her recess in the meantime.

I hope to be back shortly after we recess. Then we'll get right—started again. Is that all right?

Ms. SCHAKOWSKY [presiding]. I just have a couple of questions.

It seems to me as if Dr. Alibek says one of the goals of biological weapons is to incite panic and fear. In some degree that has already been accomplished, that there is an incredible preoccupation right now with biological terrorism and emphasized, I think, with the three cases of anthrax right now in Florida. But it has also focused attention on the public health infrastructure. And I apologize for being here. I have looked through the testimony, and I know you were talking about threat, but if you were to prioritize where we are now putting our emphasis in response, both to prepare against and to be ready should something happen, where would

you put the priority of bolstering our public health infrastructure, the capacity to recognize a biological attack, to have the necessary vaccines, to have the communication systems that we need?

We have heard about weaknesses on every level. In comparison, then, to the threat, how important is it to act now to address the public health infrastructure? Anyone can answer.

Mr. PARACHINI. The value of your question is it points to opportunities for what I would call dual-use spending. There are things that we can do that improve our capabilities and our public health system to, for example, detect emerging infectious diseases that occur naturally that are not intentional. And as a by-product of that, we also include our capability to—the low probability of an intentional use of a biological agent.

Ms. SCHAKOWSKY. So in comparison, though, for example, in terms of airline safety, other transportation modes, where would you put——

Mr. PARACHINI. Now you are broadening the spectrum beyond just within the biological area.

Ms. SCHAKOWSKY. However you want to frame it. But how important is it?

Mr. PARACHINI. Well, I would want to make investments that we get dual-use benefit across the board. Specialized investments just to address that terrorist problem or that terrorist problem today will be outdated tomorrow. And I am not fully in agreement that the only role of biological weapons is to inflict terror. And indeed, in 1984, in the United States, the use of biological agents was not to terrorize, but was specifically to incapacitate people.

Ms. SCHAKOWSKY. Oh, no. I'm just saying if that is one of the goals that—in part that has been achieved already.

Mr. PARACHINI. If that is one of the goals, we would have to have somebody say that is what they intended to do, or we would have to get a defector, or we would have to have somebody on a witness stand say that. And while we think that, we actually have not had a terrorist or a defector talk about biological weapons for terror. We have them talk about them as effective killing weapons or effective incapacitating weapons. But when we are talking about biological weapons for terror, we are really projecting our fear into what we think they're thinking. It's not clear to me that's the case.

Mr. ALIBEK. If I may, when the Soviet Union was developing biological weapons, the Soviet Union developed its own doctrine and classification of biological weapons. Biological weapons have been divided into so-called strategic biological weapons, operational biological weapons, and the major idea was to kill as many as possible people. Biological weapons, according to the Soviet Union's military doctrine, would be used to kill people. The United States' old—very old program existed in the 1950's and 1960's, intended to use incapacitating biological weapons.

But what was important for the Soviet military strategists, everybody understood that in case of deploying biological weapons, one of the biggest problems would be in the country of deployment. It is huge panic, full distraction of any activity, vital military activity, because people actually, in addition to being infected, diseased and killed, they are afraid of biological weapons because they don't understand what it is. And it is one of the biggest problems.

Another I think we are going to need to keep in mind, when we talk about biological weapons—and you know what worries me? When we discuss what kind of event we could see and whether or not we would see a sort of a small event like we saw several days ago in Florida, or it could result in some significant casualty number, the problem is this, and just what I would like to repeat once again: There is no single answer. We cannot say—we cannot insist saying biological weapons cannot produce a significant casualty effect. We cannot say at the same time—we cannot say biological weapons are so effective that we could see a second doomsday, for example, and to produce sort of a doomsday scenario.

In my opinion, what we need to do—that is why I said about our lack of understanding of the biological weapon threat. We need to understand it. Depending upon many different scenarios, agents, techniques, concentration of the agent, amount of the agent deployed and so on and so forth, we could see from dozens to hundreds of thousands of casualties.

Ms. SCHAKOWSKY. I am going to have to go vote, and I am going to recess the committee right now.

[Recess.]

Mr. SHAYS [presiding]. Mr. Alibek thinks he has until 12:30 to get back. Sometimes wars get started by miscommunication, but we can deal with it on our own. Calling this hearing to order.

You all have been informed of a CNN story that an employee of NBC in New York has tested positive for anthrax, and that was Friday. The FBI and CDC are investigating. Now, then, they got the story wrong, because they said the anthrax is not the same respiratory anthrax that killed a Florida man. The employee tested positive for cutaneous anthrax. In other words, it is still the same anthrax, it is just by skin rather than by air. What is your reaction, Dr. Post, concern?

Dr. POST. Each time we hear one of these events, it regularly heightens our own suspiciousness, and there is a kind of hyperactive community now. But I must say that it is troubling, and I would like to learn more about that, but especially when it hits a news agency, what could that mean?

Mr. SHAYS. They make a mistake if they take on the news industry; don't you think?

Dr. POST. There is no limit to whom they will take on.

Mr. SHAYS. Why don't I go to you, Mr. Parachini. What I was going to say to you, as I have said, based on the 20 plus hearings we have had and the briefings we have had, I say the following: That it is not a question if there will be a chemical or biological attack, and it's a question of when, where and what magnitude. And I qualify the magnitude to be the less likely is the 100-year storm. Do you find that a statement you can agree with or disagree?

Mr. PARACHINI. I agree with that. I think you are characterizing the scope and magnitude of the problem in the right way.

Dr. POST. And motivationally, the issue of the 100-year storm for almost all terrorist groups would be highly counterproductive and have no positive incentive.

Mr. SHAYS. Well, I used to think that before, but why now? I used to think that before, but not anymore. I mean, I don't see based on your comment about the red line——

Dr. POST. I said for almost all terrorist groups, the one exception being the Islamist radical extremists who see themselves as trying to strike a mortal blow at our structure. Having said that, they are doing quite well, thank you very much, on using conventional terrorism. And on their own—and I don't have access to classified intelligence on this matter. The technological, scientific resource matters that are necessary really would require cooperation of a state provision, such as Iraq, and that to me is a very important area to be zeroing in on human intelligence on the connections between Iraq and the bin Laden group.

Mr. SHAYS. Do you have any comment on that? Is that an uncomfortable statement to have made?

Mr. DECKER. I don't think it is uncomfortable. With what we just experienced, I think it is accurate.

Mr. SHAYS. Dr. Post, you had said weapons of mass destruction is not a helpful term because they can be used not as weapons of mass destruction, or they wouldn't most likely——

Dr. POST. The so-called weapons of mass destruction can be used in small attacks, and you can cause mass destruction with conventional terrorism. So I think it is semantically confusing.

Mr. SHAYS. You don't see a distinction between a chemical, biological——

Dr. POST. That is CBRN terrorism, and it does have its own terrorizing aspects, the so-called silent death, but it is not useful—because it conjures up the spectacle of the superterrorism, and, in fact, the much more likely use would be a small local attack.

Mr. SHAYS. I was born in 1945, 8 years old by 1953. We then started to—we had the cold war—excuse me, the conventional World War I, II concept of confrontation gave way to the cold war, and there was a whole redefinition of how we responded. We ended up with—I am going to put a reward out for Dr. Alibek. And anybody gets him gets $10 from me if you get him in the next 5 minutes, and that is a promise you can bank on. But the cold war began. And we then—I am trying to think of, you know, is there some parallels to then and now. I had people tell me they thought cities would literally be blown up. I lived in a community in Fairfield County—Jason, you get $10.

I want to get you on your way, but I just wanted to say and I am going to ask you, Dr. Alibek, this question. It can be a yes, if it is a yes or no. I just say that it is not a question if there is going to be a chemical or biological attack, but a question of not if, but when, where and of what magnitude, and the magnitude is the thing we talked about most likely to be small in nature, not large in nature. Is that an uncomfortable statement, a statement you would agree with or disagree?

Mr. ALIBEK. I would answer this way now——

Mr. SHAYS. I want a yes or no first. Would you agree or disagree. If you don't agree, tell me.

Mr. ALIBEK. I agree.

Mr. SHAYS. Now qualify.

Mr. ALIBEK. Of course, we will be seeing newer and newer cases of anthrax or some other infections. And we know, for example, today's case in New York, new information has come in about a new case of anthrax. But we will be going from small cases, and probably later we will be seeing a bigger number of cases of various infections.

Mr. SHAYS. And all of the three of you agree with Dr. Post except as not surprising there is no red line anymore, no red line meaning no limit to what they would be willing to do.

Mr. ALIBEK. In my opinion, there is no red line.

Mr. SHAYS. You are not surprised by it?

Mr. PARACHINI. Well, I guess I would want to texture that a little more, because I think that the motivations, for example, are more than just an audience of one and it being God. It is not just religion. There is a patina of religion here, but it's other things. They talk about political things. And indeed, bin Laden in his recent statement has done that, as did Ramzi Yousef on the stand in New York.

Here's the part where I think it differs a little bit from there being no red lines. They see themselves as cosmic warriors engaged in a great struggle, and in order to continue that struggle which gives them meaning, they have to stay alive, or some of them have to stay alive. And so they are willing to do a lot, but it is not that there is no red line, it's that they're willing to do what it is to fight in this cosmic struggle.

Mr. SHAYS. In fact, the red line is way off in the distance.

Mr. PARACHINI. I don't think they think about a red line at all. And so by putting a red line out there, we are imposing how we think that they'd crash on through it.

Mr. SHAYS. In a sense you said yes, and it's an interesting way of qualifying. You said you wanted to add texture to it. I'm learning every day from you guys. I know my colleague Mr. Platts wants to ask a question.

Mr. PLATTS. Thank you, Mr. Chairman. I just have two questions, and as a nonscientist kind of lay person on these issues trying to get a good understanding of the threats and the various aspects of these various biological weapons—the potential for it, earlier this week I sat in on a briefing with a doctor from John Hopkins and their civilian biodefense center, and when he talked about smallpox and the threats of that being used by terrorists and it spreading, one of the things he said was that a good nature—and the symptoms, I think, was 2 days of very intense fevers followed by the onset of the rash, and that his statement to us was that a person is not contagious until the onset of the rash. And, Dr. Alibek, in your testimony, you talk about it being contagious before any symptoms are visible. And I'd be interested if you could expand it.

Mr. ALIBEK. You know, it's one of the biggest disagreements between Dr. Henderson and myself. He considers smallpox becomes contagious when we see the onset of this infection. Unfortunately, we have seen many cases when monkeys became infectious on the last day of incubation period, and it was absolutely the same observation from the scientists who visited India and some other countries when they dealt with smallpox in those countries. This infec-

tion becomes contagious the day before the onset of these symptoms.

Mr. PLATTS. That is based on your studies in Russia?

Mr. ALIBEK. Based on all observations and based on new study.

Mr. PLATTS. Well, I think that is an important aspect because of——

Mr. ALIBEK. This is the only contagious infection in which people become contagious before the onset of symptoms.

Mr. PLATTS. OK. Thank you.

From how to be able to address it, it emphasizes the importance of an immediate response as opposed to having a day or 2 or 3 days' kind of cushion to be able to respond.

Mr. ALIBEK. You know, it is an interesting question, for example, when we analyze all scientific literature here in the United States regarding smallpox, you know what kind of information you find? You know, a very small general description of smallpox. Russia has studied smallpox for years from various aspects, especially keeping in mind that Russia, the Soviet Union, was involved in developing smallpox biological weapons for decades. In this case, a number of cases, a number of observations was much greater than here in the United States. And, you know, it is in many Russian sources. For example, if you analyze Russian sources, you can find this specific statement: Infection, this infection becomes contagious before the onset of symptoms.

Mr. PLATTS. Thank you.

Second question was for any of the panelist members who would like to address it is what other aspects of Dr. Henderson's testimony was the difficulty—and it has been reported in the press of it being very difficult to take a crop-dusting plane and adjust it to have such a fine mist that would be the serious threat. He contended in his statements to us that it is not true, that it would be very easy to kind of retrofit, to basically change some valves to make the crop-dusting plane very much a means of disbursing the biological element in a very effective way, and I had been interested in any opinions.

Dr. POST. It is my understanding that one needs to make a distinction between an urban area and tall buildings, and in order to get the adequate concentration down, it would be quite problematic.

I do want to raise what my initial reaction was to this just to add a totally different element. I found it very interesting that these inquiries occurred in a rather indiscrete fashion, in fact just before the event when they were going to give their lives. My initial question was, was this done, in fact, to create terror, knowing——

Mr. PLATTS. Psychological aspect of it?

Dr. POST [continuing]. That they would be discovered, and was this part of a larger plan? I just raise this as an additional thought.

Mr. ALIBEK. What is interesting, I agree with Dr. Henderson, when somebody says it is very difficult just to redevelop nozzles of crop dusters and just to have the right particle size, you know, in my opinion, it's incorrect. When we water the grass at our houses, there are some systems just to create mist. It is a very simple nozzle system. When we say it is very difficult to have biological

agents in the right particle, it's a matter of just a specific nozzle device. And in this case, if this—usually crop dusters deploy biopesticides or pesticides—a regular particle size. Settling was in between 50, 100 microns. When we talk about biological weapons deployment, this particle size must be between 1 to 25 microns. Some people say 1 to 5. It's incorrect. Up to 25 microns could work. It would cause different manifestations of infections. But 25 microns work as well.

And in this case, what I would like to say, one of the types of deployment in the Soviet Union for operation of biological weapons was to use medium-range bombers with spray tanks. In each spray tank, to capacity each, it had specially developed nozzles just to create this means. And, you know, crop dusters operate on the same principle.

Mr. PLATTS. You are saying that you are agreeing with Dr. Henderson that it would be easily done?

Mr. ALIBEK. He said it would be easy, and I agree it is not a technically unsolvable problem.

Mr. PARACHINI. If I can just add, the Iraqis worked on this for a number of years and were not successful. We have to look into the future and hedge against that possibility, but let us keep in perspective the difficulty here.

Mr. ALIBEK. We worked on this problem, and we used anthrax over the Virginia Islands using these medium-range bombers, and the effectiveness of this deployment was unbelievable. And in 1968, deployment of tuleremia of—by American military showed with the right particle size was able to travel tens of miles and infect and kill monkeys 40, 50 miles downwind.

Mr. PLATTS. Thank you, Mr. Chairman. And again, my thanks to all the panelists for their testimony.

Mr. SHAYS. Dr. Decker, a housekeeping issue here. If we are trying to assess the threat assessment, part of that is do they have the capability, say, of delivering a chemical or biological agent. That would be part of the threat assessment, right?

Mr. DECKER. That's correct.

Mr. SHAYS. Or a threat assessment, for instance, of radioactive material would be do they have radioactive material; or nuclear weapons, do they have a nuclear weapon?

Mr. DECKER. And other aspects of that, that's correct.

Dr. POST. If I might add something worth noting in terms of threat assessment, one would like to know—and this is a human intelligence question—has this group been recruiting biochemists, or has it been recruiting inorganic chemists. Has it been trying to get into its cadre of specialists the kinds of scientists who could promote this. This would be one of the kinds of indicators one would look for that a group is making a transition from conventional terrorism to being really motivated to pursue bioterrorism.

Mr. SHAYS. In a briefing we had yesterday, we had Eileen Pricer, who argues that we don't have the data we need because we don't take all the public data that is available and mix it with the security data. And just taking public data, using, you know, computer systems that are high-speed and able to digest, you know, literally floors' worth of material, she can take relationships that are seven times removed, seven units removed, and when she does that, she

ends up with relationships to the bin Laden group where she sees the purchase of chemicals, the sending of students to universities. You wouldn't see it if you isolated it there, but if that unit is connected to that unit, which is connected to that unit, which is connected to that unit, you then see the relationship. So we don't know ultimately the authenticity of how she does it, but when she does it, she comes up with the kind of answer that you have just asked, which is a little unsettling.

I just have a few areas of interest here, but I want to—my staff wants to make sure that I ask one question, and I am going to keep them on edge and wait to ask that question later. Makes them pay attention.

Forty offices, 30,000 employees—30,000 employees would fill up a stadium. That is a lot of people.

Mr. ALIBEK. Correct.

Mr. SHAYS. They were all working on biological weapons and defensive ways to defend?

Mr. ALIBEK. The great majority of them were working in two fields, biological weapons offensive issues and biological weapons defensive issues.

Mr. SHAYS. And defensive, in your words, are what would happen——

Mr. ALIBEK. To development of treatment, of vaccines, and just to protect against biological infectious diseases.

Mr. SHAYS. In the process of doing your work, were there occasions where people became inflicted with a particular disease and died?

Mr. ALIBEK. Yes. We had some cases.

Mr. SHAYS. You had casualties.

Mr. ALIBEK. But you know what we were able to do because there were two major systems to develop biological weapons. Minister of Defense had a great number of people who died because they started this program in the 1920's and 1930's.

Mr. SHAYS. When your unit was established after the Department of Defense, were you the civilian side of this?

Mr. ALIBEK. We were a completely new entity, specifically established to develop modern, sophisticated biological weapons.

Mr. SHAYS. This is a matter of public record, and I should know it, so I don't want to spend a lot of time, but it's going to get me to a question. Is this operation still going on?

Mr. ALIBEK. The Minister of Defense is still having facilities, but this system, Biopreparat, has been dismantled.

Mr. SHAYS. You have 30,000 people give or take.

Mr. ALIBEK. Many of them have left Biopreparat facilities. And where these people are, it is very difficult to say.

Mr. SHAYS. We are not talking about 100 people, but 30,000.

Mr. ALIBEK. But at least people with sophisticated knowledge, a number is about 7,000 to 9,000 people.

Mr. SHAYS. That is a staggering number.

Mr. ALIBEK. Nobody knows where these people are.

Mr. SHAYS. Now, in terms of the biological agents, did you come across some delivery systems that would be very helpful to the terrorists, or did you hit a wall where you just simply couldn't deliver a biological agent effectively?

Mr. ALIBEK. No. Everything was developed. There are three major delivery systems for deployment because it was a military program.

Mr. SHAYS. I don't need to know them. I just want to know if you did them.

Mr. ALIBEK. We were able to develop very effective, sophisticated deployment techniques and means for deployment.

Mr. SHAYS. Now, some—obviously, if they are military, the tip of a missile, that's one thing, but were some of them more subtle so they would be a means that would be a tool that a terrorist could use?

Mr. ALIBEK. Some of them, at least 50 percent of this technique, could be used by terrorists.

Mr. SHAYS. Give me on a scale of 1 to 10, 10 being confident that terrorists have these weapons to 1 that they don't. Where would you put it, 10 being most likely that they had them, or at least the states—let's just go to the states, the Koreas, the Chinas, the Irans, the Iraqs, the Libyas.

Mr. ALIBEK. Nine, ten.

Mr. SHAYS. So, then, all I have to decide is if I think those countries have them, it's possible the terrorists have them. And I know what I think.

Mr. ALIBEK. I'm talking about the countries. If you are talking about terrorist groups, it is difficult to say.

Mr. SHAYS. We will all come to our conclusion.

Dr. POST. On that question, might I note, though, the observation was made, terrorists are mobile and hard to trace where states are confined within their borders. The risk to a state of retaliation for it being discovered that it was providing these weapons to a terrorist group is certainly profound, and that will be a major—I am not saying it will stop providing them, but it certainly is a major disincentive for any state.

Mr. SHAYS. The only problem with Afghanistan, for instance, if you believe the story yesterday, I mean, the Taliban and bin Laden are basically one and the same, if you accept that. This is—my major other area of questioning and I will get to the question the staff wants me to ask—well, let me do it now, the BWC, Biological Weapons Convention, did not stop the Soviet Union from developing biological weapons. The Soviets signed the BWC; is that correct?

Mr. ALIBEK. That's correct. It was signed by the Soviet Union, but it didn't stop. It even expanded the Soviet Union's biological weapons program.

Mr. SHAYS. And I don't believe, but I would be curious, do you think there is a way you can write a protocol to inspect all potential places where you would make a biological agent, or do you think that you could still have secret places that no one would ever know about?

Mr. ALIBEK. In my opinion, it is impossible.

Mr. SHAYS. Impossible?

Mr. ALIBEK. Impossible, because these protocols would never be able to inspect all possible locations and all possible productionsites.

Mr. SHAYS. And on a timely basis.

Mr. ALIBEK. It is not just this issue. For example, the Soviet Union, as soon as that country started understanding that United States will be pressuring the Soviet Union severely, they started developing mobile installations for manufacturing and assembling biological weapons.

Mr. SHAYS. Then let me just ask this question here. Do you think that the smallpox is still a Vector or—let me put it this way. This is what I have to sort out, and all of you can jump in. You basically had smallpox theoretically that was the WHO—that is the United States plus the Soviet Union—just those two and the WHO. But you have the United States theoretically and the Soviet Union have it, CDC and Vector. I don't know why other doctors who were dealing with the smallpox efforts to cure it, why they wouldn't have theoretically all abided by the request to destroy it. But my question to you is, are you totally and completely comfortable that smallpox is contained within Vector and nowhere else?

Mr. ALIBEK. Absolutely not. I strongly believe that there are some countries who have secret stocks of this virus. And specifically we knew North Korea was experimenting with smallpox in late 1980's, early 1990's. And we knew that Iraq was experimenting with camelpox as a good surrogate for——

Mr. SHAYS. You said Iraq?

Mr. ALIBEK. Camelpox is a good surrogate to model a smallpox infection. This is just what we know for sure. But in my opinion, there could be some other countries still having smallpox stocks.

Mr. SHAYS. Which gets me to this question—and all of you could jump in as well in terms of your perspective on it—if I am asked, you know, by someone from the press or constituents what can they do—in other words, I know what the government can do to deal with the threat and the likelihood of a biological attack. I think I know what my government can do. I want my government to obviously have the proper threat assessment, to know the likelihood of when, where and what magnitude, and if we can determine that. I would like them to know potentially what kind of biological agent would be used, you know. And I guess that would be based on percentages, Mr. Decker, I mean, this more likely than that, but—is that a yes?

Mr. DECKER. I think there would be some attempt to quantify which one would be more probable, but that is problematic in itself.

Mr. SHAYS. So then my question is, the best answer I have is that I want my government to have the antibiotics to deal with this and potentially the vaccines where a vaccine would be helpful. Like with anthrax it would be helpful even after someone has contracted the disease, with the antibiotics. But what else can the government do? Is it just prevention, or can we deal with it when it happens?

Mr. ALIBEK. My position again, vaccines—I don't believe vaccines are good protection against bioterrorism. What the government needs to do is to liberate all possible protection and treatment approaches and just to start paying much attention to treatment, to medical treatment and to emergency prophylaxes. Not much has been done in this field.

Mr. SHAYS. More on treatment than a prophylactic.

Mr. ALIBEK. More on treatment and emergency prophylaxes.

Mr. SHAYS. Is that based on your belief there can't be immunity from a biological attack?

Mr. ALIBEK. Not just my belief, our experimental data suggests there are some directions, very promising directions, could be liberated and could result in appropriate protective means and approaches against biological weapons.

Mr. SHAYS. I misunderstand you. I say a prophylactic. Can you vaccinate someone for all the potential biological agents?

Mr. ALIBEK. When we say prophylaxes, there are two types of prophylaxes: first, vaccine prophylaxes and, second, urgent prophylaxes. It means——

Mr. SHAYS. When it happens——

Mr. ALIBEK. You can use it either immediately before or after exposure. There are different means and approaches to do this. In this case, keeping in mind that the number of agents being used in biological weapons is big—I would say large—it is very, very difficult to imagine that vaccines would have any volume in this case.

But there are many scientific approaches and many scientific developments already. For example, you can talk to DARPA, and they can tell you about the immunological approaches they develop. In my opinion, there is a very good direction funded by DARPA. But there is another problem. Since we started developing vaccines here in this country and in many other countries, we lost a huge number of scientists who understand infectious diseases, infectious diseases per se, and, I mean, we have got a huge number of microbiologists, but we have no many scientists who can deal with infectious disease.

Mr. SHAYS. In the United States and Europe?

Mr. ALIBEK. Unfortunately, yes. We need to revise this issue, and we need to develop a new level of scientists, virologists, bacteriologists and experts in infectious diseases.

Mr. SHAYS. I would like to have counsel ask a question.

Mr. HALLORAN. Just in anthrax cases, the island—or not an island, but the island of Anthrax in the Aral Sea in Kazakhstan, what can you tell us about the anthrax that's there? What is the likelihood that it's still virulent; that if a terrorist from Afghanistan wanted to walk up there with a scoop and grab some anthrax, what's the likelihood that it's still virulent and would be useful to a terrorist?

Mr. ALIBEK. You know, this island in Aral Sea—Russian name of this island was Virginia Island. It was the Soviet Union bioweapon proving testing ground. It has been used to test different biological weapons including the plague, tuberculosis Glanders and anthrax. The entire island is contaminated, completely contaminated. You can dig in and isolate spores of anthrax. They are still virulent, and they could be used if there is a group having access to this island. It wouldn't be a big problem to isolate virulent strains of anthrax from that island.

Mr. HALLORAN. The island is not guarded?

Mr. ALIBEK. You can come and have just a very simple protection, spray-type suits; just a simple protection, including gloves, masks and just having simple equipment just to take samples in petri dishes and just to see on the surfaces of petri dishes and then separate colonies, and you've got enough material just for growing.

Mr. HALLORAN. And the expertise required to identify a lethal strain, is that undergraduate, postgraduate?

Mr. ALIBEK. Undergraduate. I would say this: A level enough—in many cases it is not a matter, for example, of graduating or master's degree knowledge. It is a matter of commitment and specific desire, specific knowledge. You have a basic training in biology, but if you commit to a personal group, you will be able to retrieve this information from many sources available in the world. In this case, for example, if you know how to grow microorganisms and you know how to identify—because it is a simple process—with how to identify a virulent strain. People think in many cases it is necessary to infect animals, but if they know that virulent strains have capsule and they know how to grow, how take a sample or prepare a slide and just staining the slide and see a capsule, you know it is a virulent strain.

Mr. SHAYS. Let me close by asking, is there any question you would like to ask yourself that you wished I had asked or some other Member asked? Seriously. Is there a question we should have asked?

Mr. PARACHINI. I would just urge the committee at some point in its deliberations to think through the link between the state programs and terrorists, because at the moment there is no open source information to show that evidence. And indeed, the numbers about the number of people involved in former state programs who may be around the world are in a fair amount of dispute. We've heard very large numbers here, but there are many other views about what the number is and where those people are, most of whom are in Western countries, most of whom are in the United States. So that gauge, the threat requires a little more discussion.

Mr. SHAYS. You don't want me to assume that if Iraq has chemical agents, that the terrorists who have worked in Iraq have them?

Mr. PARACHINI. That's right. That would be one thing, and also the former Soviet agents or former Soviet scientists, given the size of all the number of people that worked in the program, only a much smaller number actually had weapons, critical knowledge, and many of them have come here and have not gone to North Korea, Iraq or Iran. So getting the dimension of the potential threat is an important thing to run at.

Mr. SHAYS. Seems to me we can't do it until we have that. I make the assumption, admittedly based on all the hearings that we have had, that it is so likely as to be almost absurd not to think they haven't gotten them, but your point is, I haven't seen the money. But we have people who have made it very clear to us that pathetically that resources from the former Soviet Union to various countries went for a song, that they didn't pay a lot of money for some of what they got. And one of the things that concerns me—one of the things that has concerned me has been—I am sorry. I lost my train of thought, and I just want to get this point—that you have various republics where you had nuclear programs in countries other than now Russia. Do I make the assumption that all the chemical programs were in the Russia Federation, or were some of them in now what are independent states, independent countries?

Mr. ALIBEK. Now, when we talk about, not chemical, biological weapons program, apart—this program was located actually in

three former Soviet Union republics. The major part was in Russia. A small part was in Kazakhstan, and the third part was in Uzbekistan.

Mr. SHAYS. That shouldn't make me feel good, should it?

Mr. ALIBEK. Yeah. But when we say how many people knew, know, and where these people are, what I would like to say I know because——

Mr. SHAYS. Short answer.

Mr. ALIBEK. I am having some Russian scientists working for me previously involved in Russian biological weapons program. They've got contacts with Russian scientists who visited Iran and Iraq and taught in Iran and Iraq, and they told these people who were in those countries, told that at least Iranian scientists had very sophisticated knowledge in molecular biology. They were there.

Mr. SHAYS. I hear you loud and clear.

Mr. PARACHINI. The link I am trying to make is between the terrorist group and the state.

Mr. SHAYS. I think it is fair.

Dr. POST. And just to add and echo this point, that is a huge, important intelligence target to be looking at that link, which we at this point in time scarcely have adequately covered. It is a human intelligence problem.

Mr. SHAYS. Let me say to you I think this has been a wonderful panel, and I appreciate the moments when you were listening to others and then moments when you were the key player. If one of you wasn't here, this panel would not have been as helpful. It was the various contributions that you all made. And I hope our paths cross again. Very, very valuable information, and I appreciate it a lot. Thank you very much. This hearing is closed.

[Whereupon, at 1 p.m., the subcommittee was adjourned.]

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