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Welcome to the CPC Outreach Journal. As part of USAF Counterproliferation Center's mission to counter weapons of mass destruction through education and research, we're providing our government and civilian community a source for timely counterproliferation information. This information includes articles, papers and other documents addressing issues pertinent to US military response options for dealing with nuclear, biological and chemical threats and attacks. It's our hope this information resource will help enhance your counterproliferation issue awareness.

Established here at the Air War College in 1998, the USAF/CPC provides education and research to present and future leaders of the Air Force, as well as to members of other branches of the armed services and Department of Defense. Our purpose is to help those agencies better prepare to counter the threat from weapons of mass destruction. Please feel free to visit our web site at www.au.af.mil/au/awc/awcgate/awc-cps.htm *for in-depth information and specific points of contact. Please direct any questions or comments on CPC Outreach Journal to Lt. Col. Michael W. Ritz, CPC Intelligence/Public Affairs or JoAnn Eddy, CPC Outreach Editor, at (334) 953-7538 or DSN 493-7538.*

Editors Note: Listed below are hyperlinks to the articles in this edition of the Outreach Journal. You may click on the articles which interest you, or simply scroll through the entire document as before. Thanks, Jo Ann

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(Editors Note: Hyperlink to order form, document not available electronically at this time.)

Homeland Security: Appendixes to A Framework for Addressing the Nation's Efforts

(Lists GAO contacts and related GAO products.)
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Chicago Tribune
September 26, 2001

Chemical, Biological Threats Get New Focus

Cities share latest response strategies

By Dahleen Glanton, Tribune national correspondent

HUNTSVILLE, Ala. -- The terrorist attacks in New York and Washington have left cities and small towns scrambling to prepare for what U.S. officials said could be the next round of danger: biological or chemical attacks that most rescue workers are ill-equipped to handle.

Officials from emergency agencies throughout the country gathered Tuesday in Huntsville to learn about the latest rescue technology and to share information that could help cities survive a contamination of their water supplies or the release of deadly chemicals into the atmosphere.

Federal officials have told public health agencies to be on the alert for biological contaminations. Although there has been no evidence of bioterrorism in the United States, local officials are gearing up for the possible release of dangerous chemicals or biological agents that could sicken thousands of people within days.

Scientific advancements in robotics and chemical decontamination could greatly reduce casualties, but some cities might not have access to them because of financial constraints and the lack of specialized training, officials said.

"Some of what is needed does not require a lot of money, but it does require transferring information," said Ted Jarboe, deputy chief of fire and rescue services in Montgomery County, Md. "Every department will not have the same level of response because they simply don't have the resources, but that certainly does not relieve them of the responsibility of being prepared.

"It's like the 1970s when the country first started realizing the need for specialized hazardous material management," he said. "Everyone had to go through a learning curve and solidify resources by first making it a priority and then convincing the public that it was needed."

Jarboe's department has spent more than $500,000 on chemical suits, gas masks and other equipment needed in case of a chemical or biological attack. Most of the money came from federal grants, he said.

Robots have been used to some extent in New York this month, as rescue workers sift through the rubble of the World Trade Center. But several companies are developing new technology that could play a role in the war on terrorism.

Time Domain of Huntsville said it has made gains in wireless technology using wideband radio frequencies. The company received a $3 million contract from the Department of Defense this year to develop a radar system that can penetrate walls.

The lightweight device, called SoldierVision, produces a low-power signal that enables users to "see" through surfaces. Government officials said the equipment could help reduce casualties by acting as a surveillance tool, providing early warnings of an enemy attack and an accurate picture of the battlefield. Another product, called RadarVision, can penetrate walls and identify direction and distance of movement.

The two devices were among dozens on display during the three-day conference sponsored by the National Institute for Urban Search and Rescue, a Santa Barbara, Calif.-based non-profit group that promotes the use of technology as communities recover from natural disasters and acts of terrorism.

Though research has been under way for years on robots and other technology, officials said the Sept. 11 attacks have helped to accelerate their production.

"We know now that bioterrorism is no longer a possibility, it's a probability, a reality," said Roland Monette of the search and rescue institute. "And the things these companies have been struggling along with for a long time all of a sudden have the spotlight on them.

"Some of the robots might cost $50,000 to $60,000 apiece. But that's no more than the cost of a fire engine."

U.S. unprepared for germ attack, experts warn

Thursday, September 27, 2001
By DANIEL Q. HANEY
The Associated Press

Stashed in government warehouses around the country are 400 tons of antibiotics and other medical supplies ready for a terrorist germ attack.

The stockpile, packed in hundreds of air-freight containers, can be shipped on 12 hours notice. There are enough pills, IV solution, and other supplies to fill eight Boeing 747 jets, enough to treat thousands of victims of an intentional release of anthrax or plague or other germ.

The medicines are the most tangible centerpiece of federal preparations for a bioterrorist attack on the United States. But reassuring as they are, many specialists in the area fear the country isn't ready for such a disaster.

"How prepared are we? We are more prepared than we were two years ago. A lot of efforts are under way. But we are woefully unprepared," said Bruce Clements, associate director of St. Louis University's Center for the Study of Bioterrorism and Emerging Infections.

The possibility of a bioterrorist attack was already near the top of some experts' worry lists before Sept. 11. The Centers for Disease Control and Prevention published its strategic plan for dealing with one last year.

"Many experts believe that it is no longer a matter of 'if' but 'when' such an attack will occur," said Dr. James M. Hughes, the CDC's chief of infectious diseases, in congressional testimony seven weeks before the attacks on New York and the Pentagon.

After those attacks, however, many say the risk is being taken much more seriously.

Dr. Michael Osterholm of the University of Minnesota, author of "Living Terrors," argues that launching a smallpox epidemic, for instance, could be as easy as leveling the World Trade Center using planes hijacked with box cutters: Intentionally give the virus to 40 or 50 suicidal terrorists, wait a few days until they are highly infectious and then send them out to walk through airports, ride subways, or go to ballgames.

Thousands of people would catch it and pass it on. Scientists say the protection many people had from their childhood smallpox vaccine has largely worn off, and although no smallpox is believed to be available to terrorists, the possibility cannot be ruled out.

The CDC leads government planning for the medical effects of such terrorism. Over the past two years, besides stockpiling drugs, it has underwritten state and local bioterrorism planning and education, strengthened communications among health officials, and improved the ability of labs to identify unusual bugs.

However, many experts say that on the local level, preparation has been scattershot, and doctors, nurses, and hospitals are simply untrained and unprepared to deal with tens of thousands of patients with a deadly infection.

First, how long would it take to realize an attack occurred? Who would get the first limited doses of antibiotics? Who would count out and distribute the pills? And where would all the sick be hospitalized?

Many involved in local planning say such questions have no answers yet. "Until now, we haven't even looked at the fact there are weaknesses, let alone how we might fix them," said Dr. Kathy Rinnert of the University of Texas Southwestern Medical Center, medical director of Dallas' metropolitan medical response system.

The first hint of disaster might come days later, when unusual numbers of otherwise healthy people turn up at emergency rooms with aches and fever.

Most doctors have never seen a case of anthrax, smallpox, or plague. The early signs of many bioterror infections could easily be mistaken for the flu.

Bioterrorism training programs, aimed especially at emergency room doctors, encourage them to report odd clusters of common ills. "We need a system where a physician who sees a flu-like illness doesn't just say, 'Go home and rest. It's the flu,' " said Dr. Ronald Atlas of the University of Louisville, president-elect of the American Society for Microbiology.

Identifying an attack quickly is critical. Once symptoms start, the outlook is grim, even with plenty of medicine. But prompt doses of antibiotics can keep outwardly well but infected people from falling ill. Most of the bacterial threats, such as anthrax and plague, can be treated with ordinary antibiotics like Cipro and doxycycline.

The medicines are divided around the country into eight lots, called push packages. One or more would be sent, depending on the situation. Each weighs 50 tons and takes up more than 100 air cargo containers.

Osterholm said the stockpile is useless without the manpower and plans to distribute the drugs quickly, and "those plans are not in place throughout most of the country."

Fears of shortages also exist.

"The concern is there won't be enough ventilators and enough antibiotics, so we will have to decide who gets treated and who doesn't," said emergency physician Nicki Pesik of Emory University in Atlanta.

Meanwhile, U.S. intelligence officials said Osama Bin Laden's global terrorist network has been trying for some time to acquire materials necessary for chemical, biological, and even nuclear weapons.
But the CIA and other U.S. intelligence agencies acknowledge they have little hard evidence that Bin Laden's network, al-Qaeda, has acquired or developed chemical or biological agents, or successfully created weapons from the materials that could kill large numbers of people.
One intelligence official, however, said this week that Bin Laden "has the capability to conduct a crude chemical or biological weapon attack. I don't know what the lethality of his agent would be, but he would know how to get it together."
Another intelligence official said this assessment is based on "intelligence that shows they have tried to obtain information and material that would be useful in that kind of attack."
http://www.bergen.com/news/doom2720010927.htm

Deadly cargo probe nets 10

Eunice Moscoso and Rebecca Carr - Cox Washington Bureau
Thursday, September 27, 2001
Washington --- A day after the FBI warned that trucks may be used in chemical or biological attacks, authorities arrested 10 Middle Eastern men in three states Wednesday on charges of fraudulently obtaining licenses to transport hazardous materials.
The men, arrested in Missouri, Michigan and Washington state, were among 20 suspects who investigators said had obtained licenses to haul hazardous materials with the aid of a Pennsylvania state official.
A driver's license examiner, not identified by authorities, provided permits to people who were not eligible, according to court records.
None of the men taken into custody Wednesday had any known connections to the terrorist attacks in New York and Washington, Justice Department spokeswoman Susan Dryden said.
There were additional arrests abroad:
> In Britain, authorities captured a French citizen suspected of being involved in a plot to attack U.S. interests in Europe. France had already placed seven suspects under formal investigation, a step before being charged. Authorities say the eight are believed to have ties to Saudi terrorist Osama bin Laden, blamed by the United States for the Sept. 11 attacks that left more than 6,500 people dead or missing. Evidence found during arrests in France last week suggest the suspects were part of a group scouting out European locations for attacks, with the U.S. Embassy in Paris a prime target.
> In Germany, police arrested one German and six Iraqi men on immigration violations, but they also were being held under anti-terrorism laws.
> Spanish police arrested six Algerians believed connected to bin Laden. Investigators believe they were planning additional attacks on American entities in Europe.
> In El Salvador, national police director Mauricio Sandoval said the FBI has detained a Salvadoran man, Luis Martinez-Flores, who allegedly helped the suspected terrorists obtain false identification cards. Martinez-Flores "may have moved" around "with the terrorists in New York, Boston or Florida," Sandoval said.
The name Luis Martinez-Flores turned up last week on a list of 21 people whose financial records the FBI had asked all U.S. banks to check. The 19 suspected hijackers were on the list, along with Martinez-Flores and one other person.
Martinez-Flores is apparently being held by the U.S. Immigration and Naturalization Service in Virginia as an illegal immigrant, Sandoval said.
In the United States, concern over the use of trucks for chemical or biological attacks has prompted the Department of Transportation to ask state law enforcement agencies to pull over every truck with hazardous materials placards and check the drivers' credentials and paperwork, officials said Wednesday.
The DOT also told its inspectors, who normally enforce such matters as driver fatigue, to fan out to trucking companies carrying explosive or poisonous materials and urge them to review the security of their vehicles, parking lots and drivers, said David Longo, a spokesman for the Federal Motor Carrier Safety Administration, a branch of the department.
"We're putting these carriers on notice that they really need to take a close look at certain things," he said.

The 10 men arrested Wednesday got the licenses from the state of Pennsylvania, where a driver's license examiner in Pittsburgh provided permits to people who didn't take required tests, had suspended licenses or were otherwise not eligible, according to court records.
The FBI said a Middle Eastern man named Abdul Mohamman, also known as "Ben," acted as a middleman in the scheme, bringing in as many as 30 drivers who fraudulently obtained commercial licenses to carry hazardous materials.
The FBI quoted the examiner, identified in the affidavit only as CW-1, as saying that he was introduced to "Ben" about six years ago.
The examiner told the FBI he "issued HAZMAT endorsements to these individuals at Ben's instruction without conducting the required test."
"Ben paid between $50 and $100 per individual by placing the money in 'brand-new' bills under CW-1's desk calendar," said the FBI affidavit.
The concern about licenses to haul chemicals first surfaced last week when authorities arrested Nabil Al-Marabh, 34, a former Boston cabdriver, in Chicago. Al-Marabh holds a commercial driver's license and is certified to transport hazardous materials, records show.
http://www.accessatlanta.com/ajc/epaper/editions/thursday/news_b32b6c6126fa91e600b5.html

Bioterrorism Vulnerability Cited

GAO Warns That Health Departments Are Ill-Equipped
By Ceci Connolly
Washington Post Staff Writer
Friday, September 28, 2001; Page A16
The federal government's plan for responding to bioterrorism is a collection of poorly coordinated, often underfunded, projects that span 11 separate Cabinet-level agencies, according to the first comprehensive report on the subject since the Sept. 11 attacks.
Further, the study by the General Accounting Office warns that state and local health departments appear equally unprepared to deal with a biological assault, despite the fact they are likely to be the first to respond.
"Bioterrorism remains a low probability, but a growing probability, coupled with a high vulnerability for our nation," said Sen. Bill Frist (R-Tenn.), who, along with Sen. Edward M. Kennedy (D-Mass.) requested the report.
In this year's budget, the Bush administration has allocated $343 million for dealing with a biological attack, $113 million of which is for the Pentagon to protect soldiers in the field. The rest, which amounts to less than $1 per U.S. civilian, goes to projects as diverse as environmental assessments, pharmaceutical stockpiles and computer upgrades.
More money is being spent by the Defense Department and other federal agencies on prevention and detection, although Frist and Kennedy argue it is nowhere near enough. They have urged President Bush to spend an additional $1 billion to immediately upgrade public laboratories, train medical personnel, pursue new vaccines and therapies and secure overseas stocks of biological weapons.
"We hope you will bear in mind the special challenges posed by biological weapons," the pair wrote Bush. "A terrorist attack using a deadly infectious agent could kill or sicken millions of Americans."
In the past, many have dismissed the threat of bioterrorism as unlikely because it can be difficult to obtain, produce and deliver the deadly agents. However, the formulas "are readily available on the Internet, and the agents are relatively easy to conceal," the report notes. "According to intelligence agencies, the possibility that terrorists may use chemical or biological materials may increase over the next decade."
Many of the gaps identified in the report -- lack of coordination, questions over jurisdiction -- are endemic to the broader challenges surrounding counterterrorism, said Jeffrey H. Smith, former counsel to the CIA and an expert on preparedness.
"But biological weapons have unique aspects," he said. "The first unique aspect is the fact that the response is largely a public health challenge. That adds a layer of complexity that the others do not have."
Yet as the Bush administration readies for war and prepares to fend off future attacks on U.S. soil, many in the health field argue it is time to elevate the issue of bioterrorism.

"We are concerned that the grave medical and public health vulnerabilities in the nation will be missed in the very, very rapid push to shore up the nation's response to terrorism," said Thomas Inglesby, a senior fellow at the Hopkins Center for Civilian Biodefense at Johns Hopkins University.
Reading from the Defense Department's report to Congress, he said the Pentagon spent $264 billion to deter regional conflicts, $28 billion to protect against a "peer" nuclear attack and $3 billion on all other biological, chemical, cyber and nuclear assaults. Of that, he said, $250 million went to public health systems. "It would be a mistake not to change the funding patterns of the past," he said.
The GAO report, which is still in draft form, found that many of the federal bioterrorism programs are still in their infancy, with little more than start-up money.
The federal Centers for Disease Control and Prevention in Atlanta formally began a bioterrorism program in 1999, although the agency did not receive its first infusion of cash -- $9.2 million -- until this fiscal year. All told, the CDC budget includes $148 million for bioterrorism, though much of that money is spent on developing vaccines or purchasing medications for national stockpiles.
As of January 2001, not one of the National Guard's civil support teams, designed to deploy to a contaminated area within four hours of an attack, "had received necessary certification, and none were in use." The Pentagon received $93 million for the teams, which have a broader mandate of responding to attacks by all types of weapons of mass destruction.
Other critical agencies have been left out of the discussion or continue to spar among themselves, the GAO report indicated. The departments of Transportation and Agriculture were left out of the early planning entirely.
"The FBI and CDC each have their own list of biological agents, and these lists only partially overlap," the report notes. "For example, CDC considers smallpox to be a biological agent of concern, whereas the FBI does not include smallpox on its list of biological agents likely to be used in a terrorist attack."
And while some officials at the Department of Health and Human Services have argued with the Pentagon and the CIA over what medications should be stored in the National Pharmaceutical Stockpile, the Food and Drug Administration has not been consulted at all, "despite FDA's expertise with pharmaceuticals."
The study's authors also highlight fears that state and local agencies could not manage a biological assault.
http://www.washingtonpost.com/wp-dyn/articles/A37610-2001Sep27.html

Birmingham (AL) News
September 27, 2001

More Troops Guard Depots

By Mary Orndorff, News Washington correspondent
WASHINGTON -- The U.S. Army has stationed extra troops at the nation's eight chemical-weapons stockpile sites, including Anniston, in reaction to the terrorist attacks.
The deployment is not a response to a specific threat against any of the installations, officials said Wednesday.
Anniston Army Depot, which houses 2,254 tons of obsolete but still-deadly agents, will use the soldiers to augment existing security. About 100 additional troops had arrived by Wednesday and more could come later, said Depot spokeswoman Joan Gustafson.
Commanding Gen. John G. Coburn of the U.S. Army Materiel Command ordered the enhanced protection Tuesday, said Gregory Mahall, spokesman for the Program Manager for Chemical Demilitarization. Besides Anniston, the other stockpiles are in Oregon, Utah, Colorado, Arkansas, Indiana, Kentucky and Maryland.
In Anniston, the Army is scheduled to start destroying the chemical agents next year in its new $1 billion incinerator, part of the country's commitment to an international chemical weapons treaty. In the meantime, the sarin and mustard gases and the weapons that house them are stored in above-ground bunkers at the depot.
Since the attacks on the World Trade Center and Pentagon, the depot like all federal military installations has increased security. Army spokesman Mike Abrams in Anniston said entry to the depot is limited to employees with identification and visitors who are required to be there. Public tours have been halted.
Potential threats have been that someone would try to gain access to the stockpile with an intent to do harm on-site or steal the material for use elsewhere.

Also, officials have always prepared for a plane accidentally crashing into a bunker and dispersing a deadly cloud of gas. Since the terrorist hijackings, the once-sensational scenario has gained new relevance.
U.S. Rep. Bob Riley, R-Ashland, said aircraft are already restricted from flying above the depot. "The potential of an accidental plane crash has always been there, but it was remote. All of that changed on Sept. 11," Riley said.
Abrams said the depot presents a less-interesting target for terrorists because of the relatively smaller number of people in the immediate area.
Craig Williams, an incinerator opponent and watchdog on the chemical demilitarization program, also speculated the stockpile sites would be less attractive to a terrorist because they lack the symbolic significance of the World Trade Center or Pentagon.

New York Times
September 28, 2001

Afghan Plant Has Potential Worrying Bush

By Judith Miller

The Bush administration is concerned about a plant in Afghanistan that makes a vaccine for anthrax, administration officials and officials of the International Committee of the Red Cross said yesterday.
One official said the administration is trying to assess whether the plant could make biological weapons. To do so, the plant would have to have lethal strains of anthrax in stock and the right equipment.
Christophe Luedi, the Red Cross's deputy head of operations for Afghanistan and Pakistan, said he did not believe the plant possessed any lethal strains.
Foreign workers have been withdrawn from Afghanistan, but Mr. Luedi said that his organization has daily phone contact with its Afghan employees and that there is no indication that any of its main projects have stopped functioning.
The plant, he said, makes about 10,000 doses of anthrax vaccine a year, a small portion of the 20 million doses that the country needs. Anthrax, an infectious disease that kills cattle and other livestock, is a serious health problem in Afghanistan.
The vaccine strain used at the plant is the 34F2 Sterne, a nonvirulent strain commonly used to make vaccine. Vaccine strains cannot be turned into weapons because some of the genetic material that makes them lethal has been removed.
The Red Cross has been helping people in Afghanistan for two decades. Of late it was providing upwards of $40 million a year in food and medical supplies.
A Clinton administration official, who had worked on biological defense, said he had never heard of such a plant in Afghanistan and was stunned that the Red Cross had decided to renovate such a "dual-use" center in 1997, a year after the Taliban had seized control of Kabul. "It's scary," he said.

Thursday September 27 5:22 PM ET

US Developing Chemical Attack Sensor for Subways

By Claire Soares

WASHINGTON (Reuters) - The United States is preparing to test a revolutionary system for detecting chemical attacks in subway stations, a government official says.
The tests have been given greater urgency by widespread fears of possible chemical attacks after the September 11 hijacked plane attacks on the United States, which prompted a declaration of war on international terrorism by President Bush.
The US government has been working on an early-warning sensor system, thought to be the first of its kind in the world, for the past 3 years.
But an official from the National Nuclear Security Administration (NNSA) told Reuters the attacks on the World Trade Center in New York and the Pentagon, which left nearly 7,000 people dead or missing and presumed dead, had given the project new focus.

``September 11 has galvanized our determination, we are in the process of looking to acquire additional resources, looking into ways of accelerating it," the official said Wednesday in a telephone interview on condition of anonymity.
The system would detect and identify toxic chemicals, map contaminated zones and predict directions in which the hazardous gases might spread so emergency crews could redirect trains and passengers.
``It's a bit like a smoke detector in your house that's wired to the fire station...so that the fire department knows there's a fire, which floor it's on and what kind of fire it is," the official said.
``This is a response system. It's the only one in the world I'm aware of," she added.
One of Washington's 83 subway stations will host the test before the end of this year and by 2003 officials hope to carry out a multi-station check.
The Washington Metropolitan Area Transit Authority, whose trains carry 600,000 people around the capital each day, is working with the Department of Transportation, the National Institute of Justice and the Department of Energy on the project.
The Department of Energy has invested $6.45 million since 1998 in the initiative, dubbed PROTECT--Program for Response Options and Technology Enhancements for Chemical/Biological Terrorism.
Analysts have seen metro systems as vulnerable targets for chemical attacks since 1995, when members of a Japanese doomsday cult released sarin gas on a crowded Tokyo subway. The nerve gas killed 12 people and nearly 6,000 fell ill.
``I think Tokyo was a wake-up call. I would think it was the 1995 equivalent of the events of 2 weeks ago," the NNSA official said.
Experts believe the two most likely chemical agents would be nerve gases like sarin, which short-circuit the nervous system, and mustard gas, used in World War I, which causes lethal internal and external blistering.
The system could eventually be developed to detect biological weapons.
Possible biological agents include anthrax, a highly contagious disease spread by spores which is almost always fatal, and smallpox, a virus that killed millions over centuries until it was declared eradicated two decades ago.
In the wake of the September 11 attacks, the United Nations World Health Organization (WHO) on Tuesday urged all countries to strengthen their defenses against biological and chemical weapons.
``Alarm bells are starting to ring. Under these circumstances it would be imprudent not to be thinking at least and planning as hard as possible," WHO executive David Nabarro said.
The NNSA was reluctant to discuss specific details of the system, fearing this could help anyone planning a chemical attack.
Officials at the Washington transit authority, whose underground network covers 103 miles, declined to talk about the project.
http://dailynews.yahoo.com/htx/nm/20010927/hl/attack_2.html

Washington Post
September 28, 2001
Pg. 1

National Guard To Be Used At Airports

Bush Calls for Public Confidence In Flying, Details Security Plan

By Mike Allen and Greg Schneider, Washington Post Staff Writers
CHICAGO, Sept. 27 -- President Bush implored Americans today to do their part against terrorism by flying on commercial airlines again, and said he is mobilizing units of the National Guard to provide additional airport security until more permanent improvements can be made.
Trying to steady an economy being dragged down by empty planes and tens of thousands of airline layoffs, Bush assumed the role of national tourism director when he flew into Chicago O'Hare International Airport this morning to announce a $3 billion package of measures designed to make flying safer. The proposals, many of them disclosed in the past week, include expanding the federal air marshal program to put armed undercover agents on flights, placing passenger and baggage screening under the supervision of federal workers and providing funds for stronger cockpit doors and other aircraft modifications.

"Get on board," Bush said, speaking on a flag-bedecked stage between the noses of two Boeing 737s. "Do your business around the country. Fly and enjoy America's great destination spots. Get down to Disney World in Florida. Take your families and enjoy life, the way we want it to be enjoyed."

But just hours after Bush's appearance here, Defense Secretary Donald H. Rumsfeld announced new procedures for dealing with hijacked airliners that seemed to underscore the potential threats still posed by terrorists 16 days after three planes were crashed into the World Trade Center and the Pentagon. Under the new rules of engagement, regional commanders -- Air Force generals -- can give the order to shoot down a hijacked airliner if time does not permit the president or other senior officials to be contacted.

As Bush spoke shortly before noon, there were roughly 6,000 aircraft flying all over the United States and being tracked by the air traffic control system, according to the Federal Aviation Administration. That was close to the usual number of flights for a typical Thursday -- the busiest day of the week for air travel -- said FAA spokesman William Shumann.

"Overall, the entire air traffic system is running at about 91 to 96 percent of pre-Sept. 11 operations. That includes everything that flies -- private airplanes, military, airlines, commuters, cargo carriers," Shumann said.

After being shut down for three days after the attacks, air travel resumed on Sept. 14. But the number of daily flights out of O'Hare, for example, has been off 20 percent since Sept. 11 -- 2,200 instead of 2,700 -- and Shumann said commercial air carriers are logging only about 85 percent of their usual number of flights. Airline industry executives have said in recent days that planes were flying with only 30 percent to 40 percent of capacity -- down from about 70 percent on average before the terrorist attacks.

The lost revenue has driven many major air carriers to the verge of bankruptcy, and they have responded by slashing more than 100,000 jobs and by threatening to cut more. Last weekend, Bush signed a $15 billion bailout package for airlines that provides $5 billion to make up for their losses from the grounding, and includes $10 billion in loan guarantees to try to make it easier for them to line up financing for their struggling operations.

"One of the great goals of this nation's war is to restore public confidence in the airline industry," Bush said today, adding that placing Guardsmen in the nation's 420 commercial airports is a first step toward that goal. A senior administration official said about 4,000 National Guard troops will be assigned to reinforce the security guards at the airports.

The administration estimates that a six-month deployment will cost $100 million to $150 million, although officials hope the troops will be needed for less time.

Bush's 20-minute speech did not mention Reagan National Airport, the only airport that has remained closed since the government shut down the country's airspace on Sept. 11 because of the terrorist skyjackings. A senior administration official said Bush wants to reopen it after the airport addresses the security concerns raised by its direct flight paths to the White House and the Capitol.

Bush appeared with hundreds of flag-waving airline workers outside an Illinois Air National Guard hangar; and as he declared that "the spirit of America is incredibly strong," a Spirit Airlines jet roared over the crowd, which began applauding. Aides said Bush at first just thought his line was being well-received, but then he looked up, smiled broadly and basked in the chants of "USA! USA!"

Nine of Bush's Cabinet members plan to board commercial airliners on Friday in line with his determination that the nation "will not live in fear." His father, former president George H.W. Bush, did his part by chatting with television reporters as he boarded a Continental Airlines jet in Boston for a flight to Houston.

Under Bush's proposal, the federal government will assume responsibility for airport security and, according to a senior administration official, will establish an agency that will manage the screening and security functions.

Bush's plan calls for airport security and screening to be performed by "a combination of federal and non-federal workforce, with federal uniformed personnel managing all operations and maintaining a visible presence at all commercial airports," an administration official said.

Officials noted that hiring private contractors would allow the government to have more flexibility to hire and fire security workers. Civil servants have more job guarantees.

The bulk of what Bush proposed today -- strengthening cockpit doors, deploying more air marshals, stepping up screening -- is contained in a bill sponsored by Sens. John McCain (R-Ariz.) and Ernest F. Hollings (D-S.C.).

Some lawmakers have argued for making all of the screeners federal employees. A possible compromise would have federal employees screen passengers and baggage in certain large airports, while smaller airports would use federally regulated private contractors, according to one Senate aide.

"If you look at Bush's speech, it doesn't preclude that," the aide said. "He doesn't say, I don't want to have these people as federal employees."

Congressional Democrats want to also provide aid to workers who have been laid off in the airline slump, but Bush has not endorsed that idea. He did acknowledge "incredibly tense days for the people who work in the airline industry."

The Federal Aviation Administration has been increasing the number of armed federal air marshals since the attacks by using law enforcement officers on loan from various federal agencies. Bush said he will ask Congress to make the program permanent.

Bush's proposal sets aside $500 million for grants to improve cockpit security through the development of advanced measures such as transponders that cannot be switched off from the cockpit, video monitors in the cockpit that can alert pilots about any trouble in the cabin, and technology that enables controllers to take over a distressed aircraft and land it by remote control.

Modern airliners already have the on-board capability to fly automatically and to land themselves. Most airliners made over the past decade can theoretically be programmed to take off, fly a set course and land automatically with no human touch in the air. The FAA will not allow the system to be used for takeoffs.

Today, only pilots can control the autopilot and autoland systems. Experts say that the technology that would allow the on-board computers to be controlled from outside the plane and prevent attempts by hijackers to disable them is within reach.

Airline officials welcomed the president's proposals despite the fact that Bush stopped short of providing the all-federal baggage screening force that the airlines advocate.

The Air Line Pilots Association said in a news release that the proposals are "only the tip of the iceberg" because more specific actions are yet to come from a task force chaired by Transportation Secretary Norman Y. Mineta, who along with FAA Administrator Jane F. Garvey appeared with Bush after flying here on a commercial flight from the Baltimore-Washington International Airport.

Allen reported from Chicago, Schneider from Washington. Staff writers Bill Brubaker, Ellen Nakashima and Don Phillips contributed to this report.

New York Times
September 28, 2001

New Office To Become A White House Agency

By Elizabeth Becker and Tim Weiner

WASHINGTON, Sept. 27 — The Office of Homeland Security announced by President Bush after the Sept. 11 attacks will be elevated to a new White House agency with powers to match those of the National Security Council, the White House chief of staff said tonight.

The new Homeland Security Council will be run by Gov. Tom Ridge of Pennsylvania. It will include the attorney general, the secretaries of defense, treasury, health and human services and agriculture, as well as the directors of the Federal Bureau of Investigation and the director of the Federal Emergency Management Agency.

"If you take a look at what Condi Rice does so effectively, you'll get an idea what Governor Ridge will be doing just as effectively," said the chief of staff, Andrew H. Card Jr., referring to Condoleezza Rice, the president's national security adviser.

The National Security Council was created in 1947 at the dawn of the cold war. It was designed to coordinate national defense, diplomacy and intelligence at the highest levels for the president. Similarly, the new council, which will have 100 staff members, comparable in size to the national security staff, is intended to help coordinate counterterrorism and prevent a repeat of the Sept. 11 attack on the United States.

Defense officials said the administration had also decided to create a military homeland defense command. And the White House's longtime terrorism czar will now concentrate solely on the threat of attacks on computer systems, officials said.

In a speech to a joint meeting of Congress on Sept. 15, President Bush announced that Governor Ridge, a longtime friend and political ally, would run a new White House Office of Homeland Security. But he gave only a broad hint of how that office might work.

Empowered by its proximity to the president rather than actual legal authority, the office is intended to "coordinate activities, to make sure that anybody who wants to harm America will have a hard time doing so," President Bush said today.

Tonight's announcement reflects a desire to give Mr. Ridge, as homeland security adviser, the power to coordinate federal agencies at the highest level and to have some authority, as yet undetermined, over their budgets, Mr. Card said.

Members of Congress have praised the homeland security initiative but have voiced concern that Mr. Ridge would lack the power needed to pull together elements of the 46 separate agencies and departments that will be part of the new effort.

President Bush's top advisers heard some concerns in meetings with Congressional leaders. Mr. Card said that when filling out the details of this new council, the president had taken into account that the government had a "good track record on reacting to emergencies."

"But in intelligence gathering, prevention and defense it's been less good," he said.

Mr. Ridge is charged with managing the diverse and sometimes warring agencies that were in charge during period when the Sept. 11 terrorists entered the United States with ease and carried out their plot undetected.

The new council will be paid for with White House money. There will be no Congressional oversight and confirmation by the Senate for Mr. Ridge will not be required.

The various agencies and departments that will report to Governor Ridge could be compared to 46 different and sometimes incompatible computer systems. Their lack of connectivity means there is no national 911 number.

Governor Ridge and two other White House officials will be charged with bringing together all the available intelligence and all the services necessary to respond to an emergency or an attack.

"Almost every one of the agencies that has to join the fight here has woefully inadequate business practices to share information," said John J. Hamre, the former deputy secretary of defense. "Invariably they have 35- to 40-year-old reporting requirements that are still paper- bound. Now, in this kind of era, that's just unacceptable."

White House officials have also decided to create a homeland defense command within the military despite years of criticism from civil rights groups that a military assigned to protect the country could easily be transformed into a super police force.

The Joint Forces Command in Norfolk, Va., is one obvious choice, according to defense officials involved in the planning. The command could also be shared with the North American Aerospace Defense Command in Colorado.

With the heightened fear of a bio- chemical attack, Mr. Ridge's office will also include experts in bio-defense from the Department of Health and Human Service, who have already been notified of their new positions. They will supervise the vaccines and antibiotic stockpiles now managed by the Centers for Disease Control and Prevention, official said.

Counterterrorism would be reorganized under Governor Ridge's office. Richard A. Clarke, counterterrorism czar at the White House for the last 11 years, will be put in charge of the new Office of Cyber Security, according to officials involved in the planning.

Gov. James S. Gilmore III of Virginia, chairman of a federal panel on terrorism, is among several senior officials who question whether billions for counterterrorism are being well spent.

Governor Gilmore said the government was spending $10.4 billion for the purpose. Of that, he said, about $800 million goes to readiness and response. And of that, $300 million goes to states and local governments — "in a crisis, the first responders, as we have seen in both New York and in Virginia," Mr. Gilmore said.

Mr. Card said that "the first responders are very important" and that state and local governments would be represented in some form on the Homeland Security Council.

Since May 1998, under secret directives issued by the Clinton White House, Mr. Clarke has been in charge of coordinating counterterrorism plans, defending against computer attacks, protecting civilians against biological attacks and stockpiling vaccines.

Although the government made progress in the cyberwar field, aided by billions of dollars invested in solving the Year 2000 computer problem, all involved say that efforts to harmonize the federal, state and local responses of terrorist threats have often been discordant.

Mr. Clarke, like Mr. Ridge, on paper had the power to cut through bureaucratic walls and break down jurisdictional boxes. But the task was difficult. In a 1999 interview, he said: "There is a problem convincing people that there is a threat. There is disbelief and resistance. Most people don't understand."

Lapses Plague Security At Federal Buildings

By Neely Tucker and Petula Dvorak, Washington Post Staff Writers

The government has spent more than $1.2 billion to safeguard federal workplaces since the bombing of the Alfred P. Murrah building in Oklahoma City in 1995, but the effort remains troubled by major security lapses and has yet to convince congressional overseers that it has resulted in adequate protection for hundreds of thousands of government workers.

Undercover agents from the General Accounting Office -- posing as New York police officers with guns, bogus badges and a briefcase big enough to carry a bomb -- bypassed security checkpoints at each of the 19 federal buildings they tried to infiltrate in Washington last year. They walked past guards at the Pentagon, the CIA, the Department of Justice and other buildings.

Also, the General Services Administration, the government's largest real estate holder, documented in an internal audit last year "literally hundreds of instances" of contract guards posted on federal property without background checks or weapons training. In another series of incidents, the GSA took $900,000 designated for security upgrades but spent it on other programs, audits have shown.

With the government planning to invest huge sums of money to bolster airline security after the attacks on the World Trade Center and the Pentagon -- including a proposal to hire 28,000 federal security workers -- the experience in trying to safeguard federal buildings is a cautionary tale. It shows, in reams of government audits and special reports, that more security workers will not necessarily bring more security, that there are no simple fixes and that making so many changes in so many places is extraordinarily difficult to coordinate.

"Oklahoma City was a terrible tragedy, but it was not the wake-up call for the federal government that it should have been," said D.C. Del. Eleanor Holmes Norton (D), who represents the nation's densest concentration of federal property. "We tried to piggyback security onto GSA's real estate mission, and it didn't work. They didn't do it well. But it's not principally their fault. It's the fault of the entire government."

Within two months of Timothy McVeigh's truck bomb in Oklahoma City, a Presidential Task Force composed of delegates from seven federal agencies hammered out the "Vulnerability Assessment of Federal Facilities," a report that included a broad array of recommendations to prevent similar attacks. Because the GSA manages more government property than any other agency -- about 39 percent of all government holdings -- auditors have since focused on that agency's security efforts as a barometer of government preparedness, often coming back with sobering assessments.

"The GSA had significant problems [to solve] in 1998, hadn't finished them in 1999. And even in the programs they did finish, it was hard to tell they were effective," said Bernard L. Ungar, director of the GAO's physical infrastructure audit team, which conducted major reviews of the agency's security measures.

One GAO audit found that dozens of X-ray machines, closed-circuit televisions and magnetometers were delivered but still unpacked two years after purchase. Another found inaccurate reports of GSA security upgrades in 45 percent of the buildings surveyed. An audit by the GSA's inspector general reported an even higher percentage of misleading reports.

Still another audit found that Federal Protective Service officers, the security wing of GSA, in one region were "issuing badges and credentials to non-law enforcement personnel and issuing badges and credentials bearing unauthorized titles and endorsement signatures." Some protective service officers were found carrying firearms without being qualified to do so, or illegally carrying their guns while off duty. In another region, a supervisor authorized the use of shotguns -- which officers are neither trained nor allowed to carry.

Problems with contract guards -- private security workers hired to protect federal buildings -- have abounded. Hundreds of guards were found staffing posts without proper background checks; some armed guards did not have firearms training; others who had been found unsuitable were hired anyway; and nearly half of the guard applicants who take the test for employment flunk it, according to audits or congressional testimony by Joel S. Gallay, the GSA's deputy inspector general, in a hearing a year ago.

Among a host of security measures lingering after Oklahoma City, Rep. James A. Traficant Jr. (D-Ohio), J.C. Watts (R-Okla.), Norton and 31 other lawmakers seek to address some of the personnel problems with a bill that would make the Federal Protective Service an autonomous body within the GSA. Under that bill, the service would be run by law enforcement professionals with at least five years of experience. It would also make all guards federal officers, complete with federal law enforcement training.

"We have to have professionals in those buildings. We have to have professional police who are specially trained in terrorism and security," said Rep. Lee Terry (R-Neb.), another bill co-sponsor. "We can't sit back and have a thin marshals program and then just supplement that with low-paid, mall-like security."

The GSA declined to make anyone available for interviews for this article.

In a written statement in response to repeated questions or requests for interviews from The Washington Post, agency spokesman Bill Bearden wrote, "The GSA will do everything reason compels to protect our employees and visitors in public buildings, and at the same time keep them open to the public they serve."

The mission given to the Presidential Task Force was mammoth. At least 26 federal agencies are authorized to own property, thousands of buildings in the 50 states, ranging from the Pentagon to the Anchorage courthouse, and many agencies have sometimes overlapping law enforcement responsibility within them.

At the time of the Murrah Building bombing, no federal standards existed for security at federal buildings, no national database collected security controls in those buildings and no common procedure existed for assessing them. The Department of Justice, the lead agency of the task force, reported in June 1995 that of 347 buildings, including the Murrah building, were then classified as Level IV -- the penultimate security level. But staff members at only 15 percent of them were regularly X-raying incoming mail and packages in a manner that would meet the newly minted Justice standard. Less than half of the buildings had traffic or parking controls that met the new standards. Three in four did not use employee and visitor identity cards, as is now required.

Years of work lay ahead. Building locations, parking lots, entrances, X-ray machines, magnetometers, even the type of glass used in day-care center windows were to be considered, changed and upgraded to a higher security level.

The GSA manages more than 8,300 buildings or offices, some 600 in the D.C region. Other agencies, such as the U.S. Capitol Police and the National Park Service, provide police forces for their own sites. The departments of Defense and State, the government's other major property owners, provide their own security or hire contractors to provide it. Abroad, embassies are protected by U.S. Marines, frequently with local security firms providing extra guards on the embassy's perimeter. Most of the focus of the security assessments, though, fell on GSA's physical protective measures, its Federal Protective Service and its contract guards.

After the Oklahoma City bombing, the GSA began installing tens of millions of dollars in changes at federal buildings, offices and courthouses across the nation. Jersey barriers ringed sensitive buildings to stop vehicles that might carry bombs. Hundreds of X-ray machines, security cameras and magnetometers were installed in building lobbies. Windows in day-care centers on federal property were made shatterproof. In all, the agency has made more than 8,000 security upgrades in the past six years, wrote Bearden, the GSA spokesman.

The agency also doubled its security staff, documents show. The Federal Protective Service is now about 700 officers strong, with more than 150 posted in Washington. Each of the officers receives a month's training at the Federal Law Enforcement Training Center in Glynco, Ga., and other security training.

The number of contract security guards, meanwhile, went from about 4,000 to 7,400, (about 1,400 in Washington). These officers, who are not government employees, take a week of GSA training and then must pass a written test, clear FBI and law enforcement background checks and pass physical and psychological tests. Guards who are to carry weapons must have another 40 hours of weapons training -- and they have to pay for it themselves, an expense of more than $400. Once on the job, they are paid $11 to $14 per hour, plus about $2 per hour in health benefits.

In the District, where contract guards protect the IRS building, the Justice Department and other facilities, owners of some private security firms say the government's method of recruiting contract guards is making things more difficult, not less.

The increasing background checks and the higher scores required on written tests, combined with low pay, make it difficult to recruit good workers, these owners say. Further, contracts turn over so frequently that even if a guard stays in one building for 10 years, it may entail working for four or five companies during that time, each with different schedules of health and promotion benefits, making the jobs uncertain and, therefore, even less attractive.

"People are coming and going so fast, from contract to contract, it's not even funny," said Pete Lambert, president of Blackhawk Inc., which provides about 150 security guards to 14 federal buildings in the Washington area. "If they get a contract worth a quarter an hour more, they'll take it. For us, it makes it very hard to keep good employees, because you just can't take somebody off the street and make them a [federal] guard."

Meanwhile, many guards say that while they are asked to risk their lives to protect federal employees and edifices, their non-federal health benefits are so paltry that it's sometimes better to take the benefits as a cash payout and hope not to get injured or fall ill.

But do all these changes, the new buildings and the barriers and the increased presence of guards add up to safer workplaces?

They may have reduced people's fears, said Gavin de Becker, author of "The Gift of Fear" and a Los Angeles-based security consultant to more than 1,400 corporations and government agencies -- including the U.S. Supreme Court and the U.S. Marshals Service. But he points out that no institution can eliminate risk, because terrorists will inevitably change their methods to get around new barriers.

"The government reacts to emotion, and no emotion is more profound, more urgent, than fear," de Becker said. "Unwarranted fear can be its own monster and carries its own risk. . . . When you look at all these new government

buildings and barricades, it raises the question: Do we really want Timothy McVeigh to be the nation's most influential architect?

Washington Post
September 28, 2001
Pg. 11

Md., Va. Call Up Reservists For Airports

National Guard Troops Will Be Stationed at Every Security Checkpoint for Months

By Anita Huslin, Washington Post Staff Writer

At the request of the White House, hundreds of military reservists in Maryland and Virginia are being called into active military duty to defend the region's 11 commercial airports and deter terrorist attacks, state officials announced yesterday.

National Guard troops armed with loaded M-16 military rifles will be stationed at every security checkpoint at Dulles and Baltimore-Washington international airports and at regional airports in both states.

Reagan National Airport remains closed because of national security concerns. It is the only major airport in the nation that has not reopened since the Sept. 11 attacks.

After participating in an hour-long conference call with White House officials and other governors, Maryland Gov. Parris N. Glendening (D) and Virginia Gov. James S. Gilmore III (R) announced that members of the National Guard would provide airport security for four to six months, until a new national airport security plan is developed.

The unprecedented step of putting armed military police in commercial airports is needed, the governors said, to provide "an armed and strong presence" and to reassure travelers that airports are safe.

"Their presence will act as a deterrent, and if necessary they will make arrests," said Maj. Gen. James F. Fretterd, commander of the Maryland National Guard. "They are infantry so they are armed. . . and they're prepared to use their weapons."

Glendening said Maryland reservists would have to undergo additional training to work in the civilian setting. "All of our [military police] are already in service at the Pentagon and overseas," Glendening said.

Maryland officials said about 100 guardsmen will be needed to fulfill the White House's request of providing additional security at airport checkpoints where passengers pass through metal detectors and their carry-on baggage is scanned. Virginia officials said they were unsure how many people would be deployed.

Until reservists can undergo training by the Federal Aviation Administration, Glendening said state police officers would step in to provide the security.

In addition to Dulles and BWI, guard members will be assigned to airports in Salisbury and Hagerstown, Md., and Charlottesville, Lynchburg, Newport News-Williamsburg, Norfolk, Richmond, Roanoke and Winchester, Va.

Fretterd said reservists would be called from the Maryland National Guard 3rd Brigade, of the 29th Infantry, which has training facilities in Easton, Salisbury, Frederick and Glen Burnie. He said officials would try to deploy them at airports near their homes and training centers.

Staff writer R.H. Melton contributed to this report.

New York Times
September 28, 2001

Bush Proposal Is Welcomed By Governors And Travelers

By Kate Zernike

BOSTON, Sept. 27 — For passengers traveling through Logan International Airport — the nation's 16th busiest and, since the attacks of Sept. 11, its most criticized — simply hearing the word "national" in President Bush's plan to increase airport security by enlisting the National Guard seemed reassuring.

Here and across the country, state officials also embraced the president's plan, with some governors immediately deploying members of the Guard to airports, as the president requested.

Acting Gov. Jane M. Swift of Massachusetts said she was eager to deploy the Guard. "All of us must shift our way of thinking to accommodate the realities of a far less predictable world," Ms. Swift said at a news conference here. Passengers at Logan said they thought the benefits of having military protection outweighed the possible intimidation.

"Having it at a national level would be more organized, more consistent throughout all of our airports," said Kristi Martine, 27, who was on her way to Montreal. "I think it would be a little daunting having National Guardsmen, but I think that's where we need to be."

Several governors said they were uncertain what the Guard would do at the airports, and some airport officials said the federal government needed to go further by training professionals to oversee security checks. Other officials, and passengers, said they feared that deploying the Guard would make the nation's airports look like military bases.

But most people interviewed echoed Tim Stevens, 41, who was flying from Logan to Las Vegas: "The more security, the better."

Two of the four planes hijacked on Sept. 11 — the two that hit the World Trade Center — took off that morning from Logan, prompting extra jitters among travelers here and forcing state officials to answer for security problems that the Federal Aviation Administration has said were longstanding. The anxiety has been made worse by a history of scandals and patronage at Massport, the agency that oversees Logan, which has created the public perception of an agency focused on anything but running an airport.

Security violations have continued since the attacks, despite an increase in the number of uniformed and plainclothes police officers at the airport. On Wednesday, Massport officials said undercover police officers had walked through the metal detectors at two security checkpoints last week with pockets full of bullets and a knife longer than four inches, without setting off alarms.

Massport's executive director, Virginia Buckingham, said that even before the president's request, she had spoken with Governor Swift about calling National Guard troops to the airport.

Speaking at a news conference where she announced the members of a panel charged with overhauling Massport, the governor said the federal government should oversee all aspects of security at the nation's airports. With different entities — the airlines, the F.A.A., the airport authorities — now charged with overseeing the airports, it is too easy for violations to slip through, she said.

In New York, Gov. George E. Pataki also said he would heed the president's call, despite the potential difficulties of calling more troops when 3,000 are already working in or around the rubble of the World Trade Center. In Connecticut, Gov. John G. Rowland ordered 40 military police officers from the Connecticut National Guard to provide security at three state airports.

And in Minnesota, Gov. Jesse Ventura said, "When you're in a time of war, you don't question the commander in chief."

But airport officials in Minnesota sounded a note of caution about using the troops. "You have to be judicious," said Pat Hogan, a spokesman for the Metropolitan Airports Commission, which operates the Twin Cities airport. "We want to take advantage of this opportunity. At the same time, we don't want to look like an armed encampment."

At La Guardia Airport in New York, John Fults, arriving with his family from Detroit, said the president had no choice but to step up law enforcement — even military presence — at the airports. "Protection is the name of the game now," Mr. Fults said. "It'll make us all feel a little more secure when we fly."

But Luz Fuentes, a mother of two waiting for a flight to Miami, said the idea of a military presence scared her.

"I think it's very stressful, even if they are the police or security," Ms. Fuentes said. "Especially when you travel with children.

"I think it's unfortunate for them," she said. "Emotionally I think it makes them feel insecure."

New York Times
September 28, 2001

Big Push To Accelerate Vaccine Effort

By Melody Petersen and Andrew Pollack

With concerns growing about the threat of terrorism using biological weapons, the government is stepping up its effort to enlist biotechnology companies to develop and produce vaccines, drugs and other defenses against such an attack, according to industry executives.

But many of the projects, like the manufacture of a smallpox vaccine, are years from completion.

The Biotechnology Industry Organization, the main trade group for biotechnology companies, sent out an "urgent official request for information" on Monday after meetings with Tommy G. Thompson, the health and human services secretary, and Department of Defense officials. The request asks the roughly 1,000 members what technologies they have that could be used to defend against biological or chemical attacks.

The letter also said the government wanted to make sure companies were safeguarding their own technology from being used to create biological agents. Specifically it urged that procedures be set up to raise an alert if the companies get an unusual order for their products.

Carl B. Feldbaum, president of the trade group, said the response to the letter had been "overwhelming," though he would not discuss the content of the answers.

Even before the attacks on the World Trade Center and Pentagon, the government had begun working with a number of biotechnology companies. Last year the Department of Health and Human Services gave a $343 million contract to OraVax (news/quote), a company in Cambridge, Mass., to produce 40 million doses of a new smallpox vaccine. But the first doses are not expected to be delivered until 2004.

Executives at the company, which is now owned by Acambis (news/quote), a British drug maker, said they would try to speed up manufacture of the vaccine if the government asked, but would not say to what degree they could do that.

"Certain things are in our control and certain things are not," said Gordon Cameron, the chief financial officer at Acambis. "This is a new vaccine that has to be tested."

The Defense Department has paid for the production of an anthrax vaccine for soldiers for years, but that program has been plagued by problems. Bioport, a Lansing, Mich., company, now has the government contract, but it is currently unable to produce the vaccine because its factory is being renovated to meet Food and Drug Administration standards.

Last year, the Defense Department entered into a research partnership with EluSys Therapeutics, a small private company in Pine Brook, N.J., to develop an antidote to anthrax. "You will never have the entire population of the United States vaccinated against these problems so you need to have a therapeutic available," said Stephen G. Sudovar, president. But even if the company succeeds in its research, the antidote will not be available for about two years, he said.

The Defense Advanced Research Projects Agency, an arm of the Pentagon, is working with academic scientists and more than a dozen other companies on research that could take a decade to bear fruit.

Isis Pharmaceuticals (news/quote) in Carlsbad, Calif., for instance, is working on drugs that could kill all bacteria. Egea Biosciences of San Diego is working on ways to quickly develop vaccines to any pathogen. Cepheid of Sunnyvale, Calif., is working on a briefcase-size machine that could perform a genetic analysis to identify an infectious agent in 30 minutes, rather than the hours or days such a job normally takes.

After the terrorist attacks, the government is likely to increase spending on defenses against biological warfare. Two days after the attacks, the Army called Bruker Daltonics (news/quote) to see if the company was prepared to manufacture many more of its bioagent detection machines than were included in a $10 million contract the government had just signed.

"They are getting ready to react," said Frank H. Laukien, president of Bruker, based in Billerica, Mass.

In the past, the Pentagon has had trouble working with vaccine manufacturers. Wyeth Laboratories, a division of American Home Products (news/quote), stopped producing the adenovirus vaccine for military recruits in 1996 after the Pentagon declined to pay for factory improvements needed to meet safety standards. Wyeth was unwilling to invest itself since sales of the vaccine, made only for the Defense Department, were tiny and dwindling. The military ran out of the vaccine in 1999 and there has been a surge in respiratory illnesses among military recruits, including two deaths. A new contract to produce the vaccine has now been awarded to Barr Laboratories (news/quote), an Army spokesman said.

Given that big drug companies are reluctant to make vaccines because of the small market size, the Pentagon has been considering building its own vaccine plant to produce eight vaccines for military use — the existing anthrax vaccine and a new one, plus vaccines for smallpox, plague, tularemia, botulinum, ricin and equine encephalitis. It would cost $1.56 billion to build and run over 25 years, including $386 million in construction costs, the department estimated in a report to Congress in July. But production at the plant would not begin until 2008. David Satcher, the surgeon general, wrote to the Pentagon in January urging that the factory also be used to produce vaccines for civilian use.

In contrast with the large drug companies, smaller biotech companies have welcomed the Pentagon contracts because they provide money and because many of the projects can lead to commercial products.

"For the research programs here it was our largest single source of funding," said Matthew M. Loar, vice president for finance at Genelabs Technology Inc. in Redwood City, Calif. Genelabs had a $14 million three-year grant from

the research projects agency to use the company's DNA-binding technology to develop antimicrobial drugs. The company is using the technology to develop commercial antibiotics.
Experts say it is vital for companies and scientists to become involved in developing vaccines and other defenses against bioterrorism. At a Senate hearing in the summer, Dr. Tara O'Toole, a senior fellow at the Center for Civilian Biodefense Studies at Johns Hopkins University, said that responding to bioterrorism with only the vaccines and drugs now available would be like "asking firefighters to battle a 12-alarm blaze without water or foam."

Boston Globe
September 27, 2001
Pg. 1

'Rogue' Nations Furnish Intelligence

States on US list provide assistance

By John Donnelly and Anthony Shadid, Globe Staff
WASHINGTON - In a dramatic foreign policy turnabout, the Bush administration has sought and in some cases received help from four states considered sponsors of terrorism as it probes the Sept. 11 attacks in New York and Washington, US officials confirmed yesterday.
The administration already has received intelligence on Osama bin Laden's Al Qaeda organization from Libya, Syria, and Sudan, a country that the United States bombed in 1998 and was home to bin Laden until 1996.
The United States also hopes to receive intelligence on Afghan drug networks from Iran, the officials said, because of the possible links between the drug trade and bin Laden's organization.
In addition, a senior administration official said a fifth country on the US list of states sponsoring terrorism, North Korea, also may soon be asked to provide intelligence on terror groups.
"Who would have thought it?" said the senior US official, speaking on condition of anonymity, about the responses from the states called rogues only a year ago. "This is a fertile opportunity for nations to do business differently. It took ... an historical event like this to capture the attention of countries that they didn't have to do things in a certain way anymore."
A sixth state on the list, Cuba, which expressed condolences and offered assistance, will not be asked for assistance, partially because of the political firestorm such an arrangement would cause among Cuban-Americans, one US official said. Iraq, the seventh and last state on the State Department's list, is on a Pentagon list of potential targets for attack.
The senior US official declined to give specifics on the intelligence assistance provided by Libya, Syria, or Sudan, whose representatives held high-level talks with a US delegation last week in London.
While the official noted that there are risks for the United States in opening relationships with the countries, he said the possible benefits made it worth exploring.
"If Iran, North Korea, Sudan, and other countries say, `I'm against that too, maybe I have to join in not only condemning terrorism and expressing condolences, but support that brotherhood of nations out there,' we should realize that maybe this page in history is going to look a lot different," the official said. "We're not taking this naively. We will take it a step at a time and not lurch to embrace anyone."
A second US official, also speaking on condition of anonymity, said the United States is seeking all possible intelligence on the Al Qaeda group.
"Not to explore it, not to explore these possibilities, not to probe what they mean would be irresponsible," the official said.
But such arrangements will surely draw the ire of some in Congress who are extremely distrustful of several of the listed states. Many analysts say the administration will have to be extraordinarily careful about what it asks for, and what it offers in return.
"It's an opportunity for both sides, but it's one that has to be managed very carefully because it could quickly return to haunt the other side," said Suzanne Maloney, who is writing a book on contemporary Iranian politics and economics.
Maloney noted the current situation in Afghanistan has roots in the "large-scale funding for a covert war supported by the CIA in the 1980s. If we begin a new initiative, we have to watch out" for similar unintended consequences in the future.

Given its importance as an oil exporter and regional power, Iran may have the most to offer. US officials have maintained a consistently positive tone about the possibility of cooperation, even as the country's hard-line supreme leader, Ayatollah Ali Khamenei, labeled US behavior yesterday "disgusting." Khamenei rejected the notion that nations had to choose between backing the United States and backing terrorism.

"We are not with you. At the same time we are not with terrorists," Khamenei said in a speech.

US officials were particularly interested in hearing from British Foreign Secretary Jack Straw, whose trip to Iran this week was the highest level visit by a British official since the 1979 revolution.

The Iranians "could have an interesting perspective on how the financing networks operate, how connections go on, how communications go on, what the pressure points are for these organizations," said a US official.

Among the pitfalls of an approach to Iran are its longstanding relationships with militant Islamic groups such as Hamas in the Palestinian territories and Hezbollah. There is also sensitivity over Iran's reported role in the 1996 Khobar Towers bombing that killed 19 US servicemen in Saudi Arabia. A federal grand jury indictment earlier this year pointed to an Iranian role but did not formally charge any Iranian.

As for Syria, a State Department official said the contacts remain very sensitive but have already generated interest.

Some analysts wondered whether the Bush administration was making an overture to Libya when President Bush this week froze the assets of 27 groups and individuals suspected of involvement in terrorism, including the Libyan Islamic Fighting Group. That group, which opposes the rule of the mercurial Moammar Khadafy, had not previously been listed in US government publications.

Khadafy condemned the terror attacks in surprisingly strong terms, calling them "horrifying" and saying the United States had "the right to take revenge." He urged Libyans to donate blood for the US victims.

Sudan was singled out for praise yesterday by State Department spokesman Richard Boucher. "We've had some discussions with the government of Sudan and feel that those discussions are good, probably a beginning of cooperation that we appreciate and that we would intend to try to pursue further," he said.

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New Mexico Senators Invite Homeland Security Chief To Visit National Labs

Both of New Mexico’s senators have invited Pennsylvania Gov. Tom Ridge (R) to visit Los Alamos and Sandia national laboratories to learn about antiterrorism programs conducted there.

Ridge was chosen by President Bush to lead the new White House Office of Homeland Security. He will resign as governor and start work as homeland security chief on Oct. 5.

In a letter sent yesterday to Ridge, Sens. Jeff Bingaman (D) and Pete Domenici (R) said the two Energy Department laboratories in their state have "extensive technical know-how and years of experience" in ways to combat terrorism, a topic that will be at the center of Ridge’s attention as he works toward coordinating the federal government’s response to that threat.

"We believe that any coordinated government response must include these institutions," the two lawmakers wrote. "We believe they will provide invaluable assistance to you as you go about your [new] job."

Given the resources available at Los Alamos and Sandia, "it is only fitting that the homeland security director become acquainted with what [the labs] have to offer," Bingaman said in a joint statement released today.

The two labs "house the country’s top scientists and strongest technical resources, and offer a wealth of tools for our new Office of Homeland Security," Domenici added in the statement. "A visit by Gov. Ridge would be worthwhile."

In their letter, the senators said they are pleased with Ridge’s appointment and look forward to working with him in the years ahead to guard against and root out terrorism. Bingaman is an Armed Services Committee member and chairman of the Energy and Natural Resources Committee. Domenici is the ranking member of the Appropriations energy and water development subcommittee and a member of the Appropriations defense subcommittee.

-- Keith J. Costa

Bloomberg.com
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BioPort, Sole Anthrax Vaccine Maker, Beset By Flaws

By Kim Dixon

Washington -- BioPort Corp., the only U.S. company that makes a vaccine for anthrax, a bacterial agent considered a potential terrorist weapon, has been unable to sell the product for three years because it can't meet federal manufacturing standards.

The closely held company has a contract with the Defense Department to supply the vaccine to U.S. troops. Since the Sept. 11 terrorist attacks, BioPort says it has been fielding inquiries about releasing vaccine for civilian use and has set up a hotline to handle calls, explaining military needs come first.

BioPort hasn't delivered vaccine to the military since 1998 as it renovates a plant to fix flaws found by the U.S. Food and Drug Administration, including inadequate monitoring of vaccines' sterility and potency. The government's reliance on a single supplier was criticized in a recent report to Congress that recommended letting other companies compete for the business.

``We haven't been able to get the best and the brightest into this business,'' said Fred Cilluffo, a terrorism expert at the Center for Strategic and International Studies. ``There are a hell of a lot bigger markets for Viagra.''

Terrorists could obtain anthrax bacteria from countries such as Iraq, which has stockpiled biological weapons, according to the Centers for Disease Control and Prevention. Anthrax is a livestock bacteria that kills by shutting down the lungs. Anthrax infections that occur when bacterial spores are inhaled are almost uniformly fatal if not treated immediately.

Because the disease cannot be passed from person to person, infecting large populations would require dispersing spores into the air over a wide area. That requires technological expertise to package the spores in aerosol or powdered form.

Offshoot of State Agency

Lansing, Michigan-based BioPort is an offshoot of the Michigan Biologic Products Institute, a state-owned agency that supplied anthrax vaccine to troops during the Persian Gulf War. The company's production problems have forced the Defense Department to delay vaccinating all 2.4 million active and reserve troops and limit immunizations to those in high-risk areas.

That will allow the military to keep ``a small reserve'' of vaccine for emergencies, according to the department.

The department is ``assessing the performance of BioPort Corp. on all of its contracts,'' department spokesman Jim Turner said in an e-mail.

Poor manufacturing practices cited by the FDA include rust on plant equipment, evidence of air leaks in sterile facilities, failure to ensure temperature control in certain areas, and use of an expired chemical in some processes, according to FDA inspection reports.

After the attacks, Congress authorized $40 billion for anti- terrorism measures. Last week, Defense Secretary Donald Rumsfeld proposed that part of the money be used to speed development of a ``second generation'' anthrax vaccine, to improve the current product and to tackle new strains of the bacteria.

U.S. Department of Health and Human Services officials didn't return calls seeking comment.

Government-Owned Plant

The report to Congress earlier this month recommended $3.2 billion be set aside to pay for Defense Department research and development of vaccines. It advocated creation of a government- owned vaccine manufacturing plant that could be used by drugmakers to produce a range of vaccines for military personnel and potentially for civilian use in the event of a terrorist attack using biological weapons.

It would cost about $1.56 billion to build and run such a plant for 20 years, according to the report, which lawmakers received the week before the attacks on the World Trade Center and the Pentagon.

``Biological agents, even if adversaries intend them solely for use against military targets, could have the potential for causing severe primary or collateral civilian damage,'' Surgeon General David Satcher wrote in a letter to Defense Secretary Donald Rumsfeld, which is attached to that report, supporting the construction of such facility.

After the initial infection and a course of antibiotics, treatment with a vaccine can prevent anthrax spores that remain in the body from causing new infections. Bayer AG's Cipro is the only antibiotic approved for treatment of the spore form of anthrax.

Civilian Vaccine Stockpile

Some experts have called for stockpiling anthrax vaccine to protect civilian populations exposed to the bacteria or spores in a terrorist attack. The vaccine would be given only to people thought to be exposed, and wouldn't be used to immunize large populations.
Creating a civilian stockpile of the anthrax vaccine for use after exposure ``is absolutely a good idea,'' said Ronald Atlas, University of Louisville professor and co-chair of the American Society for Microbiology's Task Force on Biological Weapons. ``It can conceivably come back so you want a stockpile for post- infectious situations.''
BioPort, a firm with 220 employees, plans to file an application next month seeking permission to resume production of the vaccine, according to BioPort spokesman Kim Root.
``We've been producing just what we needed to produce to gain approval from FDA for the facility,'' Root said. ``We're in an annual maintenance phase.''

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Planting Fear

How real is the threat of agricultural terrorism?

By Gavin Cameron, Jason Pate & Kathleen Vogel

Between February 20 and July 14 of this year, 1,844 cases of foot-and-mouth disease were reported by the British Department of Environment, Food & Rural Affairs, with a smaller number of possible cases reported in France, the Netherlands, and Ireland. As Britain struggled to contain this extremely infectious disease, spread by both direct and indirect contact, an estimated three and a half million cattle, swine, sheep, and goats were slaughtered, and many British farmers faced economic ruin.

This foot-and-mouth outbreak coincides with increasing concern over the potential for agricultural bioterrorism‹the malicious use of plant or animal pathogens to cause devastating disease in the agricultural sector. The perception of increased risk stems from recent natural outbreaks (like that of foot-and-mouth and the spread of the West Nile virus in the eastern United States), from an increased focus on "asymmetric" weapons, and in the United States in particular, from heightened worries about domestic terrorism.

Agricultural attack could seem appealing to a broad range of rogue actors, including politically motivated single-issue groups and criminal organizations seeking financial gain. Impacts could be short- or long-term, with a wide range of costs.

One-sixth of the U.S. gross domestic product and one-eighth of all jobs are connected to agriculture, either directly or indirectly. The destruction of crops and/or livestock has a direct financial impact on the grower or breeder, but it also hurts shippers, stockyards, slaughterhouses, distributors, and so on. Attacks may also impact consumers, threatening not only their pocketbooks, but their confidence in the safety of the food supply as well.

Apart from immediate revenue losses, producers may lose future market share if distributors, wholesalers, and retailers choose alternative suppliers. Worse yet, the price of replacing entire crops or herds of livestock‹or, depending on the pathogen used in an attack, the need to decontaminate an entire area‹could put individual farmers' recovery beyond reach. In addition, seemingly unrelated industries could be affected. For instance, although estimates vary, this year's foot-and-mouth outbreak is expected to cost the British tourism industry at least $5 billion.

Agricultural bioterrorism has received increased attention and discussion within academic, media, and government circles, with most recent studies arguing that agricultural bioterrorism represents a new and dire threat to U.S. national security.1 But are these studies accurate? Many of their conclusions are pure conjecture, based on worst-case scenarios. Both the threat and consequences of bioterrorism aimed at agriculture remain poorly understood. However, the threat may not be as dire as alarmists claim, and increased vigilance and institutional reforms could lessen the consequences of either an intentional attack or a naturally occurring disease outbreak.

In the hands of terrorists

There is little empirical data regarding attacks, particularly those by sub-state actors, so analysts and policy-makers have been left to discuss the threat based on assumptions about vulnerability. But what, in fact, can we learn based on the motivations of past terrorists?

The "Database of Incidents Involving Sub-National Actors and Chemical, Biological, Radiological, or Nuclear Materials," maintained by the Center for Nonproliferation Studies at the Monterey Institute of International Studies, lists all terrorist incidents in the last century. It includes 21 incidents that might be classified as examples of sub-

state attacks against agriculture. The earliest of these was perpetrated in 1952 by the Mau Mau, a violent nationalist-separatist movement in Kenya, which used a toxin from the African milk bush to kill cattle during their rebellion against British rule.

Most of the 21 incidents were unsophisticated and ineffective, lacking significant impact. Only five occurred in the United States, and almost all attacks were very small scale, involving mostly chemical rather than biological materials. Five attacks were criminal rather than political in nature, and several of the others were purely personal (motivated mainly by revenge). The majority of these incidents might more appropriately be described as product tampering rather than agricultural terrorism. In 1974 the "Revolutionary Command," a radical Palestinian group, claimed to have contaminated grapefruit exported from Israel to Italy; in 1978 another Palestinian outfit, the "Arab Revolutionary Council," targeted Israeli citrus fruit, using liquid mercury as an agent; and in 1988, Israeli grapefruit exports were again threatened with contamination. In 1999 and 2000, Israeli eggs sold domestically were contaminated with salmonella. In this incident, two people died and many others were sickened. Although people had been injured in the earlier attacks on Israeli goods, economic disruption seemed to be the primary goal.

Of the 21 incidents, three hoaxes, three actual incidents, and one ambiguous event involved biological agents. The hoaxes involved foot-and-mouth disease, necrotizing fasciitis, and an unnamed biological agent. A 1984 threat to use the foot-and-mouth disease virus in Australia, although a hoax, elicited considerable alarm. But there was no evidence that the perpetrator possessed or had access to the virus.

In 1989, there were allegations that a group called the Breeders had released Mediterranean fruit flies to protest the use of pesticides on crops in California. The "Medfly" infestation was particularly damaging to citrus fruit. No one was apprehended in the case, but the number of flies was particularly high in California that year, leading authorities to suspect that some had been deliberately released. But it is impossible to say that the Medfly was used as a terrorist instrument.

It is difficult to extrapolate from such a small number of incidents, but the evidence seems to suggest that sub-state groups and individuals motivated by revenge or financial considerations have been the most likely to use or threaten to use biological agents against agricultural products. The record also shows that these attacks have been low-level efforts with limited impact.

State bioweapons programs

In contrast to what is known about sub-state actors, a good deal of information is available regarding state-run biological weapons programs. During World War I, German agents infected horses that were being shipped to Europe from the United States, Argentina, and Morocco with glanders and anthrax bacteria. This was accomplished by feeding the horses contaminated sugar cubes or wiping their noses with disease agent. The purpose was sabotage, intended to undermine the Allied war effort rather than to achieve the widespread contamination of livestock. There is no detailed record of animal deaths, suggesting that the attacks were not very effective.

Germany conducted research into plant and animal pathogens during World War II, but it appears not to have used them. Germany also investigated the use of potato beetles and worked on foot-and-mouth virus (including its weaponization) as well as on a range of anti-crop pathogens.

Before World War II, France also experimented with Colorado beetles and researched the rinderpest virus for attack on cattle, but there is no evidence that either agent was ever used. During the war, the United States, Britain, and Canada coordinated their efforts to produce anthrax bacteria for use against German cattle. The British researched foot-and-mouth disease virus, fowl plague bacteria, and pathogens lethal to sugar beets. The United States developed a viral agent to be used against the Japanese rice crop, conducted research into diseases such as the avian Newcastle, rinderpest, and fowl plague, and pathogens directed against rice, potatoes, and wheat. None of these agents were used during the war.

The Japanese biological weapons program during World War II, although most noted for its attacks against the Chinese people, was also directed against agriculture. Japan's anti-agriculture work was based in Manchuria, and to a lesser extent in Southeast Asia. The details of the program remain vague, although it also included research into diseases such as anthrax, glanders, "nose ulcers," sheep pox, ox plague, and numerous anti-crop agents, directed particularly against certain grains and vegetables. The Japanese used these anti-crop and anti-livestock pathogens in sabotage efforts in Manchuria.

After World War II, the U.S. agricultural program focused on large-scale production and weaponization of anti-crop agents. By the time the United States unilaterally renounced all forms of biological warfare in 1969, it had conducted research and development on wheat stem rust, rice blast, rye stem rust, foot-and-mouth, rinderpest, and brucellosis (a porcine form was intended to incapacitate humans). As late as the 1950s, the American program's dissemination methods for some anti-agriculture agents involved bomblets filled with an agent-and-feather mix. Later, the American program developed spray systems.

The most widespread effort to develop anti-agriculture pathogens may have been that of the Soviet Union, with agents directed primarily at livestock--foot-and-mouth, rinderpest, and African swine fever. Anthrax and psittacosis bacteria were directed at both livestock and human targets, and pathogens such as wheat rust, rice blast, and rye blast were developed as anti-crop agents. There are allegations from a key Soviet defector that Soviet forces unsuccessfully used glanders in the campaign in Afghanistan in the 1980s, but these allegation cannot be substantiated. The Soviets apparently did not mass produce or stockpile anti-agriculture agents; instead, they maintained the ability to expand production rapidly if desired.

Other states may have considered biological agents as weapons against agriculture. South Africa has been accused of using anthrax bacteria as an anti-animal agent in Zimbabwe in the mid- to late 1970s during the Rhodesian civil war, but the outbreak could also have been a natural occurrence. The Iraqi bioweapons program of the early 1990s included agents like cover smut (an anti-wheat fungal agent) and camel pox. Neither appears to have been mass produced or weaponized. Iraq, however, did weaponize anthrax bacteria, botulinum toxin, and aflatoxins, although details remain sketchy.

Most national efforts outside the United States and the Soviet Union were not technically sophisticated. The German sabotage program of World War I relied on infecting individual horses. The Japanese studied climatic and geographical factors that might affect their use of biological pathogens, but they appear to have made minimal efforts to find effective dissemination techniques.

The technical details

A look at various countries' programs suggests that the development and weaponization of effective anti-agriculture agents is not straightforward--it requires dedicated infrastructure, personnel, and resources.

A successful agricultural attack would require: acquiring and propagating the proper pathogen; processing it for delivery; constructing an appropriate delivery device; and developing a range of techniques to deal with varying meteorological conditions.

No detailed discussion of these factors has been published in the open-source literature, but a determined terrorist could find a great deal of factual information on animal or plant pathogens. Using it to produce a successful disease outbreak, however, would not be straightforward. It would require some degree of scientific sophistication.

Although the United States and other nations place export and/or trade restrictions on dangerous foreign animal and plant pathogens, it is still possible to obtain them from various international laboratories or repositories.

Alternatively, pathogens can be isolated from infected animals or diseased crops. Small quantities of pathogens could easily be carried across a customs checkpoint or an unregulated border area, or sent through international mail. Only a few of these pathogens are zoonotic (communicable from animals to humans), so there would be little risk of infection to the carrier. In a globalized society, increased travel by humans and increased transport of agricultural and other goods have already unintentionally spread some pathogens.

Obtaining a strain of a virus or a fungus does not necessarily mean, however, that it can be used directly as a biological weapon. For example, different strains of the rinderpest virus are immunologically similar, but they vary widely in pathogenicity, lethality, ease of transmission, and host affinity. Such variations, which occur in all animal and plant pathogens, complicate the selection of a weapons-usable strain. In most cases, a terrorist would need the right strain to cause a significant disease outbreak.

Some foreign animal pathogens, like the foot-and-mouth disease virus, are highly infectious and would not need to be cultured--a vial of material might be enough to cause an epidemic. But that is not always the case. Depending on the pathogen, different infective doses would be needed. And infectivity varies even between different isolates of the same viral strain and for different routes of infection (ingestion versus inhalation). If widespread destruction is the goal, moderate or high levels of scientific expertise may be needed to grow, handle, and store larger quantities. Certain parameters involving nutrients and growth conditions would need to be determined experimentally for individual pathogens.

Some animal pathogens are highly infectious and environmentally hardy, so processing--microencapsulation, milling, and drying--might not be necessary. But most plant pathogens and several animal pathogens are sensitive to environmental conditions; protective coatings would need to be applied to increase their survival upon dissemination. Developing such coatings would involve sophisticated scientific skills that are not likely to be available to terrorists. For example, specific microencapsulation techniques used with bio-control agents (fungicides, bacteria) against the Late Blight pathogen have been found to protect potatoes only in local, targeted plots, not over widespread areas.

With highly infectious pathogens, there may be no need to develop elaborate delivery devices. Historically, commercially available spray devices have been used in various state-level anti-crop and anti-livestock bioweapon programs. However, it is easier to deliver a pathogen to cause an epidemic in animals; plant disease epidemics are highly dependent on environmental conditions.

Environmental and meteorological conditions

Both animal and plant pathogens are susceptible to environmental conditions. Infection of crops with plant pathogens would be less dependent on the skill of the terrorist than on specific environmental conditions like temperature and moisture. If the proper weather conditions are not present, typically no plant-disease epidemic will occur no matter how much agent is disseminated. And weather is impossible to control. For example, a 1999 drought in the eastern United States prevented scores of expert university plant pathologists from creating epidemics of the Late Blight disease in research plots--even when growing potatoes that were susceptible and using strains of pathogen that were particularly virulent.

Environmental testing would require a dedicated effort involving sophisticated technical expertise and the kind of financial resources that are likely to be available only to state-supported bioweapons programs. The environmental determinants in plant disease outbreaks could be a virtual chokepoint for terrorists trying to utilize potent anti-crop weapons. Although foreign animal pathogens are less sensitive to environmental conditions, many are also vulnerable to temperature changes, sunlight, and disinfectants.

It would be extremely difficult to cause the widespread destruction of a crop because most plants are not grown in isolation. They have already encountered a variety of plant pathogens, and these earlier contacts have increased their resistance. There are only a few cases, such as that of the Late Blight disease that caused potato crop failures in nineteenth century Ireland, where a crop has remained isolated and has therefore been highly vulnerable. There are a few foreign strains of plant pathogens, however, against which current crops have no resistance; some of these pathogens are highly resistant to fungicides. On the other hand, the issue of isolation is more serious in the case of livestock. The United States has quarantined livestock against several foreign animal diseases, making American livestock extremely vulnerable.

All in all, serious technical issues would confront terrorists attempting to launch an "agricultural armageddon." But blanket statements on technical feasibility are not sufficient to assess the threat--they must be qualified by examining each of the factors involved in turning a living organism into a biological weapon. In contrast to sensationalist reports on the threat of agricultural bioterrorism, terrorists would face many difficult technical hurdles before obtaining the capability of unleashing this sort of bioweapon.

Prevention

The capability to attack has existed for years, so why have so few attacks occurred? The historical record shows that only a handful of terrorists have used economic targeting and attacks against property.

On the other hand, future terrorist groups may be attracted to agricultural bioterrorism because it may be easier for them to justify the killing of plants rather than people. And it is possible that publicizing the idea of agricultural bioterrorism through sensationalist reporting could promote attacks. Media, academic, and government groups should exercise prudence when discussing this subject in public forums.

As with any act of terrorism, there are political, social, and psychological effects that go beyond those who are immediately affected. For instance, would the use of an anti-agricultural agent increase public fear of direct attacks on humans? And how might political life be affected? Britain postponed national elections and restructured a government agency following the foot-and-mouth disease outbreak. The Ministry of Agriculture, Food, and Fisheries was abolished, replaced by the Department of Environment, Food & Rural Affairs, and the secretary of agriculture was sacked from the Cabinet. In spite of these upheavals, the Labour Party won re-election in June.

Another complication is the difficulty of differentiating between a naturally occurring outbreak and a deliberately induced one. For example, Cuba has repeatedly alleged that the U.S. military has targeted Cuban crops such as sugar cane, tobacco, and coffee with plant pathogens, but it has offered no credible proof that these diseases were anything other than naturally occurring outbreaks.

It is extremely unlikely that any agricultural bioterrorist could fatally wound the entire U.S. agricultural sector or national economy, both of which are strong and diversified. Local, regional, and national effects, however, could be significant. Even to the extent that the United States is vulnerable, it is unlikely that terrorists could strike successfully. An advanced, state-level bioweapons program, however, might be able to overcome or circumvent some technical hurdles. Given the bioweapons programs of Iraq and the Soviet Union, it is possible that state programs might explore agricultural options in the future.

While our examination of open-source historical and technical information demonstrates that the threat of agricultural bioterrorism has been exaggerated, Britain's recent foot-and-mouth outbreak has revealed the devastating effects of agricultural disease outbreaks. In an increasingly globalized society, the potential for more outbreaks can only grow. Given their potential impact, more efforts should be directed at disease prevention and response. Several specific steps should be taken:

Communication among scientists concerned with animal, human, and plant diseases should be increased. Currently, there are limited interactions, linkages, and institutional mechanisms for communication between the public health

and veterinary sectors. This problem became apparent during the 1999 West Nile virus outbreak, when the existing surveillance and response structures between public health, veterinary, and other scientific communities failed to appreciate the connection between outbreaks in birds at the Bronx zoo and human cases. In addition, some plant diseases have been found to cause disease in immune-compromised humans. Increased contact and communication could assist in earlier identification of disease outbreaks.

Interaction among veterinarians is frequently limited to concerns with livestock and domestic animals, overlooking the fact that finding diseases in wildlife can serve as an early warning system. Many emerging diseases originate in the wild, and it is important to support increased surveillance and study of disease outbreaks among wildlife populations.

National and international disease surveillance networks need to extend down to the individual farm and facility. Many times, farmers and local veterinarians are the first to deal with and diagnose animal diseases. Since most local veterinarians and farmers will never see a case of foot-and-mouth disease, increased education, from the grassroots to the university level, would increase the prospect of accurate disease diagnosis and rapid response.

Many local and state public health and veterinary laboratory systems are not equipped or structured to allow rapid diagnosis of animal samples. Neither the Centers for Disease Control and Prevention nor the U.S. Army Medical Research Institute of Infectious Diseases is prepared or willing to test animal samples regularly--nor should they necessarily be, considering that they are primarily research facilities. But absent adequate lab capabilities elsewhere, there is currently no alternative. In the face of a massive outbreak of foot-and-mouth or another disease, existing laboratories may be overwhelmed. Additional mechanisms are needed for diagnostics in emergency situations.

Funding for work related to foreign animal and plant diseases should be increased. There is a great deal of funding available for human pathogen research, even for diseases considered extremely unlikely to surface, such as smallpox. At the same time, funding on foreign animal and plant disease has been relegated to the background. Such research, however, offers enormous benefits for U.S. public health.

The Soviet bioweapons program employed hundreds to thousands of scientific specialists devoted to animal diseases like foot-and-mouth and West Nile, as well as expert plant pathologists. Due to restrictions, few U.S. or European facilities and scientists are permitted to work on these pathogens, yet Russia and several other former Soviet republics have unique facilities and scientific expertise. The U.S. Defense and State Departments have been working to redirect former Soviet bioweapons efforts toward the development of medical treatments and other responses to protect against foreign animal and plant diseases. U.S. support and funding for these programs' scientists (administered under the Nunn-Lugar program) should be increased.

Current agricultural practices--the use of monocultures, and intensive livestock production in which animals are closely confined--should be reevaluated. These practices increase U.S. vulnerability to disease outbreaks. Although the costs of making significant changes may be too high, it should be possible to evaluate whether some aspects could be changed in a cost-effective manner.

Additional response structures are needed to address the problems involved in differentiating between natural and intentionally induced disease outbreaks. This might include the formation of objective, independent response teams modeled after the National Transportation Safety Board teams, which investigate catastrophic transportation accidents. These teams could ensure that the investigative process is not cut short or neglected in the face of economic and political pressures to control the outbreak.

Additional research on offensive state bioweapons programs and a strengthened verification protocol for the Biological and Toxin Weapons Convention would also be helpful. Understanding the past and present can help us to better assess future bioweapon threats. Scholarly research on why countries have pursued anti-agricultural bioweapons programs, policies, and strategies, coupled with support for a verification protocol, will make it more costly and time consuming for states to conduct prohibited activities and thus strengthen the international norm against bioweapon development and use.

--*Gavin Cameron is a lecturer in the Department of Politics and Contemporary History at the University of Salford, England; Jason Pate is a senior research associate at the Center for Nonproliferation Studies, Monterey Institute of International Studies; and Kathleen M. Vogel is a postdoctoral associate at the Peace Studies Program at Cornell University. This article is based on papers, presentations, and discussions at a workshop, "Agro-terrorism: What is the Threat?" held November 12/13, 2000, at Cornell University.*

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Pakistan's Nuclear Arsenal A Source Of Worry

By Bill Nichols

WASHINGTON -- Sleepless nights have been part of the American landscape since the attacks on New York and Washington. But there's a new potential scenario that is giving administration officials and nuclear experts even more vivid nightmares.

It goes like this: The United States, using Pakistani air space and airfields, attacks Afghanistan in its quest for fugitive terrorist Osama bin Laden. Anti-U.S. forces in Pakistan revolt. The government of Gen. Pervez Musharraf falls, leaving dozens of nuclear weapons up for grabs by Islamic militants in one of the world's toughest neighborhoods.

This scenario is far from fiction. U.S. intelligence officials say they believe that bin Laden has actively sought weapons of mass destruction. In 1999, in an interview with ABC, bin Laden said he considered his quest for such weapons his "religious duty."

Moreover, opposition to the Pakistani government's cooperation with the United States is becoming increasingly evident in Pakistan, where there have been numerous anti-government demonstrations. In Karachi on Wednesday, attackers opened fire and hurled a grenade at hundreds of people gathered to show support for pro-U.S. policies. At least a dozen people were injured.

"If the Musharraf regime were to be toppled or there was serious unrest within the Pakistani military . . . there is the very serious risk that the government might lose control of some of its nuclear weapons and nuclear facilities," says Daryl Kimball, director of the Arms Control Association."I actually have been having nightmares about this situation."

He's not alone. U.S. officials are trying to do everything they can -- such as President Bush's announcement Saturday that he is lifting U.S. economic sanctions on Pakistan -- to try to make sure Musharraf survives.

Congressional sources say the administration also is considering ways to safeguard Pakistan's nuclear arsenal within the bounds of global non-proliferation treaties and remaining U.S. sanctions on military aid to Pakistan. Among the measures being considered, according to congressional officials briefed by the administration: providing Islamabad with blast-proof doors for its nuclear facilities.

One nuclear expert, Center for Defense Information President Bruce Blair, says the administration almost surely has special forces teams or emergency nuclear search outfits ready to be dispatched to the region should Pakistan lose control of any nuclear weapons.

"We are very sensitive to that, and I know President Musharraf is very sensitive to that," Secretary of State Colin Powell said in a recent CBS interview when asked about the possibility of Pakistan's nuclear arsenal falling into the wrong hands.

Those concerns notwithstanding, most foreign-policy analysts say Bush has little choice but to take a risk on Pakistan.

"We are making the right decision, and it's the only decision. Unfortunately, it's a very difficult one," says Lee Feinstein, who was director of policy planning for former Secretary of State Madeleine Albright.

"We clearly need to enlist Pakistan in this campaign. That raises questions about the stability of Pakistan, but we have no choice," says Feinstein, now an analyst at the Carnegie Endowment for International Peace.

Pakistan's nuclear capabilities became clear to the world in 1998 when it tested two nuclear devices just months after arch-rival India conducted its first nuclear test. Those tests put both countries under U.S. sanctions and alarmed the world, given the long history of tensions and warfare between the two nations over the disputed Kashmir region.

Pakistan is believed to have enough fissionable material for 30 to 50 nuclear bombs or warheads and 10 or more nuclear facilities -- reactors, weapons plants and uranium enrichment centers, according to private estimates and declassified government estimates.

Pakistan has only short-range missiles -- with a range of several hundred miles -- capable of launching a nuclear warhead. But it has other means for delivering weapons longer distances. Islamabad has tested air drops of nuclear bombs and has several types of aircraft that could do the job, including 32 F-16 fighter jets purchased from the United States, administration officials say.

For now, U.S. officials say they believe that the Pakistani armed forces have tight control of the nuclear arsenal. But the military also has a sizable faction of adherents to the Islamic radicalism that bin Laden personifies.

Experts say Pakistan's bombs, stored unassembled in component parts, do not have many of the safety features that U.S. devices have. For example, small explosions, such as from a grenade, might be able to ignite a Pakistani bomb, even in a disassembled state.

"I would hope that our government has asked the Pakistani government to disable their nuclear arsenal" in advance of any U.S. military action against Afghanistan, says Blair of the Center for Defense Information.

Neither U.S. nor Pakistani officials would comment on any such request.

Experts say they can envision several troubling scenarios in which the security of Pakistan's nuclear arsenal might be compromised:

* Terrorist cells loyal to bin Laden might attempt to take over a Pakistani nuclear facility.
* A military coup could overthrow Musharraf's regime. That's how Musharraf took power in 1999. As chief of the Pakistani army, he overthrew the government of Prime Minister Nawaz Sharif. There have been four coups since Pakistan became independent in 1947, as well as four unsuccessful attempts.
* A popular uprising against Pakistani cooperation with the United States could compromise internal security.

"Do they keep these things in different caves or are they in the same place?" asks David Albright, president of the Institute for Science and International Security. "Can you trust the people who guard these things? There are all sorts of ways unsavory types could end up with nuclear weapons."

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Chemical Weapons Disposal: Russia Tries Again

By Derek Averre & Igor Khripunov

In April 1987, Mikhail Gorbachev took his country's first step toward chemical weapons disarmament, announcing that the Soviet Union had halted production, and that a facility was being built to destroy the weapons that had been stockpiled. International delegations were invited to visit the closed chemical weapons testing ground at Shikhany the following October.

In 1989, the Soviet Union and the United States signed the Wyoming Memorandum of Understanding, agreeing to the exchange of confidential data on the two countries' chemical weapons inventories. That understanding was followed by a bilateral agreement signed in June 1990 in which both sides agreed to begin destroying existing stocks by the end of 1992.

With the Soviet/Russian military tightly guarding the skeletons in the cupboard, however, most of Russia's good intentions failed to materialize. The military's intransigence and secretiveness undercut these agreements‹as did circumstantial evidence that, despite earlier denials, the Soviet Union had developed and experimented with "binary weapons," munitions in which the lethal agent is formed by two relatively harmless compounds that are combined only after the weapon is fired or launched. Binary weapons can be stored and moved relatively safely, becoming lethal only when the precursors are combined. Their existence was revealed at about the same time that President Boris Yeltsin admitted that the military had also been developing offensive biological weapons in violation of the 1972 Biological Weapons Convention.

A few accomplishments

When the Soviet Union was dissolved, Russia inherited the entire Soviet stockpile of chemical weapons, as well as most of its former production facilities. But Yeltsin quickly assured the world that Russia would carry out the international obligations of the Soviet Union. He specifically affirmed Russia's commitment to the Chemical Weapons Convention (cwc), the final text of which was then nearing completion. Moscow made an unsuccessful effort to involve other former Soviet republics in chemical demilitarization, but when that effort failed, Russia took on the entire burden.

Russia signed the cwc in January 1993 and ratified it in November 1997, affirming its commitment to destroy its stockpile by 2007 and renouncing chemical weapons development, manufacture, stockpiling, and future use. A national system of export controls over chemical weapons and their precursors was introduced, and significant steps were taken to convert former production facilities. The Moscow-based State Scientific Research Institute for Organic Chemistry and Technology, which was responsible for chemical R&D in the Soviet period, was scaled down. It now appears to be concentrating on providing technological support for chemical stockpile destruction, legitimate chemical defense research, and civilian R&D.

Russia's efforts have nonetheless been bedeviled by continuing political and economic uncertainty. The "chemdemil" program is a formidable administrative and technical task and a massive financial burden. Without substantial assistance from abroad, Russian stockpiles will be around for a very long time. The first deadline imposed by the cwc -- destruction of 1 percent of stockpiles by April 29, 2000--has already been missed. Under the revised program approved by the Russian government in July, this milestone will not be achieved until 2003, while the entire destruction process is scheduled to last until 2012. Setting up safe and reliable disposal technologies, meeting local demands for housing and related needs, and carrying out destruction are likely to take another decade at least. In the absence of massive foreign assistance, without which even the extended period may not be enough to complete destruction, some Russian officials and analysts suggest the country should withdraw from the cwc so it can pursue its own timetable.

The scope of the problem Russia has a declared stockpile of 40,000 tons of chemical agents, stored at seven sites. About 80 percent is weaponized and consists mostly of organophosphorus nerve agents. The remainder of the material is stored in bulk at two sites--Kambarka in the Udmurt Republic and Gornyi in the Saratov district.

No one knows how many tons of chemical weapons or agents were produced by the Soviet Union. But some independent analysts believe that the 40,000 tons formally declared by Russia is only a fraction of a total of 100,000 to 200,000 tons, the rest of which were probably disposed of in some manner. Both the U.S. administration and the Congress are skeptical about the accuracy of Russia's numbers and keep requesting clarifications as a precondition of any resumption of assistance.

Chemical demilitarization is a costly undertaking. The price tag for destroying U.S. stocks is estimated at more than $18 billion, and most estimates for Russia's costs are in the $6 billion to $8 billion range.

Disposing of nuclear weapons is much more costly, but that process has some tangible benefits. For instance, weapon uranium can be blended down and sold as reactor fuel, which has been implemented in practice under a bilateral U.S.-Russian agreement.

Apart from long-term gains for human health and environmental security, chemical weapons disposal is not cost effective. Neither the use of the bituminization products (the tars or asphalts that will be produced in the second stage, after neutralization) nor the reprocessing of lewisite into pure arsenic for use in the electronics industry (the supply would far outstrip demand) is economically rational. Destruction facilities will have to be built from scratch and are unlikely to serve any useful purpose after the program is over. (In the United States, there was until recently a legislative ban on using the facilities for any other purpose.)

The civilian v. military tug-of-war

At first, the government decided to take the most economical approach. It would build a few chemical weapon destruction centers and transport munitions to them. But the idea had to be abandoned after it was rejected by local communities, which had not been consulted. The first center, planned for Chapaevsk in the Samara district, was halted in the late 1980s midway through construction. The other, at Novocheboksarsk in the Chuvash Republic--where nerve agents had until recently been produced--was canceled before construction could begin. In March 1995, Yeltsin announced that chemical weapon stockpiles would be destroyed at their storage sites.

The first disposal efforts were coordinated by the Presidential Committee for Convention-Related Problems of Chemical and Biological Weapons, established in April 1992. The controversy over Soviet compliance with the 1972 bioweapons treaty made it advisable to establish a body apart from the ministries and agencies that had been in place before 1991.

The committee served for several years as the leading civilian agency, but in the end, neither it, nor the Interagency Commission on Chemical Disarmament, was able to challenge military control.

Chemicals one, military zero

Finally, in March 1996, the Russian government approved a new plan for destroying all chemical weapon stockpiles by 2007. Destruction would take place near the storage facilities, with minimal transportation. The highest priority would be disposing of the lewisite, the mustard, and compounds of these agents that are stored in bulk at Kambarka and Gornyi. The Defense Ministry was designated the lead agency for developing and implementing the program. It was charged with selecting destruction technologies, building and operating destruction facilities, and constructing necessary housing and medical facilities at the sites.

With the military back in charge, Russia stopped submitting data called for under the Wyoming understanding, and it did not respond to U.S. efforts to move toward finalizing the 1990 bilateral destruction agreement. The military's reluctance to cooperate complicated the Pentagon's role in allocating funds for the Russian effort. The Defense Ministry consistently failed to meet the conditions for the release of Cooperative Threat Reduction Program funds.

The Russian players--especially those in the military--believed the world community would respond with great generosity as soon as Russia ratified the chemical treaty. As the first session of the Organization for the Prohibition

of Chemical Weapons was convened in The Hague in spring 1997, the Duma circulated a document urging the industrialized countries to increase their assistance as a prerequisite for speedy ratification.

As it turned out, however, most non-U.S. assistance, with the exception of German funds, were provided for small projects that were beyond Defense's immediate purview, and Cooperative Threat Reduction money was meticulously supervised and carefully audited.

Meanwhile, the destruction program was running behind. The government provided barely enough money to support the Radiation, Chemical, and Biological Protection Troops assigned to guard the storage sites--sources recently told us that 60 percent of funding went for that purpose.

In 1996 the federal budget allocated only 1.3 percent of the amount stipulated for the program; in the following three years only 2.3, 3.9, and less than 2 percent was allocated. As senior officials now admit, all through the 1990s the government lacked a firm commitment to chemical weapons disposal and failed to understand the scale of the program.

In October 1997, an investigation into the program revealed a number of improprieties. For example, Defense had spent more than $1 million on unrelated facilities and services. Another $100,000 was wasted on an R&D project that contributed nothing to the development of environmentally safe destruction technologies.

The Defense Ministry's record in public relations, for which it had little experience or taste, was also poor.

In 1999, the military decided to use vintage "kuasi" units--mobile chemical weapon destruction systems developed in the 1970s to dispose of damaged munitions--in a futile effort to meet the first treaty deadline. One unit had been originally manufactured for each storage site, and one had been demonstrated for Western experts at the Shikhany test range in the late 1980s. But the units operated inside the storage facilities, in secret, and had never been subject to an environmental impact assessment. Environmentalists strongly opposed their use, and in the end the Russian government requested an extension of the destruction deadline rather than risk the wrath of local communities and environmental organizations.

The military checkmated

In the absence of close cooperation and understanding between the Defense Ministry and Pentagon officials in charge of the chemical disposal project, the U.S. assistance program foundered. Gen. Stanislav Petrov criticized the U.S. program's organization and structure, comparing its system-wide approach unfavorably with the looser rules favored by Germany, the second largest donor, which enabled the Russian military to avoid meeting high standards of accountability. The ministry also failed to build housing and related facilities at the Shchuchye site, which would have cleared the way for construction of the destruction facility that the United States had agreed to fund.

Congress, on the other end, decided that the Russian stockpile posed no military threat to U.S. national security. Instead of paying for disposal, it preferred to upgrade security at storage facilities as a precautionary measure against possible terrorist attack.

In April 1999 the General Accounting Office issued a report expressing doubt that the Shchuchye project would accelerate the destruction of chemical weapons at other depots or help Russia comply with its treaty obligations. In August 1999, Congress cut the Shchuchye project from the budget. In fiscal 2001, Congress terminated the chemdemil assistance program altogether.

In the meantime, as the complexity of various disposal projects grew-- they required sophisticated engineering support and environmental protection arrangements--the military began to lose enthusiasm.

In May 1998, the Ministry of Atomic Energy (Minatom) took over the responsibility for dismantling and disposing of nuclear-powered submarines, a program funded from a number of foreign sources including the U.S. government. As "state procurer and coordinator" of that project, Minatom controlled budget allocations and could assign specific tasks to other ministries and agencies. Meanwhile, the Russian Aerospace Agency was assigned important functions for dismantling, conversion, and disposal of strategic missiles. Transferring these and other non-defense missions from the Defense Ministry to civilian players was also seen as consistent with a trend toward a more professional army.

The Defense Ministry, already overwhelmed by the need to restructure the armed forces, finally realized the futility of waiting for funding from a parsimonious government or from foreign donors who were unwilling to make large-scale investments unless they were subject to careful oversight. Pressure from the government also played a part in moving the program from the military. A civilian entity would be more likely to give foreign donors the transparency they needed, providing evidence that their money was not being diverted to other purposes.

A new beginning

Last November, the government designated a new body to oversee disposal, the Munitions Agency. This agency will coordinate the destruction program and act as Russia's national authority in matters connected with the cwc. The agency will be responsible for storage and disposal of stockpiles as well as destruction and/ or conversion of former manufacturing facilities. Zinovii Pak, a former minister of the defense industries and a senior government figure,

was appointed to head the agency and lend it weight. The Presidential Committee has been subsumed by the agency, with many of its staff transferred. The agency has also hired some now-retired military officers with experience in the disposal program.

Most important, the agency will control and allocate funds from the federal budget and from donors.

The agency's Directorate for the Safe and Secure Storage and Destruction of Chemical Weapons, established in February, will be in charge of chemical weapon storage, transportation, and destruction; oversight of buildings, facilities, and operations; and interactions with treaty- related international inspection teams and foreign donors.

The Defense Ministry's role is much reduced. It will participate on a contractual basis in R&D projects and the protection of personnel. And it will play a supporting role in dealing with emergency situations. The Protection Troops will continue to do their job, but in a significant development, many of them--Pak says around 10,500--have been transferred to the Munitions Agency under Lt.-Gen. Valery Kapashin, thereby avoiding potential chain-of-command conflicts. Details are still being worked out, but the troops will oversee the safety and security of facilities for the duration of the program. The State Scientific Research Institute for Organic Chemistry and Technology, where the Central Analytical Laboratory opened in April 2000, has been moved from the jurisdiction of Defense to the Munitions Agency.

Dark clouds still

Despite his legally defined powers, Pak could experience the same difficulties that the leaders of the Presidential Committee faced in dealing with heavyweight interagency players. In the Russian bureaucracy the winners are not always those backed by the letter of the law, but those who can rely on tradition and the patronage of influential people.

Another key player will be the new interagency "State Commission for Chemical Disarmament," chaired by Sergei Kirienko, a former prime minister under Yeltsin and now Putin's representative in the Volga Federal Region (one of seven Russian macroregions established in May 2000), where the bulk of chemical weapons are located. This policy-making commission brings the usual officials from state agencies together with representatives of nongovernmental and scientific organizations. A May 4 presidential decree defined the group's main purposes as promoting interaction among federal, regional, and local bodies.

There is some question whether this new commission can be more than symbolic. The Volga Region is besieged with a multitude of economic, environmental, and ethnic problems that are likely to consume most of Kirienko's time. And there is always the risk that, because of the diversity of its membership, the group will fail to reach consensus. Moreover, the high-priority destruction project at Shchuchye, crucial to Russia's disposal program, is located in the Urals, in another macroregion.

A new program

The 2001 budget provides for a six-fold increase in chemical weapons disposal funding for a total of just over $100 million, a sum officials we interviewed believe is a realistic figure that will allow them to implement the next stage in the program within a reasonable time frame. However, even if the ratio between domestic financing and foreign assistance reaches the 5050 level they are aiming at, another $3 billion will need to be found to complete the program by 2012, as stipulated by the new program approved in July. The Russian government may ask the treaty organization for a five-year extension of the deadline, as the treaty permits. It may also seek ways to reduce the overall cost. Several options were included in the revised program:

If a two-stage destruction technology is used--neutralization followed by bituminization--it may not be absolutely necessary to complete both stages within treaty-imposed deadlines. It is most important to complete the first stage--turning chemical agents into a relatively harmless mass. The ultimate disposal of the mass via bituminization or some other method could be delayed. The same delayed approach may be applied to destruction of lewisite by alkaline hydrolysis. Officials believe the treaty organization may be willing to negotiate a deal to lighten Russia's short-term burden.

Because destruction facilities will be built in remote and thinly populated areas, plans to build permanent housing could be scrapped. If the destruction process is highly automated, a limited number of specially trained engineers and technicians could be offered fixed-term contracts under which they would rotate between destruction sites and their permanent homes for periods of rest and recuperation.

With earlier plans, regional leaders were led to expect generous tradeoffs--investment in their economies or tax relief, in exchange for their consent and cooperation in disposal plans. As the Putin administration builds a "vertical power structure" and reasserts central government influence on the provinces, regional leaders may make more realistic demands.

One reason the idea of central destruction facilities had to be abandoned in the past was that regional legislatures adopted laws banning the movement of chemical weapons through their territories. One of Putin's first initiatives after he assumed the presidency was to strengthen the federal constitution and pressure the regions into making local

laws comply with it. The Russian government is now better prepared to reassert its control over security and disarmament matters. Last October the Duma Committee on Defense drafted an amendment to Article 2 of the law on Chemical Weapon Destruction eliminating the requirement for destruction at storage sites. In the first two hearings held in the spring and summer, the amendment was approved by an overwhelming majority. This change could substantially reduce the cost of destruction facilities.

Under this scenario, the Shchuchye facility, which was to be funded primarily by the Cooperative Threat Reduction program, could become the only realistic candidate for completion and commissioning as a regional facility (two other destruction facilities under the revised program are in Gornyi and Kambarka). Whether it would be able to accept munitions from the relatively nearby sites at Kizner and Maradykovsky, let alone from the more distant Leonidovka and Pochep sites, would depend on several factors. The most important is whether the local population and the authorities of the Kurgan district (where Shchuchye is located) would consent to an increase in the original scale of destruction, and whether existing or future transportation arrangements can meet international safety standards. In any case, the Gornyi site, along with the facility at Kambarka, will remain the highest priority--bulk storage poses the clearest and most immediate danger.

The administration preferred that the revised program be adopted by resolution to avoid lengthy debates outside the newly established interagency commission. But it is hard to predict whether the public will accept controversial changes of plan--especially in the affected regions. In most regions, opinion is divided on the question of allowing or banning transportation of chemical weapons. The governor of the Samara oblast has stipulated that any decision must be taken by popular referendum. In any case, transportation would have to be improved to ensure safety. The Ministry of Railway Transport insists there would have to be expensive improvements and detours away from urban centers.

There is little doubt that a more energetic administration is attempting to kick-start the process by introducing new ideas, investing more funds, and assuming greater civilian control over management. This is firmly in line with Putin's imposition of stricter political control over the power agencies and the recent reshuffle which saw Sergei Ivanov appointed defense minister. These changes should reduce lobbying from within the military. But it should not obscure the fact that there are still substantial hurdles to overcome if the disposal program is to be successfully carried out.

Foreign assistance

Foreign donors have given about $260 million to Russia's chemical weapons disposal effort--about a tenth of what is required for a cost-effective program. The Shchuchye project alone was recently estimated at $1 billion. For the program to succeed, foreign donors will have to play a much larger, more active, and more imaginative part, something former President Mikhail Gorbachev, as president of Green Cross International, has been lobbying for.

The United States is by far the largest donor, disbursing about $192 million in assistance. This aid has focused on two major projects--the Central Analytical Laboratory and the destruction facility at Shchuchye.

Resumption of U.S. assistance at Shchuchye depends on a set of specific conditions: Russia must allocate at least $25 million annually for the project; it must be used to destroy four other stockpiles; Russia must agree to destroy former chemical weapon manufacturing facilities at Volgograd and Novocheboksarsk (for which the United States has provided some assistance); and the international community must commit to long-term support for the Shchuchye project, to name the most important.

In September 2000 Putin raised the issue of assistance with chemical weapons disposal during his meeting with President Clinton at the U.N. millennium summit. He committed Russia to improving its record and to meeting most of Congress's conditions, something which appears to be under way. At the end of last year, a bilateral protocol was signed to pave the way for a limited resumption of U.S. activity at Shchuchye, to be funded mostly by unspent Cooperative Threat Reduction money. But U.S. funds remain frozen.

Germany is the second largest donor--and the only other donor to focus on actual destruction. Since October 1993 it has contributed about $27 million. German support has concentrated on the Gornyi site, which, although it accounts for less than 3 percent of the stockpile, is the Russian government's top priority. As soon as the destruction technology at Gornyi proves effective and safe, it will probably be introduced at the Kambarka site, where much more lewisite is stored in bulk. The latest bilateral agreement provides $4.1 million for the year 2001. The money will be used to purchase German-made hardware (a thermal decontamination plant with sewage treatment, equipment for emergency operations, and other equipment), and the cost of labor and services by German contractors. Additional projects are likely to be funded in the future. Other donors include the European Union, Sweden, Norway, Finland, Italy, Britain, the Netherlands, Canada, and Switzerland.

Generally, non-U.S. assistance, which now totals around $68 million, has been poorly handled by the Russian government. Interagency wrangling and a lack of government allocations to match foreign contributions have delayed and confused the planning and implementation stages. Differences in legal and accounting approaches in

Russia and donor countries became serious obstacles to cooperation. Russia's own legal system needed improvement to accommodate other countries' specific demands. Most donors have assisted projects at the various sites individually, without coordinating their programs and without taking into account Russia's priorities. With U.S. assistance still frozen, the administration has done a good job rallying other donor countries in support of the Shchuchye project. In June, the Munitions Agency arranged a ceremony of raising flags of all foreign donors at Shchuchye to demonstrate international support for the project. Jose Bustani, director of the treaty organization, has suggested establishing an international coordinating committee, a plan Russia supports. But so far nothing concrete has come from the suggestion.

Such an informal group could make chemdemil assistance less vulnerable to extraneous political considerations in one donor country. The group would play a useful role in developing common standards for competitive tenders, hiring of Russian subcontractors, and accounting procedures. It might be instrumental in getting the European Bank of Reconstruction and Development and other financial institutions involved in building and/or modernizing transportation routes if Russia moves its program back to regional destruction facilities.

Although foreign donors now appear to be consulting with the Munitions Agency more closely, it is clear that even under the most optimistic expectations, international assistance will fall short. A Russian request to have some of its debts written off in exchange for increasing its own disposal budget has some support, but there are doubts whether it would work. International financial institutions would face difficulties in tracing the money flows and verifying their end use. This suggestion has not been taken up. Bustani, in what appears to be a firm signal to Moscow, is reported as having stated that Russia must bear the costs of its own disposal program. One reason for the apparent lack of sympathy may be that the treaty organization is experiencing financial difficulties because several countries, including Russia, have not been paying their dues.

Pluses and minuses

The reduction of the military's role is a welcome development and should have a perceptible impact on Russia's disposal efforts. But not too much should be expected. The Munitions Agency lacks manpower (discussions with officials suggest that personnel dealing with chemical weapons disposal should be doubled). And its ability to coordinate the program with other agencies may be limited by bureaucratic wrangling over privileges and authority. At a higher level, there are many other urgent tasks in the sphere of arms control and nonproliferation facing the government and the Security Council. The interagency Commission for Chemical Disarmament includes the necessary actors, but similar commissions have failed to produce anything more effective than broad policy outlines. There is also concern that the program may still lack transparency; Green Cross Russia has called for a permanent public body to maintain open discussion and national awareness of the issues involved.

While the Russian government would like to save costs, any saving at the expense of safety--which will be of great concern if chemical weapons are transported--will be vigorously resisted by the public. Russian officials and experts continue to publicly maintain that if no large-scale financial assistance is forthcoming, Russia will carry out the program itself. But private interviews suggest they are counting on aid.

Key to all this, as to so many other issues in the sphere of disarmament and nonproliferation, is Bush administration policy, not least because increased European funding probably depends on continuing U.S. support. Whether Bush chooses to reinvigorate the Russian chemical disposal program or considers it to be of marginal importance to U.S. security interests remains to be seen.

There are several factors to consider. Former President Bush committed his administration to making the Chemical Weapons Convention possible, and that could have some residual influence on an ultimate decision in favor of assistance to Russia (without which the cwc would be seriously weakened). On the other hand, a number of senior figures in the current administration are skeptical of multilateral arms control agreements. The Chemical Weapons Convention is not held in high esteem in Washington. The U.S.-Russia relationship in general has deteriorated under the combined weight of discord over U.S. missile defense plans and alleged Russian assistance to the Iranian nuclear weapons and missile programs. A January 2001 Defense Department report classified Russia as a country contributing to the proliferation of weapons of mass destruction and included allegations that Moscow may still be harboring residual chemical and bioweapon production capacities and a limited stockpile of a new generation of binary chemical agents. The United States would be reluctant to resume assistance in destroying old chemical stockpiles--now generally regarded as of little military use--if it believed that Russia was not complying fully with the treaty, which outlaws the development and production of any chemical compound destined for use as a warfare agent. The results of the review process regarding Russian programs undertaken by the Bush administration will soon be known, but under the best case scenario it is likely to take another year before any meaningful resumption of chemdemil assistance occurs.

The next year or two will be critical in terms of implementing the cwc. If Russia is able to put its administrative house in order and the promised level of federal funding is maintained, the international community--including the

United States--may put aside narrow political differences and scale up current commitments. There are signs that European countries are prepared to do so.

If, however, in the absence of major international assistance the disposal program continues to proceed at the same slow pace, Russia could face massive leakage from its chemical weapon stockpiles and an environmental disaster of serious proportions. Concerns are already surfacing among officials and independent experts. Can the world community afford to wait for such an eventuality, the response to which may be very costly in both human and environmental terms?

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