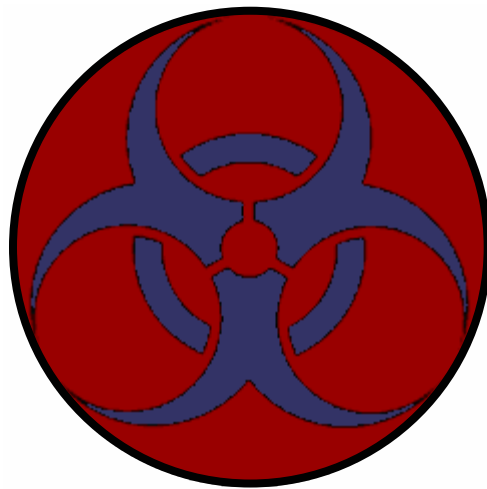


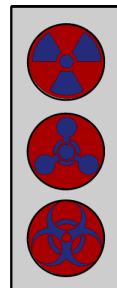
BIOLOGICAL TERRORISM

US Policies to Reduce Global Biothreats

- PROFESSOR BARRY KELLMAN -
September 2008



In Support of PSA's
**REPORT CARD ON WMD
TERROR PREVENTION**



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PREFACE

We are fortunate to live in a period of unprecedented peace among the world's major powers. Senior US officials meet routinely with representatives of our former Cold War rivals to discuss issues of shared concern, including security, the global economy, and the environment. While the US and our international partners cannot always come to agreement on these important issues, states are far more likely to deploy diplomatic, economic, and political tools to support their foreign policies than to order military action against one another.

But as the likelihood of military conflict among powerful states has declined, a grave new threat has emerged: International terrorists, operating in small cells and loosely organized global networks, could harness the world's most dangerous weapons to unleash massive destruction on our vulnerable population and economic centers. The 9/11 attacks reminded Americans that terror can strike anywhere at any time, and that terrorists can transform the proudest technological achievements of modern open societies into devastating weapons of mass destruction.

Pursuing its mandate to advise Congress and the President how best to prevent future terror attacks on the United

States, the 9/11 Commission identified the potentially deadly combination of the world's most dangerous people and history's most destructive weapons as the single greatest threat to US security. In its 2004 report, the Commission concluded that Al Qaeda and other terrorists were in the market for Weapons of Mass Destruction (WMD), including nuclear, chemical and biological weapons, and that the US must therefore invest maximum effort in preventing them from falling into terrorist hands.

The following report, which examines current US government policies and programs to prevent biological terrorism, is one piece of PSA's larger effort to assess US government progress in implementing the recommendations of the 9/11 Commission. The findings of this report, combined with similar expert assessments focused on prevention of nuclear and chemical terror attacks, are summarized in PSA's Report Card on WMD Terror Prevention (*available online at www.PSAonline.org*). These assessments underline the conclusion of the 9/11 Commission that the intersection of international terrorism and WMD proliferation poses an unparalleled and unacceptable threat our national security.

This report finds progress in US government bioterrorism interdiction and response programs, and in cooperative efforts to track infectious diseases internationally, including creation of a

new office charged with strengthening cooperative non-proliferation of bio-weapons and related knowledge. However, inadequate multilateral coordination and cooperation remains the single largest stumbling block to effective bioterror prevention. Despite increases in overall biothreat response funding, global threat reduction programs are still under-funded, and US disengagement from the Biological Weapons Convention has undercut the confidence necessary for effective multilateral cooperation.

To fulfill the 9/11 Commission's call for "maximum effort" against WMD terrorism will require the full attention and enduring commitment of leaders on both sides in Congress, and from the next President. Working together, Congress and the Administration must bring funding levels, statutory authority and agency structures into line with the core objective of denying terrorists access to nuclear, chemical and biological weapons around the globe. Ensuring that our policymakers take the most effective steps toward this objective will require ongoing evaluation by outside experts, along the lines of this study and others cited herein, as well as by the government itself.

This report is not intended as the final word on the subject from PSA, the author, or any of our Advisory Board members, including the former Chair and Vice Chair of the 9/11 Commis-

sion. As those distinguished Americans put it in their own statement in 2005, this is an endeavor that will require "sustained attention, over several years, perhaps even generations, from our political leaders."¹ In publishing the Report Card, we too seek to help maintain a sense of urgency, focus the resources and attention of government, and contribute to making the American people safer and more secure.

Matthew A. Rojansky
PSA Executive Director

¹ Thomas H. Kean and Lee H. Hamilton, "Report on the Status of 9/11 Commission Recommendations Part III: Foreign Policy, Public Diplomacy and Non-Proliferation", accessed at <http://www.9-11pdp.org/press/2005-11-14_remarks.pdf>



REPORT CARD

Pillars Of Biological Terror Prevention:

Status in 2008:

Denial Of Access To Bioterror Agents, Especially In FSU

Funding up for most global threat reduction programs, but still less than 2% of total biothreat response budget; Multilateral co-operation hampered by US disengagement from BWC.

Detection Of Covert Bioterror Preparations

Inadequate monitoring of US labs; Limited global pathogen/equipment tracking; International data sharing voluntary, poorly integrated.

Interdiction By Law Enforcement

Interpol creating interdiction programs; 80 bilateral PSI agreements for maritime interdiction, mostly nuclear focused, non-binding.

Confidence Building: Distinguish Biodefense From Threats

Disengagement from BWC hurts multilateral confidence building; New State BWA Office authorized to strengthen cooperative non-proliferation.

Resilience: New Vaccines And Drugs

Project Bioshield stockpiling vaccines, drugs; Insufficient R&D coordination with allies.

Mitigation: Global Public Health Preparedness And Response

Inadequate “multidimensional” threat response; GHSAG recommendations and joint exercises aid cooperative global response capability; USG programs actively monitoring, assisting infectious disease surveillance abroad.

GRADE

B

C-

B-

D+

C-

B

OVERALL GRADE

C-

INTRODUCTION

Malevolent infliction of disease is the most readily available and potentially likely way to inflict catastrophic damage of a magnitude that could fundamentally destabilize national security.^α

- ★ "Bioterrorism is a real threat to our country. It's a threat to every nation that loves freedom. Terrorist groups seek biological weapons; we know some rogue states already have them." President George W. Bush, June 12, 2002.
- ★ In the public portion of his February 2004 worldwide threat assessment to Congress, DCI Tenet noted that Bin Ladin considered the acquisition of weapons of mass destruction to be a "religious obligation." Tenet added that "more than two dozen other terrorist groups are pursuing CBRN [chemical, biological, radiological, and nuclear] materials."
- ★ "...The coalition strategies we have discussed to combat Islamist terrorism should therefore be combined with a parallel, vital effort to prevent and counter the proliferation of weapons of mass destruction (WMD)." National Commission on Terrorist Attacks Upon the United States, July 22, 2004
- ★ "The most important under-addressed threat relating to terrorism, and one which acutely requires new thinking on the part of the international community, is that of terrorists using a biological

weapon." Former United Nations Secretary General Kofi Annan, May 2, 2006

- ★ "We are concerned that terrorist groups may be developing biological weapons and may be willing to use them. Even more worrisome, in the near future, the biotechnology revolution will make even more potent and sophisticated weapons available to small or relatively unsophisticated groups. ...And the terrorist threat will only grow, as biological weapons are rapidly becoming cheaper, easier to produce, and more effective." The Commission on The Intelligence Capabilities of The United States Regarding Weapons of Mass Destruction, Report To The President of The United States, March 31, 2005.
- ★ "In my view, Al Qaeda's global network, its proven capabilities, its deadly history, its desire to do the unthinkable, and the evidence collected about its bioterrorist ambitions and plans ominously portend a clear and present danger of the highest order that Al Qaeda (or another terrorist group) will someday perpetrate a biological terrorist attack." Ronald K. Noble, Secretary General, Interpol.
- ★ The gradual lowering of the technical and financial barriers to purchase the materials, technologies, and expertise to develop biological weapons is linked to the worldwide growth in biotechnology, and non-state actors and terrorist groups are now capable of obtaining and maliciously disseminating infectious disease agents. At the same time, there has been a rise in highly organized, well-financed transnational terrorist groups that have shown an interest in bioterror-



ism. U.S. Department of State, July 24, 2006.

- ★ “Biological weapons are considered the least complicated and the easiest to manufacture of all weapons of mass destruction.” “The destructive power of these [biological] weapons is no less than that of nuclear weapons.” Quotations from the Jihadi Lion’s Den Website.
- ★ “Existing international biological weapons nonproliferation policies are not adequate to address the evolving nature of the biological weapons threat, particularly in states with rapidly expanding bioscience sectors that have never had biological weapons programs. Although many nations have recently taken steps to improve their ability to detect and respond domestically to a bioterrorist incident, few programs are designed to prevent terrorists from acquiring, developing, and disseminating the technology and materials to produce biological weapons.” U.S. Department of State, July 24, 2006.

US efforts to prevent terrorist acquisition and use of biological weapons can be grouped into six broad policy pillars:

- ★ **DENIAL:** Policies should deny terrorists ready access to bioterror agents and capabilities, especially the former Soviet Union’s weaponized pathogens and bioweapons scientists.
- ★ **DETECTION:** Policies should enhance information gathering, tracking, and analysis systems to enable detection of covert bioterror preparations.
- ★ **INTERDICTION:** Policies should enable law enforcers to interdict preparations for bioterrorism before an attack is committed.
- ★ **CONFIDENCE BUILDING:** Policies should increase the transparency of biodefense R&D in order to distinguish legitimate protective activities from prohibited offensive activities.
- ★ **RESILIENCE:** Policies should promote resilience to bioterrorism by developing new vaccines and other medical interventions.
- ★ **MITIGATION:** Policies should enhance public health preparedness and response capabilities worldwide.

CRITERIA FOR EVALUATING POLICIES

- ★ Bioterrorism prevention policies should reflect an appreciation of biothreats' inherent international character and should strengthen multilateral systems. "Biological weapons attacks could be mounted either inside or outside the United States and, because some biological weapons agents are contagious, the effects of an initial attack could spread widely. Disease outbreaks, whether natural or deliberate, respect no geographic or political borders." President Bush
- ★ Policies should promote institutional capabilities that can adapt to constantly changing biothreats stimulated by the progress of bioscience. "Advances in biotechnology and life sciences -- including the spread of expertise to create modified or novel organisms -- present the prospect of new toxins, live agents, and bioregulators that would require new detection methods, preventive measures, and treatments." President Bush
- ★ Policies to prevent bioterrorism are inherently intertwined with sustainable development and public health. In the face of overwhelming natural disease threats faced by most societies, policies to prevent and respond to bioterrorism must be integral to global efforts to promote public health. "To help prevent and ensure preparedness for a biological attack, a major initiative is needed to strengthen States' public health systems. Improving the world's health systems will have multiple positive impacts, including

reducing the number of people that die each year of infectious disease." Former United Nations Secretary General Kofi Annan

The core of prevention policies must be their international character, and coordination of policies should be vested in authorities with substantial international responsibilities. Yet, USG anti-bioviolence policies have tended to focus on domestic preparedness and response as if threats of malevolently inflicted disease are merely a subset of disease threats generally and as if a bioviolence attack somewhere else in the world would affect U.S. interests only upon its arrival on our shores. In the years following the 2001 anthrax attacks, as Project BioShield authorized billions for domestic stockpiling of medications and as coordination of local response capabilities for pandemics improved, the USG rejected a proposed compliance protocol for the Biological Weapons Convention (BWC) that had been negotiated over the previous six and a half years, and undermined international cooperation in this issue area.

At the State Department, anti-bioviolence policies have been widely and disjointedly allocated to offices where this issue's unique challenges were too often subsumed amid other agendas and where the unique linkages that could sustain a coherent strategy were neglected. In the Office of the Counter-Terrorism Coordinator, bioterrorism was just another form of terrorism. In the Cooperative Threat Reduction Office, addressing former Soviet Union bioweapons stockpiles was just a subset of addressing the Soviet Union's mostly nu-



clear legacy. In the Office of International Health Affairs, mitigating the effects of intentionally inflicted disease was subsumed among broad application of policies to improve global public health. And in the Office of Chemical and Biological Weapons Threat Reduction (responsible for the BWC), promotion of national measures to strengthen bioviolence prevention became part of fledgling efforts to encourage BWC compliance.

Most telling were the facets of a comprehensive strategy that were neglected (or nearly so). Who should advance policies built upon the obvious premise that bioviolence is a crime and that law enforcers worldwide should be trained, equipped, and authorized to combat it? The answer was not at all clear. Who should advance policies to shore up security at biolabs and pathogen collections worldwide in order to diminish opportunities for covert exploitation? This challenge devolved primarily to the Bureau of International Security and Nonproliferation where it fit poorly with the Bureau's core nonproliferation and arms control responsibilities.

And some challenges seemed to have no answer whatsoever. Who should promote internationally coordinated policies for developing and distributing biodefense vaccines and medications worldwide? Who should promote development of international information-gathering and database capabilities to enable detection of covert bioviolence preparations? And who should promote development of international institutional capabilities with legal authority for implementing anti-bioviolence policies over time?

The good news is that in the last year initiatives have emerged from the Department of State that suggest a renewed appreciation for international biothreats. Albeit hardly the dawning of a potent, comprehensive anti-bioviolence strategy, there are subtle indications of progress. Even though major policy gaps persist, these progressive initiatives could be integrated into a strategy if aggressively pursued in a coherent manner.



DENIAL

The USG recognizes that because research and clinical laboratories are rapidly proliferating worldwide, with the attendant risks of making pathogens available for misuse, a global approach is needed to prevent unauthorized access to pathogen collections. Policies to support such a global approach to biosecurity are strong but could be stronger.

★ The Cooperative Threat Reduction programs,¹ which have channeled resources to security at the former Soviet Union's nuclear facilities, have recently shifted priorities to promote security at former bioweapons facilities, and European allies are increasingly contributing to these efforts. The budget for FY 08 requested funding for biothreat reduction in Russia and the FSU has significantly increased to \$144.5 million from \$68.4 million;² the Biosecurity and Biosafety and Threat Assessment and Disease Response part of the program absorbs a substantial amount of this increase.³ However, resistance from Russian bureaucracies has impaired USG efforts to upgrade biological security infrastructure and to enhance threat-agent detection and response systems in that country. Moreover, the conspicuous U.S. disengagement from multilateral approaches to security, such as the Biological Weapons Convention, leaves U.S.-Russian bilateral conflicts without a ready means of resolution. Moreover, three major WMD threat reduction programs under

the State Department all were reduced in the FY08 budget request.⁴

★ In the last year, resources devoted to biosecurity-engagement programs have been extended outside the FSU. Significant here is CTR's positive commitment to full-spectrum science and technology collaboration as a policy pillar for addressing biothreats globally. No longer is biosecurity just about "guns, guards, and gates." Global pathogen security has a higher profile with the creation of the Biosecurity Engagement Program, which focuses on biosecurity efforts in Asia and the Middle East, joining the BioIndustry Initiative (funded since 2002) and the Bio-Chem Redirect program (funded since 1998). Yet, large parts of the world, especially sub-Saharan Africa, continue to be bypassed. The U.S. program has five key objectives⁵:

- ★ Pathogen Security and Biosafety projects, including assistance in risk assessment, safety and security consultations, and design and implementation.
- ★ Training scientists, laboratory managers, and policy makers on surveillance, diagnostics, biosafety, and pathogen security to promote effective laboratory practices.
- ★ Surveillance and Diagnostics to strengthen infectious disease detection and response.
- ★ Grants Assistance program for projects that advance BEP objectives.
- ★ Global Cooperation to develop biosafety and pathogen security standards that are consistent with na-

tional and international guidelines, norms and requirements.

The international community has been slow to work with the USG to counter bio-threats. International organizations, notably the World Health Organization (WHO)⁶ and World Organization for Animal Health (OIE)⁷ have promulgated biosafety guidelines but have hesitated to embrace obligatory biosecurity standards; the WHO (with USG financial support) plans to start regional *train-the-trainer* workshops on pathogen security. The Organization for Economic Cooperation and Development (OECD) has recently developed voluntary biosecurity guidelines for implementation in its proposed global network of Biological Resource Centers.⁸

DENIAL:

B



DETECTION

The intelligence community must be able to collect, analyze, and disseminate bioterror-relevant data. Even in the United States, such efforts are weakened by the lack of coherent authority to monitor potentially dangerous bioscience activities taking place in high-containment laboratories. According to the GAO,

[N]o one agency knows the number and location of these labs in the United States; no agency is responsible for determining the risks associated with the proliferation of these labs. . . . Without knowledge of the number and location of the BSL-3 and BSL-4 labs, some agencies' work is made more difficult. For example, the FBI has a need to know the number and location of BSL-3 and BSL-4 labs for forensic purposes. Without this information, the FBI's work is made more difficult.⁹

The weakened U.S. information gathering and analysis capabilities are nevertheless vastly superior to comparable international capabilities, which are essentially nonexistent. Multilateral security programs could more effectively enhance intelligence by building systems to track pathogens or critical equipment or to identify laboratories.

- ★ The USG works to support databases of pathogen culture collections (most notably those of the World Federation for Culture Collections¹⁰) and voluntary guidelines for these collections' operations; export controls coordinated

through the Australia Group limit and track movements of pathogens and critical equipment from AG-participating States. But there is no explicit capability to track bioviolence-relevant items globally; no census exists with regard to biological facilities; and identification of labs that do not self-declare - even labs that might have capabilities for preparing bioviolence weapons - is random.

- ★ The United Nations has mandated Interpol to establish a database of bioincidents of concern.¹¹ However, Interpol has very limited resources for such an undertaking; its database comprises only voluntarily submitted information from national central bureaus. Moreover, this database is not integrated with other information sources about pathogens or labs' locations.

DETECTION:

C-



INTERDICTION

Police, customs officials, and other law enforcers worldwide are the first and most important line of defense against bioterrorism. However, most law enforcers are untrained, ill-equipped, and lack legal authority to investigate and interdict bioterror preparations. USG policies to strengthen national legislation and promote law enforcement cooperation are beneficial but lack comprehensive, strategic approaches that receive sufficient resources. Moreover, there is inadequate coordination between law enforcement and public health, both in detecting covert preparations and in responding to attacks.

Progress began in 2004 with United Nations Security Council's adoption of Resolution 1540 (strongly backed by the United States) which requires States to prohibit the transfer of WMD materials and capabilities to non-State actors. Although the mandate of the 1540 Committee was extended in 2006, initial optimism that UNSCR 1540 would spur vigorous national measures to prevent bioviolence has not yet been met by actual progress.

★ The Interpol Program on Preventing Bio-Crimes¹² (supported by about \$1M/year from the Sloan Foundation) is the world's largest and most important program that is explicitly dedicated to improving capabilities to prevent bioterrorism.^β The USG has supported the Interpol Program: the FBI has seconded personnel and has assisted Interpol's preparation of materials, and the State Department has de-

voted \$500,000 to the Interpol BioCriminalization Project to assist developing countries to strengthen their national legislation against bioterrorism.

Under the Proliferation Security Initiative,¹³ the USG has entered into bilateral arrangements with about eighty States to cooperate in interdicting shipments of WMD materials and equipment at sea, on land, and in the air. However, PSI has focused mostly on nuclear matters. Also, the PSI is not legally binding, and its modalities for interdiction on the high seas are highly questionable under international law. Recently, Congress passed H.R. 1, expressing its sense that the President should work with the UN Security Council to develop a resolution that would authorize PSI activities, increase PSI cooperation with non-NATO partners, implement GAO recommendations for measuring program results and establishing clear lines of authority, and formalize PSI into a multilateral regime.¹⁴ The USG has worked with the International Maritime Organization to reduce uncertainties about the legality of PSI by amending the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation.¹⁵

INTERDICTION: **B-**



CONFIDENCE BUILDING

International security programs to prevent bioterrorism are interlinked with bioweapons nonproliferation programs; each depends on multilateral confidence that biodefense capabilities are not a cover for bio-offense weapons programs. Without harmonized standards for characterizing and distinguishing allowed biodefense programs to prepare against biological attacks from disallowed bio-offensive programs, the international community has become embroiled in accusations and mistrust that undermine cooperation.

- ★ The weakening of the Biological Weapons Convention (BWC) over the past six years has undermined the efficacy of multilateral security throughout this issue arena. Following the diplomatic failure of the Fifth Review Conference of the BWC in 2001, experts meetings and the Sixth Review Conference have been more congenial but have not been designed to advance meaningful initiatives.
- ★ No policies have promoted a responsible international authority that defines relevant prohibitions and responsibilities under the BWC, much less evaluates whether the treaty obligations are being fulfilled. Moreover, proposals to convert UNMOVIC from a verification unit focused exclusively on Iraq to a standing UN body reporting to the Security Council, with the authority to investigate sus-

picious of bioterror or bioweapons preparations, failed to win international support. As technology advances and new problems appear on the horizon, there is no systematic capability to anticipate what policies should be implemented before a crisis occurs. The U.S. government remains strongly opposed to the creation of a global organization to oversee and coordinate bioterrorism prevention policies.

The establishment of the Office of Biological Weapons Affairs in the State Department's Bureau of Verification, Compliance, and Implementation represents a USG commitment of attention to suspicions about noncompliant activity. This Office is authorized to strengthen abilities to attribute responsibility in the event of a biological attack and to assess compliance with the BWC; it is also engaged in consultations with allies to contain bioweapons proliferation. A notable initiative is to promote the development of new detection technologies and to assess how advances in biological science and technology affect treaty obligations.

**CONFIDENCE
BUILDING: D+**



RESILIENCE

Project BioShield¹⁶ is dedicated to reducing domestic vulnerabilities to bioterrorism (as well as natural pandemics) by acquiring and stockpiling biodefense vaccines and therapeutic drugs to protect the U.S. civilian population. Nevertheless, objections have to be raised as to the competence of key decisions under BioShield.¹⁷ Despite the program's flaws, there are scant efforts to improve development coordination of medical countermeasures internationally. Measures for harmonizing the selection of available countermeasures and developing national and international mechanisms to distribute them in an emergency have lacked comprehensive commitment, and capabilities for trans-national distribution have not been substantially enhanced.

- ★ There has been little effort to coordinate development of medical capabilities for combating infectious disease with the European Union or other scientifically advanced allies. International patent protections on newly-created medicines can impede developing nations' access to such medications. Insufficient action has been taken to eliminate these impediments.¹⁸
- ★ Domestically, there have been important efforts to develop mechanisms for the oversight of sensitive dual-use research, but international efforts to similar effect have been limited to promoting voluntary codes of conduct. Meanwhile, the European Union has taken the lead in

advocating procedures for controlling the dissemination of sensitive dual-use research, including the creation of reporting systems to facilitate safe and secure exchange of sensitive research results; and compulsory academic courses in graduate programs in the life sciences to educate researchers about the ethics of performing dual-use research.

RESILIENCE:

C-



MITIGATION

Strengthening national and international capabilities to detect and quickly respond to disease outbreaks could improve consequence management; reduce vulnerabilities for bioterrorists to achieve their objectives; and promote global cooperation on biothreat reduction policies. The USG is the largest and most active contributor to global public health. Yet planning to improve global cooperation among multiple sectors - health, law enforcement, environment, agriculture protection, and military - has developed slowly. Questions persist as to the adequacy of resources for multilateral initiatives to strengthen food defense, promote cross-border cooperation and training, and develop rapid communications strategies and capabilities.¹⁹

Moreover, planning for responding to a bioattack has been viewed as essentially similar to responding to a natural disease outbreak. Insufficient attention has been devoted to multi-dimensional threats, e.g., bioterrorists taking advantage of a natural outbreak, intentionally disrupting response efforts to an initial natural or terror attack, or conducting repeated attacks that profoundly strain the allocation of response resources (“re-load”).

- ★ Formation of the Global Health Security Action Group (GHSAG)²⁰ by the health ministers of the G-7 countries and Mexico has been a positive development. The GHSAG has recommended that WHO and other international organizations

improve their ability to collect and share data about outbreaks to facilitate coordinated responses. Among member states, the GHSAG is promoting modalities for exchanging information about disease outbreaks, including common epidemiological terminology, to facilitate communication and enable coordinated responses. The GHSAG has undertaken exercises to highlight the need for more effective coordination and preparedness for bio-emergencies:

- ★ According to the GAO,²¹ the USG obligated about \$84 million in fiscal years 2004 - 06 for five key programs to develop surveillance and detection capacities for infectious diseases abroad.
- ★ *Global Disease Detection (GDD)*. CDC obligated \$31 million for capacity-building activities, establishing GDD Centers in China, Egypt, Guatemala, Kenya, and Thailand.
- ★ *Field Epidemiology Training Programs (FETPs)*. CDC and USAID obligated approximately \$19 million to collaboratively support FETPs in 24 countries; 351 epidemiologists and laboratorians were trained in infectious disease surveillance.
- ★ *Integrated Disease Surveillance and Response (IDSR)*. USAID obligated \$12 million to support CDC to design and implement strategies to integrate countries’ existing disease surveillance-response systems with laboratory confirmation and other data to public health activities. The CDC works with WHO’s Regional Office for Africa (WHO/AFRO) in 46 African countries, providing technical assistance to 8 countries.
- ★ *Global Emerging Infections Surveillance and Response System (GEIS)*. For 2005-2006, DOD obligated \$8 million through

GEIS for more than 60 infectious disease surveillance projects in 32 countries in order to build capacity for protecting military health and readiness.

- ★ *USAID's Bureau for Global Health and USAID missions* obligated about \$14 million to build infectious disease surveillance capacity.

MITIGATION: B



SYSTEMIC CONSIDERATIONS

Over all these programmatic considerations, it is important to consider both relative levels of funding as well as inter-agency coordination. However, there is no clearly delineated set of policies explicitly devoted to international reduction of bioviolence dangers which complicates analysis of funding levels and testifies to the lack of inter-agency coordination.

Funding

Following the 2001 anthrax attacks, biothreat-related funding increased dramatically - over 500% from 2001 to 2005; altogether since 2001, the U.S. government has spent or allocated over \$40 billion among 11 federal departments and agencies to address the threat of biological weapons. Per year funding has remained roughly steady since 2005. U.S. funding for biothreat-related activities focuses primarily on domestic research, development, and acquisition of medical countermeasures and protective equipment, enhancing medical surveillance and environmental detection of biological weapons agents, and improving state, local, and hospital preparedness. The share of this funding devoted cumulatively for efforts to prevent the development, acquisition, and use of biological weapons has increased more slowly -- only threefold since 2001. In FY 2008, spending on prevention represents

less than 2% of the total biothreat-related funding.²²

Lack of strong coordination within the United States Government

All of the policies described above are weaker than they should be because of the absence of strong coordination within the USG. Even policies that have been pursued aggressively are managed at a bureaucratic level that is too low to be conducive to strategic focus. Within the State Department, five offices with responsibilities for bioweapons issues are located in three separate bureaus that report to two separate Undersecretaries. No senior official below the Secretary of State is responsible for addressing the challenge of how international security regimes can be strengthened to prevent biothreats. Many experts believe that as among State, FBI, DoD, DHS, DoE, HHS, and Intelligence, there are even greater coordination breakdowns that impede benefits from systemic cooperation and consolidation.

RECOMMENDATIONS

Denying Access

1: Pursue multilateral efforts to develop global biosecurity standards, mandatory national registries of certain pathogens and laboratories that handle or store such pathogens, and an international trade monitoring system for transfers of relevant pathogens, materials and equipment.

Improving Interdiction

2: Pursue multilateral efforts to strengthen national and international biocriminal legislation and police capabilities for prevention, response and punishment, including forensic capabilities and training on detection and analysis of potential bioweapons activities.

Building Confidence

3: Take the lead in negotiating transparency and confidence-building measures to promote nonproliferation and compliance with the Biological Weapons Convention (BWC).

Ensuring Detection

4: Promote enhanced detection capabilities through cooperative infectious disease surveillance, epidemiological and laboratory investigation and analysis, rapid information sharing among relevant response constituencies, and effective and safe delivery of counter-measures.

Hardening Resilience

5: Advocate designation of a global authority to coordinate programs, assess trends and anticipate implications of advancing life sciences, and promote capacity-building and international cooperation for reducing biothreats.

Coordinating Mitigation

6: An official should be designated, in either the NSC (perhaps the newly established Coordinator for WMD Proliferation and Terrorism) or the Department of State, with coordination responsibility for all policies to reduce international biothreats. Such official should undertake a prompt review of major policies in this arena to assess priorities, identify significant gaps, and enable synergies.



NOTES

Table of Abbreviations

AG	Australia Group
BEP	Biosecurity Engagement Program
BSL	Biosafety level
BWC	Biological Weapons Convention
BWC-ISU	Biological Weapons Convention-Implementation Support Unit
CDC	Center for Disease Control
CTR	Cooperative Threat Reduction
DHS	Department of Homeland Security
DoD	Department of Defense
DoE	Department of Energy
FAO	Food and Agricultural Organization of the United Nations
FETP	Field Epidemiology Training Program
GEIS	Global Emerging Infections Surveillance and Response System
GAO	Government Accountability Office
GDD	Global Disease Detection
GHSAG	Global Health Security Action Group
HHS	Health and Human Services
IDSR	Integrated Disease Surveillance and Response
OIE	World Organization for Animal Health
OECD	Organization for Economic Cooperation and Development
UN-ODA	United Nations Office for Disarmament Affairs
OPCW	Organization for the Prohibition of Chemical Weapons
PSI	Proliferation Security Initiative
UNMOVIC	United Nations Monitoring Verification and Inspection Commission
UNODC	United Nations Office on Drugs and Crime
UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
WFCC	World Federation of Culture Collections
WCO	World Customs Organization
WHO	World Health Organization
WIPO	World Intellectual Property Organization

^α For an analysis of biothreats, see Ch. 1 of **Barry Kellman,**

BIOVIOLENCE – Preventing Biological Terror and Crime.

¹ See <http://www.dtra.mil/oe/ctr/programs/>

² The appropriations are contained in the National Defense Authorization Act for Fiscal Year 2008, currently in committee.

³ **Isabelle Williams,**

ANALYSIS OF THE U.S DEPARTMENT OF DEFENSE'S FISCAL YEAR 2008 COOPERATIVE THREAT REDUCTION BUDGET REQUEST Partnership for Global Security, Mar. 2007 at 1, available at <<http://www.partnershipforglobalsecurity.org/Publications/Congress%20and%20Budget/Federal%20Budget%20and%20Congressional%20Updates/index.asp>>

⁴ **Isabelle Williams,**

PRELIMINARY ANALYSIS OF THE U.S STATE DEPARTMENT'S FISCAL YEAR 2008 BUDGET REQUEST FOR GLOBAL WMD THREAT REDUCTION PROGRAMS Partnership for Global Security, April 2007 at 1, available at <<http://www.partnershipforglobalsecurity.org/Publications/Congress%20and%20Budget/Federal%20Budget%20and%20Congressional%20Updates/index.asp>>

⁵ *Id.* at 3.

⁶ See <http://www.who.int/topics/biosafety/en/>

⁷ http://www.oie.int/eng/edito/en_edito_jun03.htm

⁸ http://www.oecd.org/document/50/0,3343,en_2649_34537_1911986_1_1_1_1,00.html

⁹ **United States Government Accountability Office,**

PRELIMINARY OBSERVATIONS ON THE OVERSIGHT OF THE PROLIFERATION OF BSL-3 AND BSL-4 LABORATORIES IN THE UNITED STATES GAO-08-108T; Oct. 2007, at 13-14.

Available at <<http://www.gao.gov/new.items/d08108t.pdf>>

¹⁰ <http://wdcn.nig.ac.jp/wfcc/>

¹¹ GA resolution 60/288 (2006)

¹² See generally

<http://www.interpol.int/Public/BioTerrorism/bioC/default.asp>

^β For purposes of full disclosure, Professor Kellman serves as Senior Advisor to the Interpol Program.

¹³ See <http://usinfo.state.gov/products/pubs/proliferation/>

¹⁴ Implementing Recommendations of the 911 Commission Act of 2007, Pub. L. No. 110-53, §§1801, 1821.

¹⁵ http://www.imo.org/Conventions/mainframe.asp?topic_id=259&doc_id=686

¹⁶ See <http://www.whitehouse.gov/infocus/bioshield/>

¹⁷ See

United States Government Accountability Office, PROJECT BIOSHIELD: ACTIONS NEEDED TO AVOID REPEATING PAST PROBLEMS WITH PROCURING NEW ANTHRAX VACCINE AND MANAGING THE STOCKPILE OF LICENSED VACCINE GAO-08-88; Oct. 2007.

Available at <<http://www.gao.gov/new.items/d0888.pdf>>

¹⁸ See

Commission of the European Communities,

GREEN PAPER ON BIOPREPAREDNESS-COM (July, 2007) 399 final.

Available at <http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0399en01.pdf>

¹⁹ "The situation internationally is even more dire. For example, the World Health Organization (WHO), which is looked to by many countries as key to their ability to respond to major biodisasters, is underfunded, understaffed, and seriously lacking in authority to fulfill such a role, with total resources approximating those of a single, middle-sized hospital in the U.S. or England."

Daniel S. Hamilton and Bradley T. Smith,

ATLANTIC STORM, EMBO Reports, vol. 7, no. 1, 2006, p. 6.).

²⁰ See

GHSAG Ministerial Statement November 2001, Ottawa, Canada at

<http://www.state.gov/g/oes/rls/or/2004/40820.htm>

²¹ **Government Accountability Office,**

GLOBAL HEALTH: U.S. AGENCIES SUPPORT PROGRAMS TO BUILD OVERSEAS CAPACITY FOR INFECTIOUS DISEASE SURVEILLANCE GAO-08-138T; Oct. 2007, at 1, 11-15.

Available at <<http://www.gao.gov/new.items/d08138t.pdf>>

²² See generally

Alan Pearson,

FEDERAL FUNDING FOR BIOLOGICAL WEAPONS PREVENTION AND DEFENSE, FISCAL YEARS 2001 TO 2008

Center for Arms Control and Non-Proliferation, 2007, at 1.

Available at <http://www.armscontrolcenter.org/policy/biochem/fy08_biodefense_funding/index.html>



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Professor Kellman's work for the past decade has focused primarily on biological terrorism. He initiated and is Special Advisor to the Interpol Program on Prevention of Bio-Crimes. He was a member of the National Academies of Sciences Committee on Research Standards and Practices to Prevent the Destructive Application of Biotechnology (2003). He works closely with the United Nations, many international and regional bodies, as well as with the United States and foreign governments. He has organized major international workshops on bioterrorism and speaks often at other conferences and symposia around the world.

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