

# THE CHALLENGE OF PROLIFERATION

A REPORT OF THE ASPEN STRATEGY GROUP



KURT M. CAMPBELL, EDITOR

JOSEPH S. NYE, JR. AND BRENT SCOWCROFT, CO-CHAIRMEN

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# THE CHALLENGE OF PROLIFERATION

**A Report from the Aspen Strategy Group**

**Kurt M. Campbell, Editor**



**Co-Chairmen**

**Joseph S. Nye, Jr.**

**Brent Scowcroft**



THE ASPEN INSTITUTE

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## PREFACE AND ACKNOWLEDGEMENTS

From July 31st to August 5th, 2004, the Aspen Strategy Group gathered to examine the *Challenge of Proliferation*. The session took place three months before the U.S. Presidential election, a factor that significantly affected the relevance and timeliness of our discussions. Twelve paper writers provided an excellent starting point for our dialogue. Their texts, informed by the proceedings in Aspen and subsequently revised, are presented in this publication. The concluding observations reflect the views of the directing staff of the Aspen Strategy Group, although they attempt to reveal some of the areas of contention and consensus in our meetings.

The Aspen Strategy Group is deeply thankful for the help and continuing support of the Aspen Institute and, in particular, for the efforts of Walter Isaacson and Amy Margerum on our behalf. In addition, we are grateful to a number of organizations whose generous assistance made this meeting and subsequent publication possible: the Ford Foundation, the Nuclear Threat Initiative, Lockheed Martin, General Electric, the Ploughshares Fund, as well as to the Friends of the Aspen Strategy Group. Christine Wing of the Ford Foundation played a crucial role in helping shape the intellectual dimension of this effort, and we wish her well in her future challenges and opportunities.

Willow Darsie, our incomparable Associate Director, provided essential leadership on every facet of ASG planning and implementation, including the preparation of this publication. We also thank Julianne Smith, who supported the summer session and helped to make our meetings a success. Christopher DeNicola, our Scowcroft Award Fellow, did a terrific job in the weeks leading up to and during our summer session. We extend our appreciation to Vinca LaFleur for her assistance with editing this monograph.

As always, the entire Aspen Strategy Group is enormously grateful for the leadership provided by our Co-Chairmen, Joseph Nye and Brent Scowcroft. Without them at the helm, the Aspen Strategy Group ideal of collective contemplation in beautiful surroundings would not be possible.

Kurt M. Campbell  
Director, Aspen Strategy Group  
Washington, D.C.  
February 2005



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## DISCUSSANTS AND GUEST EXPERTS

### CO-CHAIRMEN

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**Antony J. Blinken**, Minority Staff Director, Senate Foreign Relations Committee

**Lael Brainard**, Director, Poverty and Global Economy Initiative and New Century Chair in International Economics, The Brookings Institution

**Ashton Carter**, Co-Director, Preventive Defense Project and Ford Foundation Professor of Science & International Affairs, John F. Kennedy School of Government, Harvard University

**Joseph Cirincione**, Director for Non-Proliferation, Carnegie Endowment for International Peace

**Richard Cooper**, Professor, International Economics, Center for International Affairs, Harvard University

**Charles B. Curtis**, President and Chief Operating Officer, Nuclear Threat Initiative

**Kenneth W. Dam**, Max Pam Professor of American & Foreign Law, University of Chicago Law School

**Richard Danzig**, Nunn Prize Fellow, Center for Strategic and International Studies

**John M. Deutch**, Institute Professor of Chemistry, Massachusetts Institute of Technology

*Note: Titles and affiliations are as of the date of the meeting.*

**Thomas E. Donilon**, Executive Vice-President, Law and Policy, Fannie Mae Corporation  
**Robert J. Einhorn**, Senior Adviser, Center for Strategic and International Studies  
**Richard A. Falkenrath**, Visiting Fellow, Foreign Policy Studies, The Brookings Institution  
**Dianne Feinstein**, Senator, United States Senate  
**Michele A. Flournoy**, Senior Adviser for International Security, Center for Strategic and International Studies  
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**Robert M. Gates**, President, Texas A&M University  
**Richard N. Haass**, President, Council on Foreign Relations  
**Margaret A. Hamburg**, Vice-President for Biological Programs, Nuclear Threat Initiative  
**Jane Harman**, Member of Congress, United States House of Representatives  
**Walter Isaacson**, President and CEO, The Aspen Institute  
**Robert Joseph**, Senior Director for Non-Proliferation, National Security Council, The White House  
**Arnold Kanter**, Senior Fellow, Forum for International Policy  
**Richard Kirkland**, Vice-President, International Business Development, Lockheed Martin Corporation  
**Nicholas D. Kristof**, Columnist, New York Times  
**David A. Lipton**, Managing Director, Moore Capital Strategy Group  
**Jan Lodal**, Chairman, Lodal and Company  
**Sylvia Mathews**, Chief Operating Officer & Executive Director, Bill and Melinda Gates Foundation  
**Janne E. Nolan**, Professor, International Security, Georgetown University  
**Sam Nunn**, Co-Chairman and CEO, Nuclear Threat Initiative  
**Thomas O’Gara**, Founder, Kroll-O’Gara Company  
**Michael O’Hanlon**, Senior Fellow, Brookings Institution  
**William J. Perry**, Co-Director, Preventive Defense Project, Michael and Barbara Berberian Professor, Center for International Security & Atoms Control  
**John Podesta**, President and CEO, Center for American Progress  
**Daniel Poneman**, Principal, The Scowcroft Group  
**Samantha Ravich**, Vice President for Proliferation Studies, Long Term Strategy Project  
**Jack Reed**, Senator, United States Senate  
**Mitchell B. Reiss**, Director, Policy Planning Staff, Department of State  
**Susan Rice**, Senior Adviser, National Security Affairs, Kerry-Edwards; Senior Fellow, Foreign Policy, Governance Studies, The Brookings Institution

**Dennis B. Ross**, Counselor and Distinguished Fellow, The Washington Institute for Near East Policy

**Gary Samore**, Director of Studies and Senior Fellow, Non-Proliferation, International Institute for Strategic Studies

**David Sanger**, White House Correspondent, The New York Times

**Wendy Sherman**, Principal, The Albright Group

**Elizabeth Sherwood-Randall**, Senior Research Scholar, Center for international Security and Cooperation, Stanford University; Adjunct Senior Fellow, Council on Foreign Relations

**Smita Singh**, Special Adviser for Global Affairs, The Hewlett Foundation

**James Steinberg**, Vice President and Director, Foreign Policy Studies, The Brookings Institution

**Strobe Talbott**, President, The Brookings Institution

**Christopher A. Williams**, Partner, Johnston & Associates

**Christine Wing**, Program Officer, Peace and Security, The Ford Foundation

**Fareed Zakaria**, Editor, Newsweek International

**Philip D. Zelikow**, Executive Director, National Commission on Terrorist Attacks Upon the United States

#### **SPECIAL SPEAKERS**

**Charles E. Cook**, Publisher and Editor, The Cook Political Report, Cook & Company

**John Zogby**, President and CEO, Zogby International



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## AGENDA

**SATURDAY, JULY 31**

**Joint Aspen Strategy Group Dinner with the *Richard C. Blum Roundtable on Global Poverty***

*Hosted by Senator Dianne Feinstein and Richard Blum.*

**SUNDAY, AUGUST 1**

DAY I: THE NATURE OF THE CHALLENGE: POTENTIAL PROLIFERATORS

**Opening Comments:**

**Statement of Purpose and Comments on Overall Agenda**

*Scene Setter on “The Challenge of Proliferation:” Kurt M. Campbell, Senior Vice President, Center for Strategic and International Studies and Director, Aspen Strategy Group, former Deputy Assistant Secretary of Defense for Asia and the Pacific*

- Joseph S. Nye, Jr., Dean, John F. Kennedy School of Government, Harvard University, former Assistant Secretary of Defense for International Security Affairs
- Lt. Gen. Brent Scowcroft (USAF, ret.), President, The Scowcroft Group, former Assistant to the President for National Security Affairs

**Session I:**

**Dangerous States: North Korea, Iran and Pakistan**

*Presenter: Robert Einhorn, Senior Advisor, Center for Strategic and International Studies, former Assistant Secretary of State for Nonproliferation*

- Although North Korea, Iran, and Pakistan are each at very different stages of nuclear development and have very different politics and aspirations, they together comprise the three most dangerous states in the world when it comes to the threat of nuclear proliferation. What is the status of North Korea’s and Iran’s surreptitious nuclear programs? Is there a long-term strategy in either country associated with the acquisition of nuclear weapons? How has U.S. strategy towards each country evolved over time? How have recent developments in Iraq and Libya influenced the calculus of the leadership in Tehran and Pyongyang, respectively? How secure is Pakistan’s nuclear arsenal and infrastructure? How far did Pakistani elements go in spreading its nuclear know-how? What secretive nuclear links exist between the three? What role can the international community play in dealing with these respective nuclear challenges? What are our national options going forward?

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## Session II:

### **Terrorist Groups: The Quest for Apocalyptic Capabilities**

*Presenter: Daniel Benjamin, Senior Fellow, Center for Strategic and International Studies, former Director for Transnational Threats on the National Security Council and author of *The Age of Sacred Terror**

- The most alarming prospect in modern international relations is that a portable nuclear weapon would fall into the hands of a dangerous terrorist group with an apocalyptic global agenda and no hesitation about using it against a major metropolitan area. What is known of al Qaeda's attempts to acquire nuclear weapons or other weapons of mass destruction? What is thought to be al Qaeda's plans for storing, transporting, and using these weapons? Are there other terrorist or non-state groups that have nuclear ambitions? What have been the strategies for terrorist groups bent on nuclear acquisition to attain their goals? Have any of these groups received state support in attempting to fulfill their nuclear ambitions? How has the fraying of the former Soviet nuclear infrastructure impacted this equation? Are there further steps that can be taken – such as an acceleration of Nunn-Lugar programs – to deal with elements of this problem?

#### **Strategic Intervention**

##### **Final Report of the 9/11 Commission**

The recently completed 9/11 Commission Report provides ample evidence of continuing al Qaeda ambitions to strike the U.S. and its allies in the wake of the spectacular attacks on New York and Washington, D.C. **Philip Zelikow**, Executive Director of the 9/11 Commission and Director of the Miller Center of Public Affairs and White Burkett Miller Professor of History at the University of Virginia, will provide an account of the 9/11 Commission findings, particularly as they relate to the prospects of future attacks from Islamic fundamentalist groups. How might WMD capabilities fit into their plans?

## **Reception and Opening Dinner**

### **After-Dinner Presentation**

*Political Roundtable Presenters: Charles W. Cook, Publisher and Editor, *The Cook Political Report*; and John Zogby, President and CEO, Zogby International*

*Moderator: Kurt M. Campbell, Director, Aspen Strategy Group*

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MONDAY, AUGUST 2

DAY II: THE NATURE OF THE CHALLENGE: INTELLIGENCE CONCERNS &  
NEW WEAPONS OF CHOICE

**Session I:**

**The Intelligence Challenge: Assessing the Meaning of the New Nuclear Bazaar, the Fallout from Iraq, and the Calculus of Potential Proliferators**

*Presenters: John Deutch, Professor of Chemistry, Massachusetts Institute of Technology, former Director of Central Intelligence and Deputy Secretary of Defense; and Arnold Kanter, Senior Fellow, Forum for International Policy and former Under Secretary of State for Political Affairs and Special Assistant to the President*

- When it comes to understanding the impetus for and the status of nuclear proliferation efforts globally, the intelligence challenge is often seen as the most difficult part of the equation. In recent months there have been unsettling new insights into the global black market as a result of Libya's recent overtures to reject its past surreptitious nuclear activities and rejoin the international community, along with profound concerns about inaccuracies in U.S. intelligence assessments about what was alleged to exist inside Iraq. How have recent revelations of new nuclear pathways for the provision of forbidden nuclear technologies and capabilities impacted the overall nuclear proliferation picture? How much of this nuclear "silk road" stretching through Asia and the Middle East has been taken down in the wake of recent revelations? What has been Pakistan's role in this overall network? How serious is the continuing nuclear leakage from the states and facilities of the former Soviet Union? How robust are the existing technical and material roadblocks to nuclear proliferation? Are these hurdles to potential proliferators thought to be getting lower over time? How has our understanding of the parameters associated with proliferation advanced in recent years? What are the institutional and bureaucratic roadblocks inside the U.S. government to gaining more effective intelligence on this set of problems? What are the principal areas that require either a greater focus or a more thoroughgoing reevaluation of current practices? With the appropriate effort and focus, can we get the intelligence piece of the puzzle right?

**Strategic Intervention**

**The A.Q. Khan Network**

The father of the Pakistani nuclear program, Abdul Qadeer Khan, has been identified as the single most dangerous proliferator of technologies necessary to build a nuclear device in the history of the atomic age. **David Sanger**, White House Correspondent for the *New York Times*, has participated in an investigative effort into the underground nuclear network run by A.Q. Khan to determine what his activities mean for the proliferation of nuclear weapons to potentially dangerous states and groups. How worried should we be about these surreptitious nuclear supplier operations and how much technology, know-how, and nuclear materials (if any) were actually compromised?

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**Session II:****The Nuclear and Biological Weapons Nexus**

*Presenter: Richard Danzig, Sam Nunn Prize Fellow in International Security, Center for Strategic and International Studies, former Secretary of the Navy*

- Nuclear proliferation and the development of deadly biological pathogens often share similar aspirations but differ in other important respects. Given recent penalties (such as the invasion of Iraq and the threat of international sanctions against Iran) for even suspected surreptitious nuclear programs, have would-be proliferators in search of deadly capabilities shifted their focus more towards biological capabilities? Are biological and/or advanced chemical weapons becoming the terrorist states' or groups' new weapons of choice? Have the very real consequences associated with alleged nuclear ambitions (Iraq) driven potential proliferators to seek different kinds of capabilities, such as biological weapons? Are their similar motivations at work in the quest for either capability? How serious are the technical barriers to acquisition? What about the challenges associated with potential dissemination or weaponization of these capabilities? How dangerous are virulent strains of biological weapons to public health? What is our overall understanding of this problem and where are our gaps in understanding? What is the status of international efforts to deal with this global phenomenon?

**TUESDAY, AUGUST 3**

DAY III: THE INTERNATIONAL DIMENSION AND THE ELEMENTS OF A U.S. GRAND STRATEGY TO CONFRONT THE CHALLENGE OF PROLIFERATION

**Session I:****Do U.S. Allies and Other International Institutions Share a Common Sense of Urgency When it Comes to the Perils of Global Proliferation?**

*Presenter: Gary Samore, Director, International Institute for Strategic Studies, London, England, former Special Assistant to the President and Senior Director for Non-Proliferation and Export Controls at the National Security Council*

- The United States and much of Europe are experiencing a high degree of political alienation and difficulty agreeing upon a common vision for dealing with numerous security problems of the 21st century, including the prospective spread of weapons of mass destruction into dan-

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gerous hands. How have the U.S. and Europe worked together to stem the spread of WMD into the possession of unsavory states and groups? Do Europeans, indeed, share a similar sense of urgency when it comes to the threat posed by these technologies? Have various unilateral American approaches to security problems alienated potential allies who prefer more multilateral approaches to tackling these problems? Has the tragedy of the Madrid bombings had any impact on European assessments of vulnerabilities when it comes to potentially even more spectacular forms of terrorism? What might be done to effectively bridge existing gaps in perception and action between Europe and the United States when it comes to the challenge of proliferation?

### **Strategic Intervention**

#### **Europe's Efforts and Anxieties**

The Nuclear Threat Initiative and the Center for Strategic and International Studies recently sponsored a major simulation in Europe to consider the potential effects of a nuclear weapon detonated at NATO headquarters by al Qaeda. Project *Black Dawn* brought together a high-level group of European policy makers to consider what steps should be taken to prevent the dangerous nuclear materials from falling into unsavory hands in the first place. **Michèle Flournoy**, Senior Adviser in the International Security Program at CSIS and former Principal Deputy Assistant Secretary of Defense for Strategy and Threat Reduction and Deputy Assistant Secretary of Defense for Strategy will present the major findings of this important interaction with our European allies. In the wake of the Madrid bombings, is there a new sense of urgency surrounding the threat of a WMD attack in Europe?

### **Session II:**

#### **Nuclear Second Thoughts? States that Might Reconsider their Options**

*Presenters: Mitchell Reiss, Director of Policy Planning, Department of State, former Dean of International Affairs, College of William and Mary; and Kurt M. Campbell, Center for Strategic and International Studies and Director, Aspen Strategy Group*

- Most of the focus on nonproliferation has been addressed towards the most likely proliferators (North Korea, Iran and Pakistan among them) while perhaps too little attention has been given to states that have either chosen to forgo nuclear status in the past or have relinquished their nuclear inheritance. Which countries might reconsider their options in the realm of nuclear capabilities (Japan, Ukraine, Saudi Arabia, Taiwan, South Korea, etc.)? What set of domestic, regional, and international factors could conceivably drive a country to have nuclear second thoughts? Are we approaching a “nuclear tipping point” when it comes to new nuclear proliferation in the international arena? Have disincentives for nuclear acquisition eroded over time and if so, what can be done to strengthen a global nuclear taboo? What can be done to deal with the overall potential problem of nuclear reconsideration?

### **Session III:**

#### **Nuclear Proliferation and the Cases of India, China, and Russia**

*Presenter: Samantha Ravich, Vice President for Proliferation Studies, Long Term Strategy Project, former Special Advisor for National Security Affairs to Vice President Richard B. Cheney*

- Efforts to stem the flow of nuclear materials and know-how to new states and dangerous groups will require the best efforts of the U.S. and Western Europe without question, but it will increas-

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ingly depend upon the cooperation of India, China, and Russia. Indeed, India, China and Russia individually and collectively could play decisive roles in the future success or failure of global non-proliferation efforts. Having each had periods of indifference in the past when it comes to the challenge of nuclear proliferation, what role will these nuclear states play in the future of proliferation? What are the prospects for each or all of them to play a more active role in international nonproliferation efforts, both formal and informal? What would it take to get more active assistance in this regard? How do their own nuclear ambitions play into this complex equation? Do their own nuclear plans spur incentives for others to proliferate? Can the Nunn-Lugar model be of any relevance to other situations involving the prospect of nuclear leakage? Is there any prospect for multilateral arrangements between these and other states designed to more forcefully address the proliferation problem? How should the U.S. deal with India, China, and Russia when it comes to nuclear proliferation challenges?

## ASPEN STRATEGY GROUP 2004 LEADERSHIP AWARD DINNER

Hosted by Michael Goldberg

*Award Recipients:*

*John Deutch, 2004 Aspen Strategy Group Leadership Award*

*Paul Doty, Special Recognition for His Role in the Founding of the Aspen Strategy Group*

WEDNESDAY, AUGUST 4

DAY IV: EFFORTS TO CONFRONT PROLIFERATION:  
A STATUS REPORT AND NET ASSESSMENT

**Session I:**

**How Can Traditional Arms Control Efforts Deal with These New Nuclear Challenges?**

*Presenter: Janne Nolan, Professor of International Affairs, Georgetown University, author of Guardians of the Arsenal: The Politics of Nuclear Strategy, editor of Ultimate Security: Combatting Weapons of Mass Destruction and former Director of International Programs at the Eisenhower Institute and Foreign Policy Director at the Century Foundation*

- In the past, the United States and the international community sought to stem the flow of nuclear know-how and materials to non-nuclear states through a negotiated and consensual arms control regime, but the new threats of proliferation from rogue states and dangerous groups has spurred deep reflection about the purposes and viability of traditional arms control approaches. Can traditional arms control be saved and made relevant to the urgent challenges of modern proliferation? Can the Non-Proliferation Treaty be modified or extended to better address the problems of nuclear proliferation? Has the NPT actually helped delay or deny the spread of dangerous nuclear technologies? Are other existing arms control regimes relevant to addressing the threat of proliferation? What new international negotia-

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tions or frameworks could conceivably deal with emerging nuclear threats? Do organizations like the IAEA have the appropriate mandate, staffing, and capabilities to deal with the urgencies posed by proliferation? Are there new steps that could be taken to advance cooperation between the U.S. and its international allies to confront new proliferation challenges? Has the era of long standing (and long running) negotiations to limit the appeal and availability of nuclear capabilities come to an end given the urgency of the problems in the nuclear realm facing the U.S. and the international community?

#### **Strategic Intervention**

##### **The Future of Arms Control**

The Brookings Institution has recently completed a major effort to consider the intellectual framework necessary to develop greater international cooperation to confront the spread of nuclear weapons. **Michael O'Hanlon**, Senior Fellow in Foreign Policy Studies at the Brookings Institution, will present the key findings of the recent Brookings publication, *The Future of Arms Control*, co-authored with Michael Levi.

### **Session II:**

#### **The Elements of a Counter-Proliferation Strategy**

*Presenter: Robert Joseph, Special Assistant to the President and Senior Director, Proliferation Strategy, Counter-Proliferation, and Homeland Security, and former Professor of National Security Studies and Director of the Center for Counter-Proliferation Research at the National Defense University*

- There has been much commentary about a heightened U.S. focus on counter-proliferation efforts to deal with the challenge posed by the potential spread of weapons of mass destruction. Some of these proposed military options and unilateral steps have stirred anxiety that these very efforts are limited in their potential applications and can serve to undermine other international efforts to deal with the problem. What have been the key features of a counter-proliferation strategy to deal with surreptitious efforts to acquire nuclear weapons? What are the lessons of Iraq in this regard? Are these prospective steps relevant for potential challengers in places such as North Korea and Iran? Is it feasible for the Proliferation Security Initiative to be more broadly adopted by the international community and anchored more securely in international law? Are there other prospects for broadening national counter-proliferation efforts into a larger international framework? Are there new military or intelligence capabilities that should be developed to better implement an effective counter-proliferation strategy? Have the theory and application of counter-proliferation strategies alienated our friends and allies? Can non-proliferation and counter-proliferation strategy and tactics effectively coexist?

### **Session III:**

#### **Homeland Security and Consequence Management**

*Presenter: Richard Falkenrath, Visiting Fellow, Foreign Policy Studies, The Brookings Institution, former Deputy to the President for Homeland Security Affairs, The White House, former Assistant Professor of Public Policy, John F. Kennedy School of Government, Harvard University*

- The horrors of 9/11 have helped focus the imagination about the prospects for and consequences of the use of a weapon of mass destruction on American soil. How prepared is the United States to intercept a WMD capability being smuggled into the U.S.? How many and what kinds of resources have been devoted in recent years to this challenge? What are the technical barriers – and potential innovations – associated with detecting WMD capabilities targeted for the U.S.? How prepared is the U.S. at the federal, state, and local level to deal with a catastrophic use of a weapon of mass destruction? How much more prepared is the U.S. for such an eventuality since the tragic events of 9/11 and the subsequent anthrax attacks? Have there been advances in our understanding of how to conduct consequence management operations in the wake of a weapon of mass destruction? What are the organizational implications for the U.S. government when it comes to both detecting the transshipment of dangerous materials and for dealing with consequence management in the unfortunate event of their use inside American borders? What more needs to be done in this entire area to advance American readiness to deal with such an attack in the future?

**9/11 Report Briefing Lunch:** *Presentation by Philip Zelikow, Executive Director of the National Commission on Terrorist Attacks Upon the United States*

**THURSDAY, AUGUST 5**

**DAY V: POLICY PRESCRIPTIONS AND WRAP UP**

**Session I:**

**The Essential Features of a Focused Strategy to Deal with the Proliferation Challenge: What Has Been Done and What Is to Be Done**

*Presenter: Ashton Carter, Ford Foundation Professor of Science and International Affairs, John F. Kennedy School of Government, Harvard University, former Assistant Secretary of Defense for International Security Policy and Chair of NATO's High Level Group*

- There is now a virtual unanimity among strategists that the nexus between nuclear technologies, rogue states, and dangerous groups poses the single greatest threat to America's security in a new century. Questions remain, however, as to whether the U.S. has done enough to set its priorities, devote the appropriate resources, and charge the necessary institutions (both domestic and international) with a mission to diminish the risks of a catastrophic use of a weapon of mass destruction against

**Strategic Intervention**

**Universal Compliance**

The Carnegie Endowment for International Peace has recently completed an extraordinarily detailed gameplan for dealing with the spread of weapons of mass destruction. **Joseph Cirincione**, Senior Associate and Director for Non-Proliferation, will discuss this major Carnegie initiative he co-authored, *Universal Compliance: A Strategy for Nuclear Security*, and the new steps the U.S. and its allies must take to confront this increasingly urgent threat to its collective national security.

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the U.S. or one of its allies. What is the appropriate intellectual framework for thinking about dealing with this problem? Will this challenge grow or diminish over time? Where are new resources necessary? Where should our existing efforts be redirected towards other missions? What role does intelligence play in this overall equation? What about the nexus between international efforts and steps taken at home to enhance homeland security? What is the appropriate mix of traditional arms control and international regime approaches to arms control and more aggressive counter-proliferation efforts to confronting the problem? Are there avenues here for bipartisan cooperation to come together around a shared vision both about the nature of the problem and the way ahead?

**Strategic Intervention**

**The Ultimate Preventable Catastrophe**

**Graham Allison**, Douglas Dillon Professor of Government and Director of the Belfer Center for Science and International Affairs at Harvard University and former Assistant Secretary of Defense for Policy and Plans, has spent the last several years developing a game plan for dealing with the problem of nuclear proliferation. He will present his point plan for drastically reducing the threat of nuclear proliferation as discussed in his recent book, *Nuclear Terrorism: the Ultimate Preventable Catastrophe*.

**Session II:**

**Conclusion and Wrap Up: Review and Next Steps**

- Joseph S. Nye, Jr., John F. Kennedy School of Government, Harvard University
- Lt. Gen. Brent Scowcroft (USAF, ret.), The Scowcroft Group
- Kurt M. Campbell, Center for Strategic and International Studies and Aspen Strategy Group



WORKSHOP SCENE SETTER  
AND DISCUSSION GUIDE

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# THE CHALLENGE OF PROLIFERATION

KURT M. CAMPBELL

SENIOR VICE PRESIDENT, HENRY A. KISSINGER CHAIR, AND  
DIRECTOR OF INTERNATIONAL SECURITY PROGRAM,  
CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES  
DIRECTOR, ASPEN STRATEGY GROUP



## DAY I

*A fundamentalist terrorist group hijacks nuclear materials from a Soviet-era military facility and recruits a shadowy cohort of disgruntled scientists to construct a crude 10-kiloton nuclear device. The weapon is smuggled into the United States inside a cargo palette overlooked by harried Customs officials. Cell members transport the weapon by truck to a warehouse several blocks from the White House in Washington, D.C. After arming the weapon, the cell members scatter. One young militant remains behind. He says his prayers. Without hesitation, he connects the fuse to detonate the bomb ...*

Variations on this harrowing scenario have inspired innumerable novels, movie scripts, war games and, increasingly, policy deliberations in the post-9/11 security environment. Indeed, the threat of nuclear proliferation is emerging as the central organizing tenet in American foreign and security policy since the onset of the so-called war on terrorism. Concerns about nuclear proliferation among rogue states and terrorist groups have largely driven recent innovations in U.S. security strategy in a post Cold War world, such as the extension of Nunn-Lugar style programs to corral un-safeguarded nuclear materials from the former Soviet empire, a refocusing of U.S. intelligence gathering and assessment efforts, the creation of a homeland security infrastructure to deal with the consequence management associated with a successful terrorist attack, and a new emphasis on pre-emption and preventive war.

Nonetheless, concerns persist that we have not done enough or have chosen the wrong course for dealing effectively with the threat of nuclear proliferation. This Aspen Strategy Group (ASG) inquiry assesses our overall approach to stopping, slowing, or where possible reversing proliferation threats; evaluates the current overall effectiveness of these policies; and makes recommendations for new directions in U.S. strategy where required.

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**Indeed, the threat of nuclear proliferation is emerging as the central organizing tenet in American foreign and security policy since the onset of the so-called war on terrorism.**

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Nuclear terrorism represents a paradox in the little shop of potential domestic horrors. It would be the great equalizer in any asymmetric war against the United States. Many respected observers believe that it is only a matter of time before a radioactive ruin appears where an American city once stood. And yet, there is also a near universal consensus that much more can be done to decrease the likelihood of such a cataclysmic nuclear event. One of the most important purposes of this summer's ASG workshop is to explore why, if nuclear terrorism represents the most pressing challenge for the United States in a protracted war on terrorism, more has not been done to address it. We hope to have left Aspen with an emerging consensus over the most important elements of a better-honed national agenda to prevent an inevitable nuclear nightmare on U.S. soil.

In many respects, this session takes us back to the Aspen Strategy Group's original inspiration. The group was formed in the early eighties to deal with pressing nuclear dangers and to help bridge a bitterly divided expert foreign policy community. Two decades ago, however, the threat came from nuclear-tipped Soviet ballistic missiles, and the political challenge was to fashion a bipartisan consensus around the necessary steps for preserving a robust deterrence. Today, the threat is very different, but in many ways the challenges are more diffuse and vexing.

The collapse of Soviet communism was the greatest advance for the cause of freedom in the late 20th century, but the proverbial nuclear fallout from the fission of the Soviet state now represents one of the most pressing security challenges of the early 21st century. Stateless groups present a worrisome new dynamic, rendering approaches such as deterrence and retaliation largely irrelevant. Debates swirl not over basing options for the MX missile or the theological parameters of extended deterrence but rather around more fundamental questions concerning the likely sources of proliferation, the most effective means of combating the problems, the odds of our ultimate success, and the potential consequences of failure.

Current political divisions are reminiscent of the era surrounding the collapse of *détente*, with a highly charged national debate around foreign policy issues generally (with some of the more animated and consequential feuds occurring inside the parties rather than between them). There has been remarkable political consensus, however, among most Republicans and Democrats about the nature and urgency of the threat to U.S. security from nuclear proliferation. Most agree that combating terrorists' use of weapons of mass destruction (WMD) needs to be the organizing paradigm for U.S. national security strategy in the post-9/11 world. Disputes arise over where to devote national resources and attention: Should we go after the likely perpetrators of apocalyptic terrorism through military action, or is it more cost-efficient and -effective to focus on securing un-safeguarded nuclear materials and know-how? Is it better to act quickly and if necessary alone, or should we work on building stronger international regimes to prevent further nuclear proliferation?

The policy wonk in all of us will wish to fill in the blank labeled "all of the above." But there is limited money and personnel (including senior level time and attention) to devote to this problem, and following one path can sometimes effectively rule out concurrently taking another.

The Bush administration has advanced a persuasive intellectual framework for understanding the challenge, recognizing both that the coincidence between rogue states, terrorist groups, and nuclear materials represents the most urgent threat to American security, and also that deterrence is not applicable for dealing with many of the proliferation threats we face. The Proliferation Security Initiative (PSI) represents a bold new departure in U.S. efforts to deal with the problem of nuclear proliferation, and the logic behind the effort is slowly but surely winding its way through the international community. Yet, questions persist over whether other recent U.S. policy choices

in Iraq, Iran, and North Korea, decisions on resourcing critical homeland security missions, and attitudes toward international non-proliferation institutions have effectively advanced (or in some cases impeded) our ultimate policy objectives.

The nuclear proliferation conundrum we currently confront is markedly different from the nightmare world of scores of nuclear-armed states that President John F. Kennedy envisioned half a century ago. Nuclear proliferation then was thought to be a problem associated with nation-states rather than transnational groups. No one in the 1960s could imagine a time when the fraying Soviet-era nuclear complex – rather than Soviet warheads atop missiles – would top international security concerns. The 1968 Treaty on the Non-Proliferation of Nuclear Weapons, popularly known as the Non-Proliferation Treaty (NPT), helped diminish the incentives for global proliferation and prevented the avalanche of new nuclear states that many had feared. Indeed, until India and Pakistan tested nuclear devices within weeks of one another in 1998, the most significant developments in the proliferation world were the successful “rollback” of nuclear programs and arsenals in Ukraine, Kazakhstan, and South Africa.

Recent revelations relating to nuclear proliferation activities are in many respects profoundly disquieting. Iran and North Korea, two of the three founding members of the so-called “axis of evil,” appear to have intensified their efforts to either build or accumulate nuclear weapons without much international censure or consequence. Indeed, for all practical purposes, North Korea is now an unacknowledged nuclear weapons state. The “slam dunk” of suspected WMD activities inside Iraq has not materialized, raising very real concerns about the overall effectiveness of U.S. intelligence capabilities to meet these new threats. The shocking reports of A. Q. Khan’s underground nuclear bazaar have shed light on a much more robust and shadowy network of nuclear suppliers throughout Europe, the Middle East, and Southeast Asia. Khan’s global network also implies a broader interest in nuclear weapons than we had previously believed, perhaps extending to close U.S. allies and friends in the Middle East and elsewhere.

More generally, questions have emerged in some quarters about the overall direction of U.S. policy as it relates to proliferation, ranging from American plans to develop a “usable” generation of nuclear weapons to the United States’ widely perceived dismissive attitude toward global arms control regimes to worries about the potential unintended consequences of the Iraq war (including misdirected attention and resources). The National Commission on Terrorist Attacks Upon the United States also revealed a breathtaking national level of unpreparedness for dealing with the consequences of cataclysmic domestic terrorism.

Yet there has been some good news too. Libya’s decision to both publicly reveal and abandon its nuclear ambitions has provided a kind of roadmap for other states that might contemplate a similar nuclear epiphany and renunciation. Several states have signed up to support the PSI, and the G8’s Global Partnership Against the Spread of Weapons and Materials of Mass Destruction has committed to raise greater funding (with a target goal of \$20 billion) to further address the problem of loose nuclear materials and expertise on the vast territory of the former Soviet Union and Eastern bloc nations.

The Bush administration’s most recent budget request for the Department of Energy calls for \$1.35 billion for the Defense Nuclear Nonproliferation Program to secure 600 metric tons of weapons-usable material in Russia. But the challenges are daunting. There are still hundreds of unsecured nuclear sites, tons of nuclear materials, thousands of underemployed engineers capable of building a perfectly respectable nuclear device given the right ingredients, and a desperate cadre of ruthless actors intent on

acquiring the nuclear wherewithal to build a weapon of tremendous destructiveness. You do the math.

We have chosen to organize our inquiry along these general lines: In our initial session, we explore the nature of the threat from dangerous states and terrorist groups. On the second day, we look at the new urgencies in the realm of intelligence, and the complex nexus between nuclear ambitions on the one hand and chemical/biological intentions on the other. On day three, we examine whether our European allies share a similar sense of urgency when it comes to the threat of proliferation. We also discuss signs that the non-proliferation regime is fraying, and explore whether formerly or currently non-nuclear states are reconsidering their earlier decisions to forsake nuclear weapons. Finally, we consider how the actions and attitudes of Russia, China, and India will influence global proliferation trends now and into the future.

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**Where do we need to fundamentally change course if we are to prevail in this new era of strategic anxieties?**

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Our penultimate session looks at the relevance of traditional arms control approaches to dealing with the proliferation challenge; this will be followed by a discussion of how counter-proliferation efforts might and should be employed to address gathering proliferation threats. Our fourth day concludes with a dialogue about the status of homeland security efforts as they

relate to dealing with the consequences of a nuclear event on the territory of the United States. Our last day at Aspen is devoted to weaving the preceding discussions into specific recommendations for policy makers grappling with the challenges of proliferation. What is the United States doing well? Where is the answer “do more of the same,” and where do we need to fundamentally change course if we are to prevail in this new era of strategic anxieties?

We have asked several distinguished commentators to help launch our discussions by preparing papers that articulate the major issues of concern and contention in each subject area. We have also asked several participants to provide “strategic interventions” on specific topics throughout the week. These interventions are intended to explore in greater detail a key feature or new publication in the proliferation realm that help us appreciate important efforts underway and cope with or understand the magnitude of the challenge we face.

Below are some of the questions and issues we explore in each of our five sessions.

## DAY ONE

### *Proliferation Threats from States*

Although North Korea, Iran, and Pakistan are each at very different stages of nuclear development and have very different politics and aspirations, together they comprise the three most dangerous states in the world when it comes to threat of nuclear proliferation.

- What is the status of North Korea’s and Iran’s surreptitious nuclear programs?
- Does either country have a long-term strategy associated with the acquisition of nuclear weapons?
- How has U.S. strategy toward each country evolved?
- How have recent developments in Iraq and Libya influenced the calculus of the leadership in Tehran and Pyongyang?

- How secure is Pakistan's nuclear arsenal and infrastructure?
- How far did Pakistani elements go in spreading nuclear know-how?
- What would be the consequences of a North Korea with a nuclear arsenal approaching 10 weapons and no intention of giving them up?
- What surreptitious nuclear links exist among the three countries?
- What is the international community's role in dealing with these nuclear challenges?
- What are U.S. options going forward?

### ***Threats from Dangerous Groups***

The most alarming prospect in modern international relations is that a portable nuclear weapon would fall into the hands of a terrorist group with an apocalyptic global agenda. We have known for nearly a decade of al Qaeda's interest in acquiring any and all forms of WMD and have appreciated, at least since September 11, 2001, that this is an organization (or amalgam of like-minded groups) with the ruthlessness, capacity and audacity to think seriously about undertaking nuclear terrorism.

- What is known of al Qaeda's attempts to acquire nuclear weapons or other WMD?
- What are al Qaeda's plans for using these weapons?
- Are there other terrorist or non-state groups with nuclear ambitions?
- What impact has the fraying of the former Soviet nuclear infrastructure had on this equation?
- How good is our understanding of the threat we face from non-state actors in the nuclear realm?
- Are there further steps that can be taken – such as an acceleration of Nunn-Lugar programs – to deal with this problem?

## **DAY TWO**

### ***The Intelligence Challenge***

The effective implementation of policy options – ranging from preemptive measures to verification regimes – rests on reliable intelligence capabilities. Yet, in recent months unsettling new insights into the global black market have come to light as a result of Libya's recent efforts to rejoin the international community, along with profound concerns about inaccuracies in U.S. intelligence assessments of Iraq's WMD. "Fixing" the intelligence community has been a perennial focus of institutional architects since the end of the Cold War, but there is currently a growing recognition that urgent remedies are in order to better enable us to grapple with the daunting intelligence challenges associated with global proliferation.

- How have recent revelations of new nuclear pathways for the provision of forbidden nuclear technologies and capabilities changed the overall nuclear proliferation picture?
- How much of this nuclear "silk road" stretching through Asia and the Middle East has been taken down in the wake of recent revelations?
- What has been Pakistan's role in this overall network?

- How serious is the continuing nuclear leakage from the states and facilities of the former Soviet Union?
- How robust are the existing technical and material roadblocks to nuclear proliferation?
- Are the hurdles to potential proliferators getting lower?
- How has our understanding of the parameters associated with proliferation advanced in recent years?
- What are the principal areas that require either a greater focus or a more thoroughgoing reevaluation of current practices?
- With the appropriate effort and focus, can we get the intelligence right?
- What are the most important institutional innovations for the intelligence community to better prepare us to deal with these problems?

### ***The Nuclear and Biological Weapons Nexus***

There is little systemic examination of the logic associated with proliferation choices. For instance, given the recent penalties for even suspected surreptitious nuclear programs (such as the invasion of Iraq and the threat of international sanctions against Iran), have would-be proliferators in search of deadly capabilities shifted their focus toward biological and/or advanced chemical weapons?

- How serious are the technical barriers to acquisition? Specifically, is it much easier to envisage dangerous states or groups developing and using deadly toxins against an urban target than their developing and using a nuclear weapon?
- What about the challenges associated with potential dissemination or weaponization of these capabilities?
- How dangerous are virulent strains of biological weapons to public health?
- What is our overall understanding of this problem, and where are our gaps in understanding?
- What are the factors that affect the abilities of terrorists to develop, proliferate, or use biological weapons?
- What is the status of international efforts to deal with this global phenomenon?

## **DAY THREE**

### ***Do U.S. Allies and Other International Institutions Share a Common Sense of Urgency When it Comes to the Perils of Global Proliferation?***

The United States and much of Europe are experiencing a high degree of difficulty agreeing on a common vision for dealing with the security problems of the 21st century, including the prospective spread of WMD to dangerous hands. While the United States made the prevention of a nuclear Iraq a pre-war rationale, many Europeans do not seem to share the same sense of urgency when it comes to the potential threat of nuclear terrorism and proliferation. What are the prospects for greater transatlantic collaboration to confront this common threat?

- How have the U.S. and Europe worked together to stem the spread of WMD into the possession of unsavory states and groups?
- Where have we failed to work collaboratively or with an appropriate sense of mission?
- How wide is the gap in European and American threat assessments?
- Have various unilateral American approaches to security problems alienated potential allies who prefer more multilateral approaches to tackling these problems?
- Do organizations like the International Atomic Energy Agency (IAEA) have the appropriate mandate, staffing, capabilities, and funding to deal with the urgencies posed by proliferation?
- Are there steps that could be taken to advance cooperation between the United States and its international allies to confront new proliferation challenges?
- Are new forums or institutions needed to foster greater transatlantic cooperation in this area?

### ***Uncertainties about the Intentions of Some in the Non-Nuclear Club***

With most of the focus on non-proliferation addressed toward the most likely sources of proliferation, too little attention has been given to states that have either chosen to forgo nuclear status in the past or relinquished a nuclear inheritance. New international conditions could trigger a nuclear tipping point whereby states that for decades abided by non-nuclear policies would be tempted to reconsider their choices. What combination of factors might spur a new nuclear age coming from formerly non-nuclear states?

- Going forward, which countries might reconsider their nuclear capabilities options (e.g., Japan, Ukraine, Saudi Arabia, Taiwan, Egypt, Syria, South Korea, etc.)?
- What set of domestic, regional, and international factors could conceivably drive a country to have nuclear second thoughts?
- Are we approaching a nuclear tipping point when it comes to new nuclear proliferation in the international arena?
- Have disincentives for nuclear acquisition eroded over time and if so, what can be done to strengthen a global nuclear taboo?
- What can be done to deal with the overall prospective problem of nuclear reconsideration?
- Are there specific steps for the United States that would help in this regard?

### ***Nuclear Proliferation and the Cases of India, China and Russia***

Stemming the flow of nuclear materials and know-how to new states and dangerous groups will without question require the best efforts of the U.S and Western Europe, but it will depend also upon the cooperation of India, China, and Russia. The global non-proliferation regime (or nuclear taboo) rests on the activities and policies of leading states in the international arena, and defections or non-participation in this regard can have pernicious effects.

- Having each had periods of indifference in the past, what role will each of these nuclear states play in proliferation's future?
- What are the prospects for each or all of them to play a more active role in international non-proliferation efforts, both formal and informal?

- What would it take to get more active assistance in this regard?
- How do their own nuclear ambitions play into this complex equation?
- Do their own nuclear plans spur incentives for others to proliferate?
- Can the Nunn-Lugar model be of any relevance to other situations involving the prospect of nuclear leakage? How should the United States deal with India, China, and Russia when it comes to nuclear proliferation challenges?

## DAY FOUR

### *The Role of Traditional Arms Control in Efforts to Deal with New Nuclear Challenges*

In the past, the United States and the international community sought to stem the flow of nuclear know-how and materials to non-nuclear states through a negotiated and consensual arms control regime, but the new threats of proliferation from rogue states and dangerous groups have spurred deep reflection about the purposes and viability of traditional arms control approaches. These new challenges test traditional conceptions of arms control, and there is substantial debate over how new international arrangements – along with long-standing regimes such as the NPT – can and should be constructed (or renovated) to contain new nuclear threats.

- Has the NPT actually helped delay or deny the spread of dangerous nuclear technologies?
- Can the NPT be revitalized or reformulated to deal with a radically new nuclear environment?
- Are other existing arms control regimes relevant to addressing the threat of proliferation?
- What new international negotiations or frameworks could conceivably deal with emerging nuclear threats?
- Is it feasible for the PSI to be more broadly adopted by the international community and more securely anchored in international law?
- Has the era of long-standing (and long-running) negotiations to limit the appeal and availability of nuclear capabilities come to an end given the urgency of the problems the international community faces in the nuclear realm?
- Does arms control to reduce the size of U.S. and Russian legacy nuclear systems have any place or relevance when it comes to stemming the threat of new nuclear proliferation?

### *The Elements of a Counter-Proliferation Strategy*

There has been much commentary about a heightened U.S. focus on counter-proliferation efforts, including concerns that these efforts are limited in their potential applications and can actually undermine other international efforts to deal with the problem. The invasion of Iraq was portrayed as the defining case study for a new U.S. counter-proliferation strategy, but its appeal has been dimmed by the lack of a post-conflict “slam dunk” of evidence for ongoing and imminently threatening WMD programs. Yet, arguably the PSI has provided a new and aggressive framework for dealing with states or organizations that are trafficking in WMD related capabilities.

- What have been the key features of recent counter-proliferation steps to deal with surrepti-

tious efforts to acquire nuclear weapons (such as Iraq)?

- Are these precedents relevant for other potential challengers in places such as North Korea and Iran?
- How has the PSI been received in the international community?
- Are there any prospects for broadening more national counter-proliferation efforts into a broader international framework?
- Are there new military or intelligence capabilities that must be developed to better implement an effective counter-proliferation strategy?
- Can non-proliferation and counter-proliferation strategy and tactics effectively coexist?

### ***Homeland Security and Consequence Management***

The horrors of 9/11 have helped focus the imagination about the potential consequences of a use of a weapon of mass destruction on American soil. New institutions and protocols have been developed to deal both with domestic detection and surveillance and to handle the challenging chores of consequence management. Funding and implementation gaps are apparent, however, and considerably more needs to be done to help prevent a nuclear attack on American soil, or if necessary, to deal with its horrors.

- How prepared is the United States to intercept a WMD capability being smuggled into our territory?
- How many and what kinds of resources have been devoted in recent years to this challenge?
- What are the technical barriers – and potential innovations – associated with detecting WMD capabilities targeted against the United States?
- How prepared is the United States at the federal, state, and local level to deal with the catastrophe caused by a weapon of mass destruction?
- How much more prepared is the United States for such an eventuality since 9/11 and the subsequent anthrax attacks?
- What are the organizational implications for the U.S. government when it comes to both detecting the shipment of dangerous materials and dealing with consequence management in the event of their use in our homeland?
- What more needs to be done in this entire area to advance American readiness to deal with a future attack?
- What are the two or three most important steps that should be taken in short order to improve our preparedness?

## **DAY FIVE**

### ***The Elements of a Grand Strategy to Cope with the New Threats of Proliferation***

There is now virtual unanimity among policy makers, strategists, and commentators that the nexus between nuclear technologies, rogue states, and dangerous groups poses the single greatest threat to

America's security. Questions remain, however, as to whether the United States has done enough to set its priorities, create the political consensus and national awareness, devote the appropriate resources, and charge the necessary institutions (both domestic and international) to diminish the risks of catastrophic WMD use at home or abroad. What does the United States need to do to develop a national strategy that reduces the risks of new nuclear proliferation now and in the future?

- What is the appropriate intellectual framework for approaching this problem?
- Is this challenge going to grow or diminish over time?
- Where are new resources necessary to help effectively deal with the problem?
- Should any of our existing efforts be redirected toward other missions? What is working and what is not?
- What role does intelligence play?
- What about the nexus between international efforts and steps taken at home to enhance homeland security?
- What is the appropriate mix of traditional arms control and international regime approaches to arms control and more aggressive counter-proliferation efforts to confront the problem?
- Are there avenues for bipartisan cooperation to develop a shared vision of both the nature of the problem and the way ahead?



*... Just as the young militant moved to detonate the nuclear device that would turn Washington into radioactive rubble, a team of FBI agents burst into the warehouse. The terrorist's hand reached toward the arming mechanism. The agents fired. The militant screamed, and his body slumped to the floor -- his bloody hand coming to rest just inches from the trigger. The crisis was over at last.*

While this Hollywood-style scenario satisfies the need for a satisfactory resolution, it is deeply unlikely that a nuclear terror attack would have such a happy ending. Indeed, if a nuclear terrorist plot ever reaches this stage, the likely consequences are dire.

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**We can only hope that a crash course in nuclear prevention is implemented before – rather in the tragic wake of – a devastating nuclear terrorist event.**

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If there is to be success, it will almost certainly come much earlier in the process: with the securing of unsafeguarded nuclear materials; the sustained reoccupation of technical workers from the former Soviet nuclear infrastructure; excellent tactical intelligence that leads to early interventions against terrorist targets; stronger international protocols aimed at those involved in the underground nuclear trade in dangerous technologies; a

generally strengthened set of international norms against ongoing proliferation threats; and the targeting of terrorist groups with apocalyptic intent.

This multifaceted agenda will require sustained national purpose across several administrations and with the unambiguous support of both political parties. We can only hope that a crash course in nuclear prevention is implemented before – rather than in the tragic wake of – a devastating nuclear terrorist event.

THE NATURE  
OF THE CHALLENGE:  
POTENTIAL PROLIFERATORS

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# DANGEROUS STATES: NORTH KOREA, IRAN AND PAKISTAN

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## DAY I

Over the last several decades, much of the effort to prevent the proliferation of nuclear and other weapons of mass destruction has gone into multilateral measures designed to affect the behavior of large numbers of countries. These measures have included formal agreements (Non-Proliferation Treaty) and mechanisms (International Atomic Energy Agency, Nuclear Suppliers Group) as well as more informal arrangements (the Proliferation Security Initiative). While such multilateral, country-neutral approaches are essential pillars of the international “regime” to fight proliferation, they have never been regarded as sufficient. Since the dawn of the nuclear age, all U.S. administrations have recognized the need to supplement “one size fits all” measures with country-specific policies tailored to unique proliferation challenges. The same is true today. Whether the next administration is led by President Bush or Senator Kerry, it will pursue a mix of country-neutral and country-specific approaches. In the latter category, the hardest challenges will be posed by North Korea, Iran, and Pakistan.

The three cases are very different. In North Korea, the challenge is to roll back an existing and growing nuclear program that the regime admits is focused on producing nuclear weapons. In Iran, the challenge is to head off the acquisition of nuclear weapons by a regime that claims it only seeks the ability to produce fissile materials to fuel civilian nuclear power reactors. In Pakistan, it is too late to head off – and unrealistic to roll back – the country’s nuclear weapons capability. Instead, the challenge is to prevent Pakistan from becoming either a source of nuclear equipment and technology for countries or terrorist groups or a radical Islamist state with nuclear weapons.

While the three cases differ significantly, there are also similarities. U.S. military options do not appear very promising, either in de-nuclearizing North Korea or Iran or in preventing Pakistani nuclear assets from being seized by terrorists or inherited by a militant Islamist Pakistani regime. In each, U.S. leverage is limited – by the reluctance of South Korea and China to squeeze North Korea, by the Europeans’ preference for engaging rather than confronting Iran, and by Washington’s fear that pressing Islamabad too hard on proliferation may jeopardize its cooperation on counter-terrorism. In all three cases, U.S. policy options are constrained by gaps in U.S. intelligence – whether about the location of North Korea’s highly enriched uranium program, the nature of Iran’s military-controlled covert nuclear efforts, or the security of Pakistan’s nuclear stocks. Moreover, none of the regimes in these countries is entirely to our liking – certainly not the Kim dynasty in Pyongyang or the hard-line theocracy in Tehran, and even the military-dominated power structure in Pakistan that seems the best bet in the short run is not a foundation for long-run stability.

Perhaps the most compelling similarity among the cases is the stakes. Failure to overcome the proliferation challenge in any of these countries would have dire consequences for regional security and the future of the global non-proliferation regime. Conversely, success in all three could have a decisive effect in holding back the proliferation tide.

## **NORTH KOREA**

From the time President Bush took office, his administration has been deeply divided on North Korea. One camp has assumed that North Korea would never voluntarily give up nuclear weapons, believing that the North Koreans would cheat on any new agreement, and fearing that such an agreement would prop up a tyrannical regime. This group has supported regime change as the most reliable way of disarming North Korea. The other camp, skeptical about Pyongyang's willingness to give up nuclear arms but dubious about prospects for regime change in the near term, has favored exploring a negotiated solution. For much of the past three years, differences between the two camps have blocked a coherent approach toward North Korea's nuclear program.

After Colonel Qadhafi agreed in December 2003 to give up his nuclear program, however, a compromise (actually, more of a truce) was reached on the basis of what the administration started calling the "Libya model" – according to which an autocratic regime, looking to end its international isolation, makes a strategic decision to give up its nuclear program quickly, completely, and transparently without the United States having to make concessions up front. Consistent with that model, if Kim Jong-il were prepared to follow Qadhafi's example and disarm on U.S. terms, the Bush administration would be willing to support North Korea's integration into the world community, provide it assistance, and not seek to topple its regime.

The Libya model was the basis for the U.S. proposal tabled in late June 2004 at the third round of the six-party talks. The proposal calls on North Korea first to make a clear commitment to dismantle all of its nuclear programs. Once that commitment is made, a three-month "preparatory period" begins during which North Korea makes a full declaration about its programs (including uranium enrichment), all nuclear activities are verifiably halted, any nuclear weapons are disabled, and preparations are made for the elimination (including by shipment out of North Korea) of all nuclear facilities, equipment, and materials. As Pyongyang takes credible steps during this preparatory period, the other parties reciprocate in various ways. Non-U.S. parties provide heavy fuel oil. A "provisional" multilateral security assurance is provided. The United States begins a "discussion" with North Korea about its non-nuclear energy requirements, the lifting of remaining U.S. economic sanctions, and the removal of North Korea from the U.S. list of state sponsors of terrorism. At the end of the three-month period, a relatively short, but as yet unspecified, elimination period begins.

The U.S. proposal was welcomed by the other participants. South Korea and China, which had repeatedly asked the United States to show more flexibility, were relieved that a detailed U.S. offer had been made. Even North Korea reportedly deemed the proposal constructive. Meanwhile, administration officials stressed that their fundamental position had not changed. North Korea still needed to make a strategic decision to abandon nuclear weapons, after which total elimination would have to be achieved quickly – not via a prolonged series of steps that would give the North opportunities to stall, renege, or extort further concessions. Moreover, the Bush administration would not pay North Korea to live up to existing commitments. It would "discuss" future

benefits and allow others to provide them early in the process, but the United States would not provide its own tangible rewards until dismantlement was essentially complete.

North Korea's approach is very different. It calls on the United States to provide inducements from the start, as a means of showing that it no longer has hostile intent. It resists dismantling its programs quickly, claiming that would forfeit its leverage for U.S. compliance. To preserve its deterrent for as long as possible, North Korea presumably will seek to prolong the process and structure it in such a way as to enable it to opt out if it judges that eliminating its capability would put it at the mercy of a still-hostile United States. Indeed, North Korea's position in the talks so far reinforces doubts that it is prepared to renounce its nuclear programs. While saying it supports denuclearization, North Korea still denies having a uranium enrichment program, and its freeze proposal seems to exclude plutonium produced before its January 2003 NPT withdrawal – enough for eight or nine bombs.

There is little likelihood North Korea will accept the current U.S. proposal. It sees itself in a strong bargaining position; with American forces tied down in Iraq and stretched thin worldwide (and some U.S. troops even shifting from South Korea to Iraq), Pyongyang must calculate that a U.S. military threat is remote. Indeed, even before Iraq, North Korea's ability to devastate Seoul with its massive, forward-deployed conventional artillery and rocket forces was a strong inhibitor of U.S. military action. Economic factors do not compel North Korean flexibility either. Kim Jong-il appears serious about pursuing market reforms and probably realizes that such reforms cannot get very far if his country remains economically isolated. But given the choice between maintaining his "powerful deterrent" and promoting the success of reform, it is clear that he will give priority to security.

Pressures facing North Korea have also been reduced by Pyongyang's successful strategy of seeking separate accommodations with its neighbors. By adopting a more conciliatory approach to North-South interactions in the economic, humanitarian, and even military areas (e.g., military confidence-building measures in the West Sea), it has reinforced Roh Moo-hyun's government's inclination to address the nuclear issue by offering carrots rather than threatening sticks. By taking steps to resolve the issue of Japanese abductees, it has increased prospects for resumed bilateral normalization talks and opened some daylight between U.S. and Japanese positions on North Korea. Pyongyang's charm offensive is also paying dividends with China and Russia, both of which gave considerable support to North Korea's position at the recent six-party round.

There is very little chance of making progress this year. North Korea knows the U.S. administration won't turn up the heat in an election year and, in any event, Pyongyang will await the election results before making changes in its own position. Meanwhile, the Bush administration, believing that its recent proposal has undercut Kerry campaign criticism of its North Korea policy, will be content to run out the clock for 2004.

In 2005, the next administration could move in one of two very different directions. After a decent interval of trying unsuccessfully to get North Korea to accept the U.S. offer, some in a second Bush administration may push for blaming North Korea for the deadlock, declaring the talks a failure, and seeking to ratchet up multilateral pressure against Pyongyang – including by calling for UN Security Council sanctions, stepping up PSI interdiction operations, and urging Japan to curtail trade and remittances. The goal would be to force North Korea to accept disarmament on U.S. terms or, if that does not prove possible, to contain, deter, and stifle the regime until it eventually collapses.

Such a strategy has little chance of succeeding. The idea that Pyongyang can be squeezed until it capitulates or collapses is wishful thinking. The regime has been surprisingly resilient, defying repeated predictions of its imminent demise. Moreover, neither China nor South Korea wants a sudden, destabilizing collapse in the North. Especially in the absence of a U.S. negotiating position that Beijing and Seoul consider reasonable – and since the June round, they have already begun calling for more U.S. flexibility – both can be expected to resist U.S. appeals to squeeze the North. Instead, they will likely continue providing the assistance the North needs to stay afloat.

Relying on pressure alone to disarm North Korea could result in the worst of all worlds: Kim Jong-il shores up his grip on power by resisting U.S. coercion; North Korea continues augmenting its nuclear arsenal; the United States strains relations with South Korea and China in a futile effort to pressure them to coerce North Korea; and the South Korean people and government continue to realign themselves toward China and away from the United States, harming long-term American interests in East Asia.

A preferable approach, one likely to be supported by some in a second Bush administration or by a Kerry administration, would be to explore whether a sound agreement is possible. It would adopt elements of the Bush proposal (e.g., clear commitment to complete elimination and full disclosure of all programs from the outset), but it would provide for a phased elimination in a longer time frame. At the same time, the United States would join the others in offering incentives in each of the phases, including the beginning.

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**The idea that Pyongyang can be squeezed until it capitulates or collapses is wishful thinking.**

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To be sure, this approach has downsides, including the risk of North Korean cheating or reneging before dismantlement is complete. These risks can be minimized but not avoided, reflecting the reality that has faced the

last three U.S. Presidents: there are no good options in dealing with North Korea. An imperfect agreement is the least bad option.

Of course, if the North Koreans have concluded they must have a substantial nuclear weapons capability, they would likely reject a reasonable offer. In that event, the next U.S. administration would have little choice but to turn to a longer-term strategy of pressure, containment, and eventual rollback. But having made a proposal that North Korea's neighbors considered fair and balanced, we would be in a stronger position to gain multilateral support for that strategy.

Given North Korea's track record, it would be unwise for the United States to base future policies toward East Asia on the expectation that Pyongyang's nuclear programs can be rolled back any time soon, whether through negotiation or pressure. Thus, even as the United States seeks to eliminate those programs, it also must work with regional allies and partners to prepare for the challenge of a nuclear-armed North Korea. That means ensuring that allied military capabilities are robust and able to deter and defend against the North. It also means strengthening political ties with South Korea and Japan and bolstering their confidence that they can rely on U.S. security guarantees and not have to pursue their own nuclear deterrent capabilities.

## IRAN

The Iran nuclear issue seemed headed in the right direction last October when Iran pledged to the foreign ministers of Britain, France, and Germany (the EU 3) that it would suspend all enrichment-related and reprocessing activities, adhere to the IAEA Additional Protocol, and provide the IAEA complete information about its nuclear program. Since then, however, the situation has steadily deteriorated. A series of highly incriminating reports by the IAEA Director General showed that Iran had not come clean about its 18-year clandestine nuclear efforts, given full cooperation to IAEA inspectors, or suspended all enrichment-related activities. After the IAEA Board passed a resolution in June “deploring” Iran’s record, Tehran announced that, while it would continue to cooperate with the IAEA and maintain its “voluntary” suspension of actual enrichment operations, it would resume the manufacture and testing of centrifuge machines and proceed with plans to produce uranium feedstock for enrichment, thereby largely gutting the October 2003 agreement.

Chagrined by Iran’s defiant move but not yet prepared to accept U.S. advice to send the matter to the Security Council, the EU 3 responded rather meekly by once again urging Iran to honor its pledges. They confirmed that they would go ahead with previously planned talks on a permanent solution to the nuclear issue (and on Iranian-European cooperation that would accompany such a solution), but stressed that progress in the talks would only be possible if Iran fully suspended enrichment activities.

The solution the EU 3 have in mind is a permanent renunciation by Iran of all enrichment and other “fuel-cycle” activities. To compensate Iran for giving up the right to make its own fuel for nuclear reactors, nuclear supplier governments would offer Iran a binding assurance that, as long as it met its non-proliferation commitments, it would be able to purchase, at market rates, fuel for any power reactors that it builds.

Russia, the likely vendor of fuel services and possibly more reactors, would be delighted with this solution. Although the United States has opposed any nuclear cooperation with Iran (including Russia’s construction of a power reactor at Bushehr), it would probably go along in the context of a verifiable ban on fuel-cycle capabilities. Iran, however, can be expected to resist such a solution. A strong case can be made that, by legitimizing Iran’s acquisition of nuclear reactors and guaranteeing fuel for them, the proposed solution would enable Iran to enjoy the peaceful benefits of nuclear energy (its declared rationale for a nuclear program) more cheaply and reliably than if it tried to make its own fuel. The problem, of course, is that Iran is not interested only in the peaceful uses of nuclear energy. It is mainly interested in producing fissile material for nuclear weapons, and this proposal would deprive them of that ability.

In present circumstances, Tehran feels little pressure to give up its nuclear option. Like North Koreans, Iranians believe that, with U.S. forces stretched thin, the risk of U.S. military action against them is low. They see the influence they have carefully cultivated with Iraq’s Shiite community as giving them powerful leverage against the United States. They regard Europe’s rapidly growing commercial ties with them as another source of leverage and are encouraged that the United States has failed several times to persuade its European allies to take the issue to the Security Council. Iran’s leaders presumably also have in mind the world’s reaction to the May 1998 nuclear tests by India and Pakistan. Sanctions were imposed but soon peeled back and, before long, countries like the United States were restoring and even elevating bilateral relations. Given its inflated perception of its own economic and political clout, Iran probably assumes that it would be treated the same way.

As long as Iran's calculation of benefits and risks remains as it is today, Tehran is likely to remain on course with its nuclear program. Iran still believes it can have its cake and eat it too – a fissile material production capability ostensibly for peaceful purposes *and* good external relations. But if forced to choose, it is possible Iran would make the right choice. Its “pragmatic conservatives” seem to recognize that regime legitimacy rests heavily on their ability to deliver material benefits to an increasingly disenchanted population – benefits that can only be achieved through reintegration into the world economy. What is needed therefore is close U.S. and EU 3 collaboration in developing a package of incentives and disincentives that gives Iran a stark choice: It can be a pariah with nuclear weapons or a respected, well-integrated member of the international community without them. So far, the Bush administration has played the “bad cop,” pressing for referral to the Security Council, opposing all nuclear sales to Iran, and breaking off even its limited bilateral contacts. The Europeans have played the

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**Iran's leaders could make the fundamental decision to give up nuclear weapons only in the context of a gradual improvement in bilateral relations – and a reduction in the threat that Iran currently perceives from the United States.**

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“good cop,” dangling the carrot of high-tech trade and opposing referral to New York. Even European sticks take the form of delayed carrots (e.g., postponement of talks on a Trade and Cooperation Agreement). What's needed now is at least partial role reversal.

The EU 3 should identify certain redlines and make clear that, if those redlines are crossed, there will be serious consequences – not just the deferral of future benefits but the scaling back of existing cooperation. For example, they should tell Iran that if it fails to put in place a genuinely comprehensive suspension of enrichment activities by the November IAEA board meeting, they will support sending the issue to the Security Council. Britain and France (and preferably

Russia) should warn that, if the issue goes to New York, Iran cannot count on them to use their veto to block sanctions. The EU 3 also should send the message that Iran's acquisition of nuclear weapons (which would involve violating the NPT) would not be globally received like the Indian and Pakistani nuclear tests (which violated no obligations). Instead, Tehran should be encouraged to anticipate a reaction akin to the world's treatment of apartheid South Africa or terrorist-supporting Libya.

While Europeans are becoming tougher cops, the United States should become more benevolent. It should re-engage bilaterally with Iran to explore whether a gradual normalization of relations is possible. The two countries should not pursue a “grand bargain” but should proceed step-by-step, initially addressing issues on which their interests may converge (Iraq, Afghanistan) but also focusing on questions where differences have been acute (Iran's support for Middle East terrorist groups). Iran's leaders could make the fundamental decision to give up nuclear weapons only in the context of a gradual improvement in bilateral relations – and a reduction in the threat that Iran currently perceives from the United States.

Unfortunately, such a decision is unlikely to be made for quite some time, perhaps years. So while the United States and Europe are each engaging Iran and seeking to reshape its calculation of benefits and risks, it is essential to prevent Iran from presenting the world with a *fait accompli*. That means insisting on a complete suspension of enrichment activities and pressing the IAEA to use its full investigative rights in an effort to detect or at least impede any Iranian covert nuclear activities. A broadly defined and aggressively monitored suspension could buy time for the necessary political processes to take place.

## PAKISTAN

Pakistan has long been a principal focus of U.S. efforts to stop nuclear proliferation. For over a decade, the goal was to prevent Pakistan from acquiring nuclear weapons. When prevention got overtaken by events, the goal shifted to promoting restraint in Pakistan's (and India's) nuclear and missile capabilities and to reducing the risks of nuclear war on the Subcontinent. Those remain important U.S. objectives, especially in light of the short but bloody Kargil conflict in 1999 and the tense, 10-month standoff between highly mobilized Indian and Pakistani forces in 2002, both of which had the potential to escalate to the nuclear level. The U.S. proliferation-related agenda with Pakistan in fact has expanded and become even more urgent as a result of several developments – including evidence of al Qaeda's interest in acquiring nuclear weapons, exposure of A. Q. Khan's nuclear black market network, and a sharp increase in violence by militant Islamist groups in Pakistan – which have helped Pakistan earn a reputation as one of the most dangerous places on earth.

U.S. proliferation-related goals in Pakistan have often competed with other U.S. priorities. In the 1980s, when we relied heavily on Pakistan to help oust the Soviets from Afghanistan, we pulled our punches on the nuclear issue and went to great lengths to avoid having to trigger the Pressler Amendment's assistance cutoff. Today, America again has crucial goals in Pakistan beyond reducing proliferation.

We place great importance on Pakistani counter-terrorism cooperation, especially in helping us hunt down al Qaeda and Taliban remnants. We welcome President Musharraf's stated determination to crack down on radical Islamist groups within Pakistan, to prevent militants from infiltrating into Indian-controlled Kashmir, and to pursue dialogue with India. The Bush administration recognizes that Musharraf's identification with U.S.-supported policies puts him under tremendous political pressure, and even personal danger, from an increasingly anti-American population. It fears that pushing Musharraf too hard in an area such as proliferation could undercut other goals and seriously weaken him at a time when there appears to be no good alternative.

This is presumably why, despite the unprecedented damage done by A. Q. Khan's network and U.S. skepticism that Khan was acting without the knowledge or approval of Pakistani civilian or military authorities, the Bush administration was prepared to go along with Musharraf's pardon of Pakistan's national hero and not contradict his story about no government involvement. It is also why the administration has resisted efforts by Congressional Democrats to condition its five-year, \$3 billion aid package on stronger Pakistani cooperation in fighting proliferation and in other areas.

Any U.S. administration will have to juggle priorities in Pakistan, but it is essential that proliferation-related goals be very near, or at, the top of the list. On the basis of recent U.S. behavior, the Pakistani government may believe that, as long as it is responsive to American desires on counter-terrorism, the United States will be less demanding on proliferation. That perception needs to be corrected. While too much public focus on proliferation could well be counterproductive, there is no reason why the United States should not be pressing its proliferation agenda more vigorously with Musharraf and other Pakistanis in private.

A key priority on an expanded, post-9/11 proliferation agenda with Pakistan – in addition to the more traditional items of strategic restraint and reducing the risks of war with India – should be to acquire all the information we need to eradicate the Khan black market network and to understand the damage it has already done (e.g., whether there were customers other than North Korea, Iran, and Libya; whether a bomb design was given to Iran). The United States has already gotten

much information about the network from Libyan authorities and from IAEA reports on Iran. It is also receiving help from governments whose nationals have been implicated in its operations.

However, the information possessed by Khan himself is critical. While Pakistani authorities have not given the United States direct access to Khan, they have questioned Khan themselves, provided the United States much information from their interrogations, and allowed the United States to submit follow-up questions. American officials assert publicly that they are pleased with the cooperation they are getting from Pakistan but privately express the belief that Khan has more information than they are receiving – either because Pakistani officials are not extracting it from him or are not passing on everything they have learned. Pakistan presumably has its own reasons for denying direct access to Khan, including its desire to avoid a domestic political backlash, prevent embarrassing disclosures about government involvement, and maintain confidential sources of supply for its own nuclear program. That said, the United States has a vital stake in learning more about Khan's operation and should be prepared to lean more heavily on Islamabad to get the cooperation it needs.

A second priority should be to ensure that sensitive transfers of Pakistani nuclear technology, equipment, and materials never happen again. In this connection, controls on interactions of nuclear scientists with foreign governments or sub-national groups are at least as important as controls on exports of hardware and materials. Khan's network was the most damaging example of irresponsible engagement between Pakistani scientists and foreign entities, but it was not unique. In late 2001, Pakistani authorities detained and released two retired Pakistani nuclear scientists who met with Osama bin Laden and held what were called only "theoretical" discussions on nuclear weapons. With coaxing from the United States, Pakistan recently drafted a new export control law. While the legislation looks good on paper, the test will be in its implementation.

However, preventing destabilizing Pakistani nuclear transfers in the future will not just be a matter of putting in place effective governmental controls over rogue scientists and other entities. The Pakistani government itself will have to be given a clear warning against WMD-related cooperation with North Korea, Saudi Arabia, and others. President Musharraf and other officials were deeply embarrassed by the public exposure of the A. Q. Khan network, which showed that senior officials were either complicit (the conclusion drawn by most observers) or negligent (in not following up conscientiously on several U.S. expressions of concern starting in the late 1990s about the activities of Pakistani nuclear scientists). Nonetheless, Pakistan paid no price for the most egregious acts of proliferation ever committed – no sanctions, not even public criticism of lax procedures. While U.S. officials hope the Pakistanis have learned their lesson and will keep their hands clean in the future, no one can be certain that, if tempted by an illicit transaction seen as vital to national security, Pakistan would do the right thing. The United States needs to keep a watchful eye on the situation.

A third priority is ensuring the physical security of nuclear assets – installations, weapons, and materials – against theft or seizure by radical groups. The Pakistani army is in charge of nuclear security and, by all accounts, takes this responsibility very seriously. President Musharraf recently said that "we have the best possible custodial measures protecting our installations" and that "there cannot be any assets falling into wrong hands. I am very sure about that." Such statements would be more reassuring if they didn't sound just like the categorical assurances that Pakistani officials used to provide about the impossibility of technology leaking out of Pakistan's nuclear laboratories. It is disquieting, in this regard, that radicalized officers of the Pakistani army and air

force were implicated in the December assassination attempts against Musharraf, suggesting that “insider” threats cannot be ruled out. Although the United States has received generalized briefings about Pakistani nuclear security procedures, it doesn’t have a clear picture of how secure Pakistani nuclear assets really are.

The United States should urge Pakistan to adopt the highest standards of physical security. In the wake of 9/11, the United States offered to provide assistance in this area. An article that appeared in *The New Yorker* at that time which erroneously asserted that U.S. and Israeli commando units were practicing the seizure of Pakistani nuclear weapons in the event that Musharraf’s government seemed to be falling to Islamic militants reinforced Pakistan’s usual paranoia about U.S. designs on its nuclear weapons and made it impossible domestically for Musharraf to accept U.S. help. Now that the controversy has subsided, discreet cooperation may be getting underway. Any such cooperation will be relatively modest, conforming to Pakistani redlines (divulge nothing about nuclear capabilities and keep Americans far away from Pakistani nuclear assets) as well as U.S. redlines (do nothing to enhance Pakistan’s nuclear capabilities). Generic physical protection assistance (e.g., personnel reliability programs, sensors, vaults) will be possible; weapons-specific assistance (e.g., permissive action links) will not. Still, such cooperation could be very useful in strengthening nuclear security in Pakistan and should be actively pursued.

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**The ultimate proliferation nightmare is the takeover of the Pakistani state by anti-Western, militant Islamists.**

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The ultimate proliferation nightmare is the takeover of the Pakistani state by anti-Western, militant Islamists. The scenarios that could bring about such an outcome are highly speculative – for example, a coup by a military clique sympathetic to the extremists’ agenda or perhaps even an election victory by radical parties at a time when the secular political parties have been marginalized and the army demoralized. Whatever the scenario, a fundamentalist, nuclear-armed state would pose grave dangers, including the risks that it would assist nuclear weapons programs in other Islamic states, transfer WMD-related materials and equipment to terrorist groups, or engage in provocations against India that could lead to war.

Most experts on Pakistan strongly dismiss the possibility of militants assuming power in Islamabad, at least in the near term. Despite experts’ acknowledgement of radical groups’ recent growth and increased use of terrorist tactics to advance revolutionary goals, they do not believe the Pakistani army would stand for a fundamentalist takeover. The army has often worked closely with radical elements and manipulated them for its own objectives (e.g., in Afghanistan, Kashmir), but it has never shared their political agenda. The radical Islamists remain a marginal force in Pakistani society and do not command the mass support needed to challenge the army in the streets or through the ballot box. According to the experts, their infiltration of the army’s officer corps has been exaggerated. The army’s discipline and commitment to a moderate Pakistan remain intact. If Musharraf were removed from power, violently or otherwise, a like-minded general would almost surely take his place.

In the longer term, however, the experts are not so sanguine. Unless Pakistan can get itself on a path to becoming a moderate, pluralist state with a sound educational system and promising economic opportunities for its young people, the jihadist threat to the stability of the state can be expected to grow. The United States has a huge stake in avoiding a failed or fundamentalist

Pakistan, and must be prepared to commit the resources and high-level attention necessary to boost the prospects for Pakistan's political and economic revival. For the sake of U.S. proliferation-related goals as well as other vital U.S. interests, that commitment must be a sustained one, extending well beyond the time that we need Pakistan's help to fight al Qaeda and bring Osama bin Laden to justice.

## CONCLUSION

During his confirmation hearing in January 2001, Secretary of Defense-designate Rumsfeld commented on the prospects for preventing WMD proliferation: "I do not believe it is possible to stop the proliferation of things we don't want proliferated. I think we ought to try, and we ought to work hard at it, but the reality is today that in this relaxed environment and [with] so much available on the internet and so many people willing to sell almost anything for a price, we have to learn to live in that world." This view – that proliferation is inevitable and preventing it is futile – was fairly common among senior policy makers early in the Bush administration. Their remedy was to prepare for a world in which an increasing number of countries possessed WMD, including by deploying missile defenses.

After 9/11, such a world looked much too risky. Coping mechanisms such as missile defenses could hardly be expected to deal with threats posed by the nexus of rogue states, terrorists, and WMD. It became more necessary than ever before to prevent the world's most destructive weapons from getting into the hands of the world's most dangerous people. Proliferation, at least to regimes and groups hostile to the United States, had become unacceptable.

With the new imperative of stopping proliferation, calling on the United States' most potent policy instrument – military force – became more justifiable. In disarming Iraq, the Bush administration judged that the risks of U.S. military attack, including possible Iraqi retaliation with chemical or biological weapons or terrorist acts, were manageable. However, in the cases of both North Korea and Iran, although military force has not entirely been ruled out, the Bush administration clearly has not seen the military option as very promising.

The cases of North Korea and Iran pose the most acute challenge ever faced by the global non-proliferation regime: whether it is possible, through means short of the use of military force, to prevent resourceful, determined countries from leaving the NPT and possessing nuclear weapons. India and Pakistan presented a somewhat different challenge. They never joined the NPT and made no secret of their intention to keep their nuclear weapons options open. The nuclear capabilities of India and Pakistan were seen primarily as threatening each other. Their behavior damaged the non-proliferation regime, but the damage is probably repairable. Unlike the South Asian NPT holdouts, North Korea and Iran are NPT violators widely seen (more in the case of North Korea than Iran) as outlaws and threats to their regions. If they cannot be prevented from becoming nuclear powers – especially Iran whose nuclear activities became the focus of international attention and pressure years before it has actually produced fissile material – then prospects for holding the line on proliferation will be greatly reduced.

Many countries have deemed unacceptable the possession of nuclear weapons by North Korea and Iran. But so far they have not acted as if they really believe it is unacceptable. In particular, they don't seem to have made a hard-headed calculation of ends and means – of what it may take, especially in the absence of military options, to get committed proliferators like North Korea and

Iran to reverse course and abandon their nuclear ambitions. If they genuinely believe a North Korea or Iran with nuclear weapons is unacceptable, they need to make some major adjustments in their current approaches.

In particular, the EU 3 (in the case of Iran) and China, Russia, and South Korea (in the case of North Korea) must toughen their stance. At present, both North Korea and Iran see themselves in a strong bargaining position and believe the costs of pursuing nuclear weapons are manageable. The Europeans and North Korea's neighbors need to view engagement not as an end in itself but as a tool that should be used only as long as it is productive. In the interest of promoting a solution that produces regional stability and positive political and commercial relations with Pyongyang and Tehran in the long run, they must be willing to threaten to curtail those relations in the short run.

The United States, for its part, must recognize that pressure alone will not work with either North Korea or Iran. Both sticks and carrots will be necessary, and the carrots cannot come only at the end of the process. It is sometimes argued that cutting deals with proliferators will set a bad example and encourage others to proliferate. However, a deal that effectively stops proliferation in one country is far less likely to lead to proliferation in another than failing to negotiate a deal and thereby allowing a regional nuclear threat to grow.

The United States should also recognize that getting North Korea and Iran to abandon their nuclear programs will require engaging with the regimes currently in power. Waiting for regime change in either Pyongyang or Tehran is not an effective strategy. The rulers in both capitals appear well entrenched and unlikely to change any time soon. Moreover, engaging with them does not equate to condoning their systems or abandoning efforts to promote fundamental change. As in the case of the Soviet Union, it is possible to negotiate with a regime we don't like in the interest of protecting U.S. security while at the same time encouraging political and economic reforms. Indeed, a strong case can be made that engagement is more likely to produce regime transformation than a strategy of isolation and pressure.

The Pakistan case is a reminder of how difficult it is to dissuade a highly motivated country to give up its quest for nuclear weapons. In 1965, Zulfikar Ali Bhutto said that if India acquired nuclear weapons, "Pakistan will eat grass or leaves, even go hungry, but we will get one of our own." Once India conducted its test in 1974, it is doubtful that anything the United States could have done would have persuaded Pakistan to stand down. Heading off Iran may be somewhat easier than rolling back North Korea, and neither may be as hard as dissuading Pakistan a few decades ago, but both will be very difficult to turn around.

Preventing Pakistan from again being a source of WMD technologies for others or from becoming a fundamentalist, nuclear-armed state – are probably more achievable goals than the earlier challenge of persuading Pakistan not to match India. At the same time, the implications of failing to achieve those current goals are, if anything, much more dangerous. That is why, despite the importance we will continue to place on Pakistan's cooperation in counter-terrorism, we need to stay focused on Pakistan's performance on the proliferation front. It is also why we need to stay engaged in helping build a moderate, stable, democratic Pakistan in which extremism holds little attraction.

At the end of the day, we may have to live with a nuclear-armed North Korea or Iran, with more leakage of Pakistani nuclear technology, or even with a militant Islamist Pakistani state. But if those extremely undesirable outcomes ever materialize, we should at least be able to say that we did everything possible to prevent them. So far, we can hardly make that claim.



# TERRORIST GROUPS: THE QUEST FOR APOCALYPTIC CAPABILITIES

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## DAY I

Acquiring and using the most lethal weapons of mass destruction against the United States and its allies is a central goal of al Qaeda – indeed, it is a constitutive part of the group’s vision of a global war to redraw the international order. Osama bin Laden’s terrorist organization has sought such weapons since its earliest days.<sup>1</sup> The fact that it has yet to carry out an attack involving a nuclear or biological device should not be misconstrued as demonstrating that these weapons are a peripheral concern; rather, it reflects the difficulties of acquisition and fabrication that have confronted the group. For all its desire to possess apocalyptic weapons, al Qaeda also recognizes that to persuade Muslims that it is truly the standard-bearer of their interests – a core aim – it must carry out terrorist attacks with some regularity, which would be impossible if the group dedicated itself exclusively to WMD programs. Consequently, the network’s “military” operations to date have involved conventional explosives, the use of our infrastructure against us and low-end WMD – chemical and radiological devices.<sup>2</sup>

Al Qaeda has suffered significant setbacks as a result of the American-led war on terror. It is therefore possible that the group is farther from carrying out such an attack now than it was on 9/11, though this is a somewhat speculative judgment. Over time, however, the danger of WMD terrorism will grow. Inspired by the dramatic events of 9/11 and galvanized by the invasion of Iraq, radical Islamists around the world are remaking themselves, both ideologically and operationally, in al Qaeda’s image. As bin Laden’s worldview captures the imagination of increasing numbers of Muslims, the notion of carrying out an attack involving taboo weapons appears to be winning greater approbation. Since one hallmark of the “new terror” is that the operatives are virtually undeterrable, policy makers face a major challenge in dealing with this growing threat. This task is all the more daunting because we do not know yet what effect the jihadist example will have on the strategic thinking of other terrorist groups, especially emerging ones.

## HISTORY AND IDEAS

Al Qaeda’s first known efforts to procure WMD occurred in Sudan in the 1990s, early in the group’s history. The impetus for these initiatives grew from key elements of the young group’s strategy. Bin Laden and Ayman al-Zawahiri achieved a strategic revolution by reconceiving the

jihadist cause as a struggle focused principally on the United States, “the far enemy.” In doing so, they turned away from targeting “the near enemy,” moderate Muslim regimes whose domestic security services had effectively beaten the radical Islamists during the previous four decades. Intoxicated by the success of the *mujahedin* against Soviet power in Afghanistan, the bin Laden circle believed it was possible to undermine the apostate rulers of the Muslim world by attacking America, whose support was viewed as vital for leaders such as Egypt’s Hosni Mubarak and the Saudi royal family to maintain their grip on power. Embedded in this decision was a recognition that only massive bloodshed, not the occasional car bomb, would convince the United States to change its posture toward the Muslim world.

Thus was born al Qaeda’s belief in the utility of maximal violence. The idea of a broad, unrestrained conflict dovetails well with the group’s theological perspective on violence. Since the war against the infidel, as they see it, is a defensive and holy one, the killing involved has divine sanction, and from that follows: “the more the better.” This conclusion represents a fundamental departure from what had been the dominant terrorist tradition of using calibrated violence to achieve incremental goals.

Supercharging this strategy has been the messianic/apocalyptic impulse within al Qaeda’s ideology. Some scholars argue that the soil of Sunni Islam is inhospitable to messianism. Yet al Qaeda’s roots can be traced to at least two wellsprings of contemporary apocalypticism: On the Egyptian side of this hybrid organization, the al-Takfir w’al Hijra group, which flourished in the 1970s and whose leader, Shuqri Mustapha, declared himself to be the messiah, shaped the dominant strain within the jihadist movement. On the Saudi side, the fanatical Ikhwani tribesmen – many of them members of the Saudi National Guard – who seized control of the Grand Mosque in Mecca in 1979 and declared the advent of the Mahdi, left their imprint.

A close look at al Qaeda’s rhetoric reveals a heavy reliance on sacred texts that speak of the end of time. Bin Laden’s behavior also suggests that he may see himself as a messianic figure. Like other religiously-motivated terrorists such as the Japanese Aum Shinrikyo cult and Timothy McVeigh, bin Laden appears convinced that a dramatic act by the believers will elicit a divine intervention that will change the course of history. Nothing, of course, would be more effective at triggering such intervention than the use of what are now routinely called in jihadist websites “doomsday weapons.”

During its time in Sudan, al Qaeda sought both a nuclear and chemical weapons capability. The group negotiated to buy for \$1.5 million – a large sum for any terrorist group, even al Qaeda – a cylinder of weapons-grade uranium of South African origin from a former Sudanese government official. Al Qaeda had the material tested and then bought the cylinder, but the deal turned out to be a swindle. Instead of highly enriched uranium, the terrorists found themselves in possession of a lump of some other, non-fissile radioactive material, possibly irradiated scrap metal. This kind of scam may have occurred on more than one occasion, though it is difficult to determine whether this is a case of circular reporting. Whatever the case, the experience may have instilled some caution in the group about the possibility of rapid acquisition of a nuclear weapon. It did not, however, deter the group’s leadership from pursuing other unconventional weapons programs. In the same period, bin Laden invested in the Sudanese government’s effort to produce VX nerve gas.<sup>3</sup>

The limited amount of open source material on al Qaeda’s pursuit of a nuclear capability does not suffice to construct much of a narrative, but it is worth noting key points regarding actual plans and the group’s rhetoric regarding these weapons:

- Technical documents discovered at al Qaeda safe houses in Afghanistan and elsewhere indicate that the organization has focused attention on nuclear weapon design issues. Many files discovered suggest that those involved in al Qaeda's nuclear efforts have crude and inadequate understanding; however, some are quite detailed.<sup>4</sup>
- At least two capable Pakistani nuclear scientists met with bin Laden in Afghanistan and discussed the challenges of producing nuclear weapons and other types of WMD. According to one analyst, they provided al Qaeda with a blueprint for developing a nuclear bomb. They also discussed uranium mining in Afghanistan. Material found in their possession included diagrams for a balloon system for dispersing biological and chemical agents.
- Mamdouh Mahmud Salim, one of the bin Laden's closest aides, was arrested in Germany in late 1998 while shopping for nuclear weapons components. He had reportedly also sought HEU earlier in the decade.
- In 1999, bin Laden declared in an interview with *Time* that "acquiring weapons for the defense of Muslims is a religious duty. If I have indeed acquired these weapons, then I thank God for enabling me to do so."
- Both bin Laden and al-Zawahiri have claimed in post-9/11 interviews that al Qaeda has nuclear weapons. Al-Zawahiri, perhaps playing on long-standing press and intelligence reports about al Qaeda acquiring a Russian tactical nuclear weapon, claimed that such weapons are "available for \$30 million in the Caucasus."
- Abu Gheith, an al Qaeda spokesman, has said that to equal the destruction that has been inflicted on Muslims by the United States, "We have the right to kill four million Americans – two million of them children – and to exile twice as many and wound and cripple hundreds of thousands. Furthermore, it is our right to fight them with chemical and biological weapons, so as to afflict them with the fatal maladies that have afflicted the Muslims because of the [Americans'] chemical and biological weapons."<sup>5</sup>
- Sheikh Nasir bin Hamad al-Fahd, a radical Saudi cleric believed to have ties to al Qaeda, issued "A Treatise on the Legal Status of Using Weapons of Mass Destruction Against Infidels," which provides the justification for using a nuclear weapon as al Qaeda would presumably want to.<sup>6</sup> The Central Intelligence Agency (CIA) official who wrote *Imperial Hubris* suggests that this might have been done at the behest of al Qaeda as a way of providing the "sufficient Islamic grounding" that had hitherto been lacking, thereby preparing the Muslim public for a nuclear event.<sup>7</sup>
- According to the 9/11 Commission, al Qaeda members discussed – although it is not clear how seriously – the idea of storming a Russian nuclear base and forcing personnel there to launch a missile at the United States.

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**Many files discovered suggest that those involved in al Qaeda's nuclear efforts have crude and inadequate understanding; however, some are quite detailed.**

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Analysts agree that al Qaeda probably does not possess a nuclear weapon. (If it did, it would likely have used it quickly.) However, if al Qaeda can overcome the challenge of acquiring the necessary fissile material, the group would likely be able to build a crude device, probably using the gun-type assembly used in the Little Boy bomb that was dropped on Hiroshima. If they do not yet have

a weapon or have plans for near-term acquisition, it is unlikely the terrorists have drawn up detailed plans for targeting or logistics for a nuclear attack. None, at least, have been made public by the intelligence community or uncovered by the journalists who found computer hard drives and a trove of documents in abandoned al Qaeda facilities in Afghanistan.<sup>8</sup>

One of the more intriguing revelations from the reporters' haul concerns al Qaeda's changing attitude to biological weapons. Bin Laden and the other leaders have an enduring interest in chemical weapons, which survived the group's departure from Sudan. Yet, they showed no interest in biological agents until 1999 despite having built a laboratory and testing infrastructure at the Derunta and Abu Khabab camps in Afghanistan. In a memo by al-Zawahiri found on a computer in Kabul, the Egyptian surgeon observed that "the destructive power of these [biological] weapons is no less than that of nuclear weapons." Al-Zawahiri goes on to regret the group's late start in this area and confesses that "despite their extreme danger, we only became aware of them when the enemy drew our attention to them by repeatedly expressing concern that they can be produced simply."<sup>9</sup> Much as al Qaeda's declarations of intent to inflict damage on the American economy – or celebrations of what was done on 9/11 – have multiplied as the group studied America's own examinations of its vulnerabilities in the media, this is a powerful example of the feedback loop connecting our fears with the terrorists' ambitions.<sup>10</sup>

In his last round of threat briefings before leaving office, Director of Central Intelligence George Tenet stated that, "Although gaps in our understanding remain, we'll see al Qaeda's program to produce anthrax as one of the most immediate terrorist CBRN [chemical, biological, radiological, and nuclear] threats we are likely to face."<sup>11</sup> That said, there is little open source information on the network's biological efforts. During the trial of the "Returnees from Albania" – a large group of jihadists who were captured in the Balkans in 1998 and returned to Egypt, their country of origin – some spoke of attempts to buy samples of various pathogens. Some experimentation was underway in Afghanistan at the time the Taliban was toppled. Hambali, the operations chief of the Southeast Asian al Qaeda affiliate Jemaah Islamiya, said during his interrogation that he had been involved in an effort to produce anthrax in Malaysia. There, the trail peters out.

## EVOLVING NATURE OF THE THREAT

In the period since the Taliban was defeated and al Qaeda lost its safe haven in Afghanistan, the jihadist movement has been transformed. The core of al Qaeda has seen much of its leadership captured or killed, and numerous cells have been disrupted. At the same time, other groups in the network bin Laden forged in the 1990s have increased their activity, and Islamist groups that historically were unconnected to al Qaeda are adopting the group's ideology and methods. Groups such as Abu Musab al-Zarqawi's Tawhid network have demonstrated formidable abilities, including a remarkable operational tempo in Iraq and an impressive geographical span. Western intelligence services report that recruitment to the jihadist cause is up, and fundraising continues to be strong. The insurgency in Iraq has provided a superb opportunity for terrorist training, which also continues in the Caucasus and Pakistan. The movement has a less central direction than it did before the defeat of the Taliban, but the "franchising" phenomenon – also known as relocation – has not led to a diminution of violence so much as a more global distribution of the killing. To be sure, there have been no more attacks of the scale of 9/11, but the aggregate violence over the last three years due to this one movement greatly exceeds that committed by any other terrorist organization or alliance of organizations in the postwar period.

The implications of this splintering-and-energizing of the jihadist movement are mixed. Many of the attacks, such as those in Casablanca and Riyadh, have displayed a lower quality of tradecraft than that of the al Qaeda “success freaks,” as Bruce Hoffman has called them. The weakening of ties between jihadists in different regions has undoubtedly constrained their ability to carry out complex “spectaculars.”<sup>12</sup> At the same time, however, a dynamic of radicalization has taken hold among European-born Muslims who are alienated from both the moderate traditions of their parents and the often unwelcoming societies in which they live. (Although American society has a greater ability to integrate immigrants, there is no guarantee of immunity from similar developments here.) Easy access to high-quality education in engineering, chemistry and biology could put considerable destructive power in the hands of such diaspora jihadists. Al Qaeda, moreover, has set its sights on recruitment of the technologically sophisticated and on converts to Islam, who cannot easily be marked for surveillance by government profiling. Thus, while nine out of ten successor groups to al Qaeda might be capable of nothing more than a truck bomb, the remaining one could include better skilled operatives than any we have faced. In light of the galloping advances in biotechnology, in particular, this is a deeply worrying trend.

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**U.S. intelligence officials count some two dozen terrorist organizations that are pursuing chemical, biological, radiological or nuclear weapons.**

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We must also recognize that many of the same extremist, even apocalyptic currents that course through popular culture in parts of the Muslim world – and create a point of contiguity between terrorists and ordinary individuals – are felt in the West, too. There is, for example, a thriving dimestore literature in the Arab world that features titanic clashes between believers and infidels. These novels routinely involve nuclear or other WMD attacks, often inflicted on New York City. The same themes can now be found on the Internet, a powerful tool for radicalization. Recently, a remarkably realistic set of digital pictures of New York after a nuclear attack was posted on one such website. The creator, it was later discovered, was not an al Qaeda member but a young American Muslim.<sup>13</sup>

## OTHER GROUPS

Evidence of the interest of other terrorist groups in apocalyptic weapons is as scarce as al Qaeda’s is abundant. (The contrast is sufficiently dramatic that some experts on the issue of WMD terrorism are more skeptical about al Qaeda ever using such weapons than are those who study al Qaeda. One could argue that after 9/11, the limits of empiricism ought to be clear.) U.S. intelligence officials count some two dozen terrorist organizations that are pursuing chemical, biological, radiological or nuclear weapons. In fact, virtually all the members of this group possess, in the intelligence community’s phrase, a “crude chemical capability.” That is, they can poison people, typically only in small numbers.

It is an open question whether al Qaeda’s example will influence terrorist groups outside of the jihadist universe to seek greater tools for greater destructiveness. When it comes to tactics, terrorists are conservatives. Most groups have no inclination to move beyond bullets and bombs, so the lack of evidence of a general move to develop WMD capacities is not surprising.

(Some, such as Hizballah, have even condemned bin Laden's style of terrorism.) It is conceivable that, as jihadists continue to kill on a greater scale than anyone else, the leadership in some terrorist groups could feel pressure from supporters to increase the level of violence. These organizations also have a tendency to attract individuals who become more enthralled with the killing than the cause. Still, since most of the world's terrorist groups continue to want to enhance their negotiating power through limited violence rather than destroy it through excessive bloodshed, it is a reasonable bet that most groups will stick with their traditional *modus operandi*. So far, there have been no significant indications that these groups are seeking substantially more lethal capabilities.<sup>14</sup>

Only one non-jihadist terrorist group is believed to have seriously considered efforts to seek nuclear weapons: Aum Shinrikyo is thought to have examined the possibility of purchasing a nuclear weapon in Russia. Russian Duma reports state that the cult had 35,000 Russian mem-

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**There are strong signs of a global trend toward violent, apocalyptic-tinged fundamentalism.**

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bers, a valuable resource on top of Aum's \$1 billion in assets. A top official of the group visited Russia regularly to procure technology and conventional weapons. The official's diary revealed an interest in buying nuclear weapons and noted some price information, but nothing further is known on this issue. According to a U.S. Senate report, the group also purchased property in Australia where there was a known uranium deposit.<sup>15</sup>

Nonetheless, Aum focused its efforts on its extensive biological and chemical weapons programs. As has been widely reported, the cult attempted at least one biological attack, spraying the Japanese Diet with botulinum toxin, and it bought anthrax and Ebola virus for weapons development. Aum employed chemical weapons on several occasions, once causing seven deaths that were mistakenly attributed to insecticide use. After the March 1995 subway attack that killed 12 and injured 5,500, investigators discovered large stocks of sarin and other chemical weapons as well as cultures for anthrax and Q fever.

For all its uniqueness, the example of Aum Shinrikyo is no cause for comfort. The cult's belief system, a bizarre mixture of Buddhism, Christian apocalypticism, Nazi millennialism and comic book imagery, emerged from the bubbling stew of Japan's "new, new religions," but the focus on "end-time," and Armageddon-like conflicts is not confined to Japan. There are strong signs of a global trend toward violent, apocalyptic-tinged fundamentalism. Other examples include the Jewish radicals who plotted the bombing of the Temple Mount or Christian Identity adherents who planned to blow up a dozen propane storage tanks in Northern California. The premillennial dispensationalism of the LaHaye and Jenkins "Left Behind" books – 62 million copies sold – may be harmless, but it is an indicator of the hold that such speculation has on millions of people in the richest, most materially satisfied country in the world. It requires no great leap of imagination to believe that groups with similar, but more violent, tendencies are being born in America and around the world. Moreover, the forces of globalization are driving more believers into "enclave cultures" in which a profusion of fundamentalisms can grow, some presumably with a tendency to dangerous apocalypticism.

## STATE SPONSORSHIP

If jihadists or any other terrorists could enlist a state to support their operations, the potential benefits would be tremendous for their programs to develop apocalyptic weapons. Safe haven, funding, use of diplomatic facilities including embassies and pouches, logistical and scientific support – obviously, these assets would change the equation dramatically against the United States.

Fortunately, state sponsorship of terrorism is a waning phenomenon, especially so for countries hostile to America. Eight years have passed since the last significant attack in this category: the bombing of Khobar Towers in Saudi Arabia.<sup>16</sup> The last Iraqi terrorist conspiracy against the United States was the bungled 1993 assassination attempt against former President George H.W. Bush. The last Libyan attack was the bombing of Pan Am flight 103 in 1988. This is a radically different picture from that of the 1980s, the era of Hizballah attacks against the United States and the La Belle Discotheque bombing.

A number of reasons can be adduced to explain the decline of state sponsorship: the end of the Cold War; America's steadfastness in the face of terrorist attack – the Khobar bombing did not result in the withdrawal of U.S. troops from Saudi Arabia as its instigators hoped; Washington's determined support for the sanctions regime placed on Libya after the destruction of Pan Am 103. Perhaps the strongest reason is the certainty of detection, which appears to have entered into the calculation of all state sponsors. For a state contemplating a terrorist attack against the United States, the certainty of detection means facing a higher probability of retaliation. States have typically sponsored terrorism because they wanted deniability and to avoid a military exchange with a much stronger foe. Consequently, the tactic has lost much of its appeal.

Any country discovered to be assisting al Qaeda or others in the procurement and/or delivery of a nuclear or biological weapon could be assured of overwhelming – perhaps even apocalyptic – consequences. The recognition that a collaborative relationship with al Qaeda would carry enormous risks likely factored into Saddam Hussein's avoidance of the group. The same could be said of Iran, whose contacts with the jihadists have been more numerous and substantive but still did not rise to the level of sponsorship.<sup>17</sup>

Still, the recent decline of state sponsorship does not guarantee the permanent abandonment of the tactic. Leaders can miscalculate or be delusional. The possibility that North Korea would sell a nuclear weapon to al Qaeda remains a more serious threat than anything Saddam Hussein or Iran might have collaborated on with al Qaeda. Governments can also become desperate. One danger of the American presence in Southwestern Asia is that if Iran feels encircled by U.S. forces in Iraq, Afghanistan and Turkey, it could find al Qaeda a more attractive partner.

The greatest threat is that ideology can override prudential reasoning. Sudan, for example, sponsored and sheltered al Qaeda in its early days, though it is worth noting that bin Laden gave the National Islamic Front government so much money that Khartoum was the net financial beneficiary in the relationship. Sudan ultimately evicted bin Laden when the terrorist's presence became too problematic for Sudanese foreign relations and, possibly, because he had become a domestic annoyance for the regime. He was later given safe haven by Taliban-ruled Afghanistan, thus laying the groundwork for the first terrorist-sponsored state. Diplomatic and economic pressure failed to overcome the commitment to jihad that Mullah Mohammad Omar shared with bin Laden.

The case of Afghanistan amplifies the lesson of Sudan: one of the greatest dangers for dealing with this brand of terrorism that could emerge in the coming years is the appearance of a radical Islamist state. At the moment, no country is in immediate danger of succumbing to jihadists. However Al-Zawahiri, for one, has written that control of a state is a top priority for the movement because it is a key vehicle for spreading its ideology. This helps explain the repeated attempts to carry out massive, almost coup-like attacks against Jordan, the low-hanging fruit of the Muslim world. It also underscores the vital importance of keeping Pakistan stable and oriented to the West.

For the near term, America's deterrent power against potential state sponsors is likely to hold. The outstanding threat comes instead from what one might call sub-governmental actors – scientists, like the two Pakistanis with whom bin Laden consulted, technicians and like-minded individuals from the national security apparatus of Muslim governments or the former Soviet Union. With few checks on their behavior, individuals such as these, who can help with apocalyptic weapons production, pose a large and continuing danger.

## **RECOMMENDATIONS**

Given the complexity of the issues of proliferation and terrorism, one can only offer the barest and most telegraphic suggestions. Some of the recommendations that follow may be beyond reach for reasons of international politics, finances or other considerations.

### ***Nuclear***

- Secure and, to the extent possible, destroy Russian tactical nuclear weapons. Although Moscow may want to hold on to these as a hedge against instability to its south, their danger far outweighs their security benefits.
- Accelerate existing Nunn-Lugar Cooperative Threat Reduction (CTR) efforts. With nearly 300 metric tons of weapons-grade fissile material still to be secured, this work is proceeding far too slowly.
- Institute CTR programs for other nuclear powers. Most nuclear powers have safeguards on their nuclear weapons and production facilities. The possibility, however, of materials being diverted in the Pakistani nuclear establishment is too great to countenance. The political difficulties may be insurmountable for some time to come, but the groundwork for such a program can be laid now.
- Increase security at civilian research reactors in 40 countries around the world to ensure that highly enriched uranium cannot be diverted or stolen. Remove spent fuel to secure locations.

### ***Biological***

- The danger of biological weapons cannot be reduced nearly as comprehensively as that of nuclear weapons. Nonetheless, the global scientific establishment, in cooperation with national governments, must create standards and oversight for experimentation and lab use that would be of value to terrorists. This would involve increased regulation of pathogens, restrictions on work related to virulence, drug-resistance, immunity etc. Additionally, licensing or other regulation of researchers and lab workers – possibly including security reviews – may also be required.

- U.S. public health and consequence management systems must be upgraded and resourced to reflect that they are deterrents against terrorism. The ability to rapidly detect release of a biological weapon, treat those affected, and limit the spread of disease is essential for reducing the attractiveness of these weapons.

## A FINAL NOTE ON THE WAR ON TERROR

The United States and its partners in the war on terror have made considerable strides in tactical counter-terrorism – disrupting cells and thwarting conspiracies – yet we continue to lack a policy of strategic counter-terrorism. Together with our allies – since the image of the United States by itself is too toxic in the Muslim world – we must forge a strategy for reducing the appeal of jihadist ideology. This will involve policy moves such as restarting the Middle East Peace Process and other efforts that aim to change ordinary Muslims’ views of America and the West. This will require significantly deeper diplomatic, economic and cultural engagement with the Muslim world. Strategic counter-terrorism must also involve efforts to press key countries toward gradual political and economic liberalization without creating a runaway reaction that leads to the instability and the emergence of radical regimes. Such a policy will demand as high a level of diplomatic skill as anything we have done in recent decades, yet it is a *sine qua non* if we wish to diminish the long-term threat of jihadist violence and, by extension, apocalyptic weapons.

## ENDNOTES

- 1 The phrase “apocalyptic weapons” is unfortunately vague. After all, one man’s apocalypse is another’s winnable nuclear war, to recall a debate of only two decades ago. For the purposes of this paper, the principal focus will be on nuclear and biological weapons. These carry the potential catastrophic loss of life, widespread suffering and profound loss of confidence in the nation’s institutions. Given the current state of biotechnology, such a biological attack is unlikely, but that will not remain the case for long. Although a radiological or chemical attack in an urban center could be devastating, the strong probability is that the damage would be limited in comparison to any nuclear event or a biological attack using the kind of technology that could soon be within the reach of terrorists. As a shorthand, I will refer to these apocalyptic weapons as weapons of mass destruction. Insofar as chemical and radiological weapons are mentioned, it is to demonstrate terrorists’ interest in the broad range of taboo weapons.
- 2 Interestingly, the attack on the World Trade Center had what might be called WMD-scale: the amount of energy released by the impact of the two 767s and the combustion of the fuel on board was about a quarter of a kiloton – within the range of a U.S. nuclear artillery shell – though of course there was no release of radioactivity. Radical Islamists may not view the attack in these specific terms, but al Qaeda’s ability to reach this level of destruction undoubtedly has been a source of inspiration. Several operations involving chemical and radiological weapons have been disrupted. These include numerous plots in which ricin was to be used and the “dirty bomb” conspiracy of Jose Padilla.
- 3 Adding to the natural dread this discovery caused for U.S. policy makers in the summer of 1998, al Qaeda operatives in the weeks before the 1998 bombings of two U.S. embassies in East Africa described an approaching operation as a “Hiroshima.” Members used the same term shortly before 9/11.
- 4 For a detailed review of the documents, see David Albright, “Al Qaeda’s Nuclear Program: Through the Window of Seized Documents,” November 5, 2002, accessed at [http://www.nautilus.org/archives/fora/Special-Policy-Forum/47\\_Albright.html](http://www.nautilus.org/archives/fora/Special-Policy-Forum/47_Albright.html).
- 5 <http://memri.org/bin/articles.cgi?Page=subjects&Area=jihad&ID=SP38802>.
- 6 In late 2003, Sheikh al-Fahd was taken into custody by Saudi authorities and later disavowed these views in a televised interview.

- 7 Anonymous, *Imperial Hubris* (Dulles, VA: Brassey's, 2004) pp. 154-155.
- 8 For a comprehensive review of the issue, see Jack Boureston, "Strategic Insight Assessing Al Qaeda's WMD Capabilities," accessed at <http://www.ccc.nps.navy.mil/rsepResources/si/sept02/wmd.asp>.
- 9 Alan Cullison and Andrew Higgins, "Files Found: A Computer in Kabul Yields a Chilling Array of al Qaeda Memos," *The Wall Street Journal*, December 31, 2001, A1.
- 10 Ibid., "As a first step, the memo suggests, militants must brush up on their reading. The memo gives a detailed precis of an American history of chemical and germ warfare. It lists a catalog of exotic killers, from anthrax to Rocky Mountain spotted fever."
- 11 Hearing of the Senate Armed Services Committee, March 9, 2004. "Future Worldwide Threats to U.S. National Security."
- 12 The sudden spate of ricin plots suggests that jihadists are deeply committed to carrying out unconventional attacks and relish breaking the prohibition on using WMD even though this poison is seldom effective for anything but assassination.
- 13 I am indebted to Professor Gabriel Weimann of the University of Haifa for bringing this to my attention.
- 14 One possible exception: Disrupted conspiracies in Israel and the Occupied Territories suggest that Hamas and the Palestinian Islamic Jihad may be developing a taste for catastrophic terror. For the most part, these plots involved the projected use of conventional explosives against fuel or chemical facilities, though the Israeli media have reported an incipient interest in biological weapons. But it is too early to judge, and given the organization's classic jihadist charter, some evolution was probably inevitable. For the most part, al Qaeda itself appears to have had a difficult time gaining a foothold among the hardline Palestinian groups.
- 15 Global Proliferation of Weapons of Mass Destruction: A Case Study on the Aum Shinrikyo Senate Government Affairs Permanent Subcommittee on Investigations. October 31, 1995 Staff Statement accessed at [http://www.fas.org/irp/congress/1995\\_rpt/aum/part06.htm](http://www.fas.org/irp/congress/1995_rpt/aum/part06.htm).
- 16 An asterisk remains attached to the Khobar bombing since Washington has not asserted that the bombing was an "official act" of the Tehran government. Instead, Washington has said that the attack was organized by senior Iranian officials.
- 17 The 9/11 Commission has suggested there is indirect evidence that al Qaeda shipped the explosives that were used in the bombing of Khobar Towers through Iran. Although the author has not seen any intelligence to suggest that, the possibility cannot be ruled out. Additionally, the National Security Agency reported that al Qaeda members were given "clean" passports – which had no Afghanistan or Iranian stamp in it – when they transited Iran. While this clearly undermines U.S. counter-terrorism efforts, it is consistent with Iran's long-term policy toward Sunni jihadists of allowing them to travel through the country but not collaborating directly with them. This policy is minimally reassuring since it confirms Iran's reluctance to participate in a major attack.

THE NATURE  
OF THE CHALLENGE:  
INTELLIGENCE CONCERNS &  
NEW WEAPONS OF CHOICE



**THE INTELLIGENCE CHALLENGE: ASSESSING THE MEANING OF  
THE NEW NUCLEAR BAZAAR, THE FALLOUT FROM IRAQ,  
AND THE CALCULUS OF POTENTIAL PROLIFERATORS**

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**DAY II**

Combating the spread of weapons of mass destruction is one of the United States' most important foreign policy objectives. Policy makers are concerned with all aspects of the WMD threat – most importantly, with providing accurate assessments of intentions and capabilities to acquire WMD capability – but they also are concerned that intelligence supports efforts to prevent, defend against, and interdict WMD activities. The importance of WMD to policy makers requires the intelligence community (IC) to prioritize WMD intelligence. However, WMD intelligence presents a complex challenge to the IC and it will continue to do so for the foreseeable future.

WMD present quite different – and in many ways much more difficult – intelligence problems than do estimates of conventional military capabilities possessed by hostile governments. The WMD threat goes beyond the problem of proliferating countries to the acquisition of WMD capability by non-state and sub-national actors and the security of WMD weapons, materials, and technology in Russia. To complicate matters further, much of the technology and material that is essential to making WMD not only has legitimate uses but is also available in normal international commerce.

In these circumstances, intelligence tasks as fundamental as providing assessments of who poses a WMD threat, and the character and magnitude of the WMD capabilities that constitute that threat, are as daunting as – but quite different than – any we faced during the Cold War. WMD as a class will almost certainly require a greater tolerance by policy makers for uncertain and ambiguous intelligence than they have been accustomed to accepting in the case of conventional military threats, despite the fact that the stakes may be substantially higher.

## **WEAPONS OF MASS DESTRUCTION ARE DIFFERENT**

The term “weapons of mass destruction” is common and convenient shorthand. It is usually defined to encompass nuclear, biological, and chemical weapons. It also often includes ballistic missiles, either on the theory that missiles themselves – regardless of payload – constitute weapons of mass destruction, or on the even more debatable theory that WMD attacks by missiles are qualitatively different than WMD delivered by other means (ranging from aircraft to suitcases). They are “unconventional” in the sense that they differ significantly from “conventional” bullets, bombs and other familiar high explosives.

WMD are constrained, to one degree or another, by international agreements. Although they cover a broad range of destructiveness, as a group they tend to be more destructive – at least to living things – per “unit weapon” than conventional high explosive weapons. They do not require relatively large, organized military forces to employ them. They are, in a word, ideal terror weapons, either in the hands of rogue states or terrorists. Finally, and in sharp contrast to conventional military weapons, most of the technologies and materials required to make WMD are “dual use.”

## **NOT ALL WEAPONS OF MASS DESTRUCTION ARE ALIKE**

These common characteristics have led to managing WMD matters together because of apparent functional similarities. For example, the IC organizes much of its WMD intelligence efforts in the community-wide Non-Proliferation Center (NPC). However, this approach has considerable limitations, as not all WMD are alike. Conflating the threats by a functional approach is potentially distorting and misleading. We can understand the WMD intelligence challenge better if we begin by deconstructing the WMD problem into its constituent parts.

Each WMD agent poses different risks and very different technology life-cycles from laboratory development to manufacture and deployment. Each presents different dual-use technology attributes and technology transfer and export control challenges. For example, acquiring a nuclear explosive capability depends on obtaining highly enriched uranium or plutonium – materials that can be produced by technology that is also employed in the nuclear power industry but are not in general commerce. In contrast, many chemical and biological agents can be produced with starting materials and technology that are generally available. It follows that each type of WMD deserves and will receive different attention from policy makers and therefore different intelligence requirements will be imposed on the IC.

## **WMD INTELLIGENCE REQUIRES BOTH A REGIONAL AND A FUNCTIONAL APPROACH**

The IC can choose to approach the proliferation intelligence problem on a functional basis, as indicated above. An alternative is to rely on a regional approach, which has the virtue of placing WMD in the context of the regional geopolitical concerns that ultimately motivate those who wish to acquire such weapons. The Indian sub-continent is a perfect example; nuclear weapons developments in Pakistan are primarily, if not exclusively, influenced by nuclear developments in India, as the successive 1998 nuclear test campaigns illustrate. Similarly, North Korea’s motivation to acquire a nuclear weapons capability stems, in important measure, from its perceived security concerns. Our policies to counter its nuclear ambitions, particularly the combination of carrots and

sticks we might contemplate offering, must be based on an understanding of the geopolitical realities in the region as much or more as on the technical details of weapons programs.

An obvious conclusion is that the nuclear proliferation problem is not exclusively a functional or a regional problem, but that both perspectives are necessary. Tension between functional and regional approaches is not unique to WMD; it arises in counter-terrorism and economic intelligence as well. The IC response has been to organize both collection and analysis predominantly in terms of geography, with an overlaid functional perspective provided by IC “centers.” Matrix management is the conventional response to how the different perspectives are integrated. However, invoking the term “matrix management” does not automatically ensure that it occurs or that the integration will be successful.

### THE STRUCTURE AND PROCESS OF WMD PROLIFERATION

There is more to countering WMD proliferation than stopping ships on the high seas laden with critical material and technology. Rather, WMD proliferation should be viewed as a phenomenon with a structure and a process. As a corollary, an intelligence strategy that is targeted on one part on the problem (e.g., preventing the acquisition of nuclear weapons) or one point in the process (e.g., intercepting shipments) is bound to be incomplete and inadequate. Instead, each WMD threat needs to be viewed and engaged – both from an intelligence and a policy perspective – in “end-to-end” terms, starting with the motivation to acquire WMD and carried through all of the stages to the deployment and imminent use of these weapons.

For example, the “demand” for a nuclear weapons capability can stem from several sources. Countries such as North Korea, Pakistan, and Israel, presumably are motivated in large measure by core security concerns. They are making a determined effort to acquire nuclear weapons. For quite different reasons, non-state actors also are making a similarly determined effort. Countries such as China (in the 1950s and 1960s), India (in the 1970s), and perhaps Libya may have been motivated by a desire to achieve great power status as well as by security concerns, but likewise have been driven to acquire nuclear weapons.

Still other countries may decide to create the *option* of becoming a nuclear weapons state in the future by acquiring all of the capabilities required to build a nuclear weapon, but stopping short of doing so. A charitable definition of Iranian attempts to build a closed fuel cycle might be an example. Finally, there are countries that may acquire a nuclear weapons potential almost inadvertently or as a by-product of other objectives. Brazil’s drive to build a uranium enrichment facility is an illustration.

From an intelligence perspective, we obviously need to focus on countries and non-state terrorists that are seeking to acquire nuclear weapons, although even here, intelligence assessments of the motivations to do so can be instrumental in crafting effective strategies to deter or reverse such efforts. However, as the case of Iran demonstrates, we also care deeply about countries that arguably seem “only” to be interested in acquiring a nuclear weapons option. From an intelligence perspective, this puts a premium on assessments of motivation and intent, and implies looking at a different set of countries and at what otherwise might appear to be “innocent” commercial activities.

We must also be concerned about countries such as Brazil, whose actions are not motivated by any immediate desire to obtain a nuclear weapons option, much less nuclear weapons. In addition to supporting policy efforts aimed at discouraging Brazil from proceeding with its enrichment

plans, the intelligence community needs to carefully monitor internal Brazilian dynamics for any changes in thinking about the desirability of having a nuclear weapons capability.

The “supply” side of the problem is likewise multifaceted. First, and most obvious, are the underground networks – exemplified by A.Q. Khan – that are dedicated to providing the wherewithal to build nuclear weapons. This web of buying, selling, and brokering WMD technology and material properly has been a top intelligence priority, both in terms of assessment and counter-proliferation operations. Second, since a nuclear weapons potential is the inescapable by-product of closed fuel cycles, the intelligence community should systematically monitor and analyze the flow of international nuclear commerce.

Finally, there are the stockpiles of weapons-suitable material that are primarily – but not exclusively – located in the states of the former Soviet Union. It follows that another top intelligence community priority is to be alert for any threat of diversion. Many of these stockpiles are poorly guarded, and government officials in Russia and elsewhere have been slow to take steps to improve security, or even to accept U.S. funds to help them do so. There is a role for intelligence in helping both to fashion and then implement strategies to address this problem.

## **INTEGRATED COLLECTION AND ANALYSIS IS ESSENTIAL FOR SUCCESSFUL WMD INTELLIGENCE**

The challenge of integrated collection and analysis is vital. As intelligence is concerned with all aspects of countering proliferation, this is not a single-point problem:

- Intelligence must be concerned with the entire range of activities: incentives to acquire, progress in acquiring, intentions, technology transfer.
- Intelligence must be truly all-source, including systematic and comprehensive exploitation of open sources.
- Intelligence coverage must continue for years, if not decades.
- Intelligence must support operations – a wide range of diplomatic, military, and covert action measures.

The recent proliferation successes (perhaps late in the day) uncovering the nuclear technology transfer activities of A.Q. Khan and Libya’s renunciation of its WMD programs were assisted by actionable intelligence provided over the years by the IC.

The interaction between analysis and collection is crucial. Analysis is needed to guide targeting of both human and technical collection. For example, the objective of human collection is not to recruit sources willy-nilly, but to recruit sources that have knowledge or access to significant information. Analysis is key to successful significant agent recruitment. However, the central role of analysis is to assemble information from all sources and create an assessment that gains credibility from mutually reinforcing facts. The analysts who perform this demanding work must know the subject, have the gift of integrating open and clandestine sources, and also possess a healthy skepticism. They must be motivated to provide an assessment that is supported by available facts, even when their judgments challenge prevailing policy preferences.

This mutually supportive interaction between collection and analysis is difficult to achieve

because of differences in professional experience in the collection and analysis disciplines. Obligatory rotation tours for intelligence officers in different IC agencies would ameliorate this deficiency. Another barrier is the large number of agencies involved in collection and analysis (certainly over a dozen), as each agency has its own culture and bureaucratic interests.

The problems of organizational fragmentation are worsened by the separation of the intelligence budget into three pieces: the National Foreign Intelligence Program (NFIP), the Joint Military Intelligence Program (JMIP), and the Tactical Intelligence and Related Activities (TIARA) program. All three programs are in the Pentagon's budget; only NFIP is under the partial control of the Director of Central Intelligence (DCI). One result is that there is little capacity for multi-year planning for collection and analysis on WMD, especially for programs that integrate the efforts of the various IC agencies.

The statement is sometimes made that WMD intelligence requires more "close attack" collection, for example human collection, than the "remote sensing" satellite and airborne imagery and signals collection that characterizes support to military operations. The inference is that collection priorities should shift from expensive technical collection platforms to presumably cheaper and more important human source and other "close-in" collection techniques.

We would rather emphasize the mutually supporting aspects of the suite of collection techniques. There is exceptional synergy between signals and human intelligence. It is easy to imagine occasions where a communications intercept provides valuable confirmation of a human source report and vice versa. It is also easy to appreciate that a human source can make understandable and otherwise undecipherable signals intercept.

## HOW TO BETTER ORGANIZE THE INTELLIGENCE COMMUNITY TO COMBAT WMD PROLIFERATION

At each stage in the proliferation process, the intelligence community needs to perform two related but distinct tasks. One is the task of *intelligence assessment*, i.e., telling policy makers what is going on with respect to WMD proliferation in general, as well as with respect to specific WMD problems and priorities. In form, if not content, this task is a familiar and traditional intelligence community activity. The other task is to provide *actionable intelligence* in support of counter-proliferation operations. As the term implies, it is intelligence that informs and directs actions. In form, if not content, this also is a familiar IC function as illustrated by intelligence support for military operations, and intelligence support to covert actions that are carried out by the IC.

As discussed above, there are serious barriers to successful WMD intelligence: stove-piped collection, conflicting functional and regional focus, limited all-source analysis that is too often separated from collection and from action. While our WMD intelligence effort has had considerable success and much progress has been made since 1990, the result of the evident shortcomings is that it is hard to find anyone who disputes that both intelligence assessments of WMD and actionable intelligence to counter WMD proliferation should be improved.

However, any proposal to make progress on either task must confront one or more of the organizational dilemmas we have described. Furthermore, efforts to improve both intelligence assessments and actionable intelligence simultaneously only compound the dilemmas that must be faced. We choose the term "dilemma" advisedly because while "problems" typically have solutions, dilemmas present only a choice of horns on which to become impaled.

### ***Intelligence Assessment***

The assessment function of the IC requires coordination of three critical activities: collection, analysis, and dissemination. The National Intelligence Council has the responsibility to issue formal national estimates (NIEs) on behalf of the DCI, but a great deal of “finished” intelligence is issued by individual agencies – the Central Intelligence Agency and the Departments of State, Defense, and Energy. There is at present no disciplined process for recording, much less resolving, differences among the assessments produced outside the NIE process, and only a weak process for setting an analytic agenda and assuring availability of all-source information. No issue better illustrates the resulting confusion for policy makers, and for Congress, than the debate about Iraq’s possession of WMD and the status of its post-1991 nuclear program.

To improve assessments of WMD threats (or, for that matter, intelligence assessments in general), we must do a better job of all-source analysis. That means accessing and integrating data provided by the various collection disciplines (e.g., human intelligence, signals intelligence, imagery and, importantly, open source) to create an assessment that gains credibility from mutually reinforcing facts. As noted above, a related question is how organizationally to integrate the political/geographical perspective into what is essentially a functional problem.

The gulf between collectors and analysts must also be narrowed so that collectors understand better what data analysts need (i.e., analysts need to become an organic part of the “tasking” process), and analysts understand better the data collectors provide. This interaction between analysis and collection is as crucial as is the integration required to produce all-source assessments, but proposals to improve the former are often – and almost inescapably – at odds with steps to improve the latter. The fact that intelligence analysis is primarily conducted under the authority of the DCI, while the Secretary of Defense has primary authority over most of our intelligence collection assets, adds further complications.

At the end of the day, the intelligence assessment process will not improve until someone – not some agency or some process but *someone* – is given authority and held accountable for intelligence assessments of WMD threats.

### ***Actionable Intelligence for Counter-Proliferation Operations***

Providing intelligence support to counter-proliferation operations raises a different set of issues and challenges. Intelligence support needs to be closely coupled to a range of counter-proliferation actions ranging across a broad spectrum of activities, from trying to persuade a country not to take the first (or next) step down the path to the acquisition of a nuclear weapons capability (demarches); to preventing or interdicting transfer of material, technology, or equipment intended for WMD use; to covert or paramilitary action designed to destroy or render unusable a WMD development, production, or storage facility.

Actionable intelligence is required not only by the military (as in the case of support to military operations), or by intelligence officers undertaking a covert action, but across the full range of political, economic, military, and intelligence instruments. Moreover, an effective counter-proliferation strategy requires that these policy instruments be closely coordinated. As a corollary, intelligence support cannot be neatly compartmentalized and provided separately and sequentially to various customers as they perform their missions. In addition, there is – or at least ought to be – an intimate and interactive relationship between the variety of operators and

intelligence collectors and analysts so that intelligence not only supports operations but operations also can leverage our intelligence capabilities.

This perspective on intelligence support to counter-proliferation operations has at least two organizational implications. One is that, as with WMD intelligence assessments, *someone* needs to be responsible for and in charge of counter-proliferation operations. (Whether it is the same someone who is in charge of WMD intelligence assessments is a different question, the answer to which almost surely is “no.”) Another is that a genuine ongoing interagency *capability*, not only a process, is required. This interagency capability would be focused on operations and therefore would be quite different from the familiar interagency process that deliberates policy matters. In brief, the requirement is for a unit with a capability that resembles “joint operations” in the military sphere. At the intersection of these two implications is the intriguing question of who should manage such a new interagency capability.

### ONE ANSWER; ONE QUESTION

The reform agenda does not begin with a blank sheet of paper. First, the intelligence community already is working hard and making real progress both on strengthening its capabilities for WMD threat assessments (the Iraq case notwithstanding), and in its support to counter-proliferation operations (where it can be justifiably proud of the role it played in the Libyan case).

Second, many of the challenges that the intelligence community faces in dealing with WMD are reflections of broader problems of adapting the intelligence community to deal better with the 21st century agenda of issues and threats. These include such matters as the authorities of the DCI, rethinking the organization and role of the collection disciplines, and the distinction between “foreign” and “domestic” intelligence responsibilities – all of which had become topics of national debate at the time this analysis was being written.

The WMD challenges cannot be addressed in isolation from these larger issues, but our proposals obviously cannot take into account decisions that have yet to be made about fundamental IC restructuring. Reorganizing the intelligence community will not make it better able to deal with WMD threats unless WMD is an explicit and important focus of a reorganization initiative. In addition, as we noted above, any proposal for change presents questions of balance that simply do not have a “solution” but instead require calculating trade-offs and making choices. It is in that context and with those caveats that we offer our choice for one of the dilemmas and two options for the other.

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**Reorganizing the intelligence community will not make it better able to deal with WMD threats unless WMD is an explicit and important focus of a reorganization initiative.**

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### ***Strengthening Intelligence Assessment: Increase the Authority and Capability of the National Intelligence Officer for WMD***

The assessment of WMD threats is properly the primary responsibility of the DCI. The DCI performs his community responsibility for intelligence assessments – in contrast to his responsibilities as director of the CIA – through the National Intelligence Council. At present, National Intelligence

Officers (NIOs) have the important, but limited, responsibility to manage the formal community process for issuing National Intelligence Estimates, and to be the principal community spokesperson on integrated intelligence assessment in a particular substantive area, such as WMD.

The NIO for WMD does not now have the authority or capability to assert the matrix management needed to produce all-source analysis of WMD threats on a regular and systematic basis, to assure better integration between collection and analysis, and to set the analytic agenda and the appropriate balance between geographically focused efforts and the NPC. Moreover, the NIO for WMD does not now have the responsibility or the authority to serve as a clearinghouse for finished intelligence produced by various agencies, much less for quality control over intelligence analysis.

We propose that the responsibilities, authorities, and capabilities of the NIO for WMD be substantially broadened to include the community-wide matrix management and related functions noted above. This would include responsibility, authority, and the capabilities to (a) understand the evidence and reasoning on which different intelligence analyses are based and to assure their reasonableness, rather than to assert a single, consensus analysis, and (b) to ensure that WMD analysts throughout the intelligence community are aware of, and take account of, these assessments. This expanded role for the NIO for WMD intelligence assessment should be formally recognized by both the DCI and the President (to assure some clout with all agencies), and this effort should be given the appropriate sources.

The existing NPC should become a center of technical skills, expertise, and knowledge on matters related to WMD, focusing on functional intelligence questions and supporting regional WMD intelligence analysis undertaken elsewhere. The NPC's role would be to proactively inform both collection and analytical efforts wherever they take place. It would not, however, have the lead responsibility for coordinating or conducting counter-proliferation operations. In military terms, it would be a "supporting command" rather than a "supported command."

The approach we propose makes trade-offs among competing objectives. The need to make trade-offs is inescapable, and the choices embedded in our approach are debatable, but our proposal does have the virtue of designating one official who is accountable community-wide for WMD intelligence assessment.

### ***Actionable Intelligence for Counter-Proliferation Operations – A Choice***

We do not believe ad hoc arrangements are enough to achieve successful coupling of intelligence to specific counter-proliferation operations. A new office is needed to establish unusually close and continuing cooperation among several agencies, both inside and outside the intelligence community. But where should such a new office and capability be located?

An obvious answer in such cases – let the National Security Council (NSC) manage it – must confront strong and not unreasonable objections to giving the NSC staff any operational responsibilities. But the alternative, which would be to put this or that agency in charge of the new office, must confront the bureaucratic reality that agencies typically are not very responsive to guidance – much less operational instructions – from other agencies.

This dilemma has been addressed in the analogous areas of counter-narcotics and counter-terrorism largely by trying to evade it, i.e., behaving as though the strategies and operations do not need or benefit from intimate interagency coordination. We are confident this is the wrong way to organize the kind of continuous coordination and integration required to support counter-proliferation operations.

Rather, we see two broad alternative approaches to locating a new interagency WMD intelligence

operations support office (with capability drawn from State, Defense, Homeland Security, Treasury, etc., as well as from the CIA and other intelligence community elements).

- One is for the head of this interagency office to report to the President, through the NSC adviser. This would make clear that the office is not part of or subordinate to any one department or agency. To help ensure good coordination with policy, this person also could be dual-hatted as a deputy national security adviser (along the lines of the National Director for Combating Terrorism).
- The other alternative is to place the WMD intelligence operations support office in some agency and have the agency head serve as executive agent for this activity. The obvious choices are the CIA, Department of Defense (DOD), and, less likely, State.

The choice among these alternative approaches largely turns on differing trade-offs among competing objectives and objections.

The advantage of giving this new WMD intelligence support office an NSC-like position is the potential for greater authority to direct and coordinate action by several agencies. The position also places the support office close to senior policy makers and the policy process whose direction and guidance is essential. The disadvantages include objection to giving operational responsibility to an office in the Executive Office of the President. Questions will be raised about how such an office – organizationally part of the EOP and very possibly linked to the NSC – would relate to Congress with regard to Senate confirmation, appropriations, Committee oversight, and being subject to the call of Congress to testify.

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**Good people can make even bad organizational arrangements work, but relying on good people to overcome organizational obstacles and pathologies is bad policy and risky business.**

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The advantage of placing the new WMD intelligence support office in an agency is the immediate availability of agency resources such as procurement, legal, and personnel support. Both DOD and CIA have attractive infrastructure features from this point of view. The disadvantages are that these agencies are notoriously reluctant to receive guidance from the outside and that bureaucratic forces are likely to encroach on a sustained effort to use agency resources for a purpose that will likely lie in large part outside (or even conflict with) the agency's traditional mission.

## CONCLUSION

Intelligence reorganization is not a panacea. Indeed, it is no more than one – albeit one crucial – aspect of intelligence *reform*. By itself, reorganizing the way in which the intelligence community engages the WMD threat will not remedy the shortcomings arising from sparse data, poor trade-craft, or substandard analysis, but neither is the organization of the intelligence community irrelevant to its ability to provide assessments of WMD threats and actionable intelligence to respond to those threats. Good people can make even bad organizational arrangements work, but relying on good people to overcome organizational obstacles and pathologies is bad policy and risky business. Moving boxes around on the organization chart will not solve every problem, but – for better or worse – it does affect what people do and how they behave.

These observations apply to intelligence reform and reorganization broadly, but they have particular relevance for meeting the intelligence challenges posed by WMD. There are no easy answers for how to meet these challenges. In fact, there are not even any good answers in the sense that every alternative entails trade-offs among competing objectives. We propose changes that we believe would improve intelligence assessments of WMD threats by facilitating competitive, all-source analysis and by making *someone* responsible and accountable for WMD assessments. We also suggest two alternatives – reflecting different trade-offs – for improving the way in which actionable intelligence is brought to bear on counter-proliferation operations. There undoubtedly are other approaches to meeting these challenges, but we are convinced both that we no longer can nor should accept a “business as usual” approach to WMD intelligence, and that improving the organization of the intelligence community to deal with WMD should be an explicit priority of any reform plan.

# PROLIFERATION OF BIOLOGICAL WEAPONS INTO TERRORIST HANDS

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Because of their relative ease of purchase and development, biological weapons have been called “the poor man’s nuclear bomb.” This paper examines the extent to which such weapons are likely to spread – in particular, to terrorist hands – and whether the United States and its allies effectively control their proliferation. It concludes that while we can and should take useful steps, biological weapons will proliferate and we will be unable to retard this proliferation as effectively as we retarded nuclear proliferation over the past 60 years.

## BIOLOGICAL WEAPONS: WHY AND HOW

Discussion of biological weapons is complicated by their diversity and their unfamiliarity. It helps, therefore, to focus on five “reference cases”:<sup>2</sup>

- (1) use of anthrax (a bacterium) in a major outdoor aerosol attack;
- (2) use of smallpox (a virus) in an indoor aerosol attack (for example, through a building heating, ventilation, and air conditioning [HVAC] system);
- (3) dissemination of a toxin,<sup>3</sup> such as botulinum, through the food supply, for example through cold drinks;
- (4) spread of foot and mouth disease (a virus that does not affect humans) in cows, pigs, and sheep;
- (5) the invention and dispersal of a pathogen that does not have the attributes of pathogens that exist in nature. All biological agents that appear on U.S. agency threat lists now exist (or in the case of smallpox, used to exist) in nature. This last case – sometimes now called “Case 5” or “Case X”<sup>4</sup> – is less pressing, but obviously more open-ended and therefore most complex.

Military thinking about biological weapons has long noted both their attractiveness and their limitations. Though it is sometimes said that there is no history of their use, examples are numerous, including the medieval practice of throwing cadavers into walled cities, British impregnation of blankets with smallpox, and Japanese infliction of plague on Chinese populations.<sup>5</sup> After World War II several nations invested in more sophisticated versions of these weapons. The United States ran an extensive program until 1969. Britain, which had planned an anthrax attack on Germany in 1943, extensively contaminated an island off Scotland through anthrax field trials. In submissions to United Nations inspectors, Iraq acknowledged a program into the early 1990s.<sup>6</sup> Long after forswearing biological weapons through the Biological Weapons Convention (BWC), Russia

employed tens of thousands of people in an ongoing biological weapons program. Intelligence estimates reported in the press reference a number of other countries as having experimented with biological weapons – in particular, North Korea.<sup>7</sup>

There is no doubt that some biological agents can be weapons of mass destruction. Anthrax is prevalent in every program. *Bacillus anthracis*, the bacterium that causes the disease of anthrax, commonly exists in a dormant, sporulated form that germinates in a benign environment such as the human lymphatic system to produce the disease-causing bacillus. A gram or so of anthrax mailed to Senator Daschle was reported to have contained over one trillion spores. Ten thousand anthrax spores, if untreated, will induce death in the average person.<sup>8</sup> Thus, in theory, if perfectly distributed, one gram can kill millions of people. Of course, perfect distribution is unattainable<sup>9</sup> – but if the material were increased to a kilogram and released over an urban area, it could reasonably be expected to infect more than a hundred thousand people.

Smallpox is perhaps the most feared of agents because, unlike anthrax, it is contagious. Victims shed the virus; if uninhibited, a smallpox shedder can be expected to infect two or three others. Smallpox is also highly lethal, killing about 30 percent of those who contract it. The horror of the disease drove the world to unite in eradicating it three decades ago... yet ironically, because of our success in that noble endeavor, we find ourselves more vulnerable today to a deliberate smallpox outbreak. Much of the world population is now in the same position as the Incas when the Spanish inadvertently introduced this disease into the New World – they have no immunity (either by experience or by vaccination<sup>10</sup>) against the disease.<sup>11</sup>

A state might pursue biological weapons as a means of deterrence or coercion. Beyond the dangers of state use, however, these programs risk leakage<sup>12</sup> of capabilities to terrorists that are notably higher than with nuclear programs. The small size and low visibility of biological agents make them more vulnerable to theft or acquisition by bribery. Moreover, biological agents do not require substantial delivery systems. Even if terrorists do not obtain weapons from states, they may nonetheless tap into the knowledge developed in state programs to accelerate their own abilities to produce and employ biological weapons.

While biological weapons are thought of predominantly as mass casualty weapons, there are, unfortunately, other uses that may make them attractive to terrorists – in particular, their employment as narrowly targeted weapons, as weapons of mass disruption, and as campaign, rather than incident, weapons.

**Targeted weapons.** Terrorists typically have focused on particular targets of symbolic and practical value. It is sometimes thought that biological weapons, though effective mechanisms for inducing terror, are not readily targeted because winds and other uncertainties make aerosol attacks difficult to focus. Yet the anthrax letters sent in the fall of 2001 demonstrate that *B. anthracis* can be aimed at particular people or sets of people. Similarly, an aerosol bacterial or viral attack can be disseminated through the air intake of a critical building. Toxins have successfully been used as assassination weapons.<sup>13</sup> Even a large food supply contamination could be aimed at a relatively narrow target – for example, a military base. Foot and mouth disease or crop attacks can be aimed at a nation's economy rather than its people.

**Weapons of mass disruption.** In addition to their human toll, the anthrax letters gravely disrupted the U.S. mail system. An attack of this kind at a time tax payments are due or a continued attack that impeded all billing and payment systems would have substantial effects on the

American economy. More generally, biological weapons could be deployed as area denial weapons. The anthrax letters closed four major facilities. It took three months to return the Hart Senate Office Building to use, two years to complete clean-up of the Brentwood and Trenton postal facilities, and three years before the American Media Building in Florida was decontaminated. The total cost of these four efforts was almost \$250 million.

A broader attack would be extremely disruptive. We have only a rudimentary understanding of decontamination, including how to decontaminate, how to measure what we have decontaminated, how to preserve electronic and optical equipment, how to preserve precious assets such as paper records and paintings, and, above all, “how clean is clean?” – that is, to what standard we need to decontaminate. We also have very limited assets for what is presently our most effective means of decontamination, producing and spraying chlorine dioxide gas. A meticulous analysis has calculated that with present technologies and engaging all potential assets, the cleanup of an aerosol dissemination of one kilo of *B. anthracis* over Manhattan would take 42 years.<sup>14</sup>

Anthrax is not alone as a contamination problem. An aerosol release of a virus such as smallpox or SARS in a subway system, tunnel or airport would have similar area denial effects with grave economic consequences. In both civilian and military contexts, we also should be concerned about biological attacks on ports, not only for their effects on people but for their effects on commerce and on the flow of military goods. In a foreign contingency, for example, 95 percent of military supplies are carried by sea. It is not uncommon for there to be only one port of debarkation abroad. That port will depend on immovable assets and on civilians who are likely to be unwilling to enter a contaminated area.

Biological weapons can also achieve mass disruption by attacks on our economic system. The damage from Cases 3 (poisoning the food supply) and 4 (attacking animals) can readily be envisioned. The 2001 British foot and mouth disease outbreak is estimated to have cost the UK on the order of \$15 billion.<sup>15</sup> It also proved psychologically and politically disruptive; by all accounts, the government’s credibility and authority suffered severely.

**Campaign terrorism.** Terrorist attacks are commonly thought of as time-bound “incidents.” However traumatic the assaults on two of our embassies in Africa, on Khobar Towers and the Cole in the Middle East, or on the twin towers and the Pentagon on 9/11, when they were over, they were over. Terrorist capabilities to perpetuate those attacks were, at least for the moment, exhausted, and our abilities to respond with heightened security permitted us to resume, among other things, commercial air traffic, embassy business, use of the Pentagon, and visits by our warships to foreign ports. Subconsciously, these experiences feed an American vision of warfare generally and terrorism particularly: that others may surprise us and the effects may be traumatic, but after an attack there will be a lull, we will regroup and implement more effective protection, and in the longer term, our resilience, diversified strength, and unity will enable us to prevail.

Unfortunately, biological weapons particularly lend themselves to another less desirable paradigm: campaign terrorism rather than incident terrorism. Biological attacks are not likely to be limited by the supply of material. Supply is measured in grams and kilos. While scaling from grams to kilos typically requires moving from laboratory bench systems to more substantial, but still room-sized, production, if you can manufacture one kilo, you can manufacture many.<sup>16</sup> Attackers do not need substantial or very visible launch vehicles – a backpack sprayer will do. Attackers can stand at a distance, attack and then relocate across considerable distances. We are not likely to be aware of an attack until several hours (assuming that sensors detect it) or even several days (if we have to

await manifestations of infection) after it is launched. Attackers are therefore likely to be able to attack, move, reload, and attack again, and again, and again. Without warning or instantaneous alert systems, we have no significant defenses against this mode of assault. On the morning of 9/11 we could shut down the air transport system. We cannot shut down the atmosphere.

Put more colloquially, when we think in “incident” terms, we envision a competition rather like football. The other side may run a devastating play, but then we expect that we will huddle and take the offense ourselves. Unfortunately, bioterrorism, more than any other form of terror, is likely to be more like what the rest of the world calls “football” and we call “soccer.” It admits of no time out and of no distinct phases of offense and defense; rather it is a continuous flow. This will, of course, be no game, but rather a particularly brutal form of battering, without remission.

Once realized, this ability to “reload”<sup>17</sup> and attack repeatedly with biological weapons is likely to be very attractive to terrorists. It will give them a supreme opportunity to hold us hostage. A kilo of anthrax used first in Washington, then in Detroit, then in San Francisco, with subsequent threats to use it elsewhere (or recurrently in these places) is likely to panic the nation. Published statements suggest that our antibiotic stocks are limited and anthrax vaccine supplies more so. Even if the vaccine were instantly available (an unrealistic assumption), in unlimited supply (an equally unrealistic assumption), all our population could take it (ignoring children, pregnant women, *et. al.*), and it were universally effective for those who took it (this is not the case), it still would take some 35 days for the vaccine to be effective.<sup>18</sup> Against this backdrop, policy makers should be focused on the factors that affect the abilities of terrorists to develop, proliferate, or use biological weapons<sup>19</sup>

It is difficult to assess and convey the challenges associated with developing biological weapons because discussion and experimentation are inhibited by our desire to avoid educating states and terrorists. We are less knowledgeable than we are about nuclear, chemical and conventional weapons because since 1969, the United States has quite properly foresworn an offensive program.<sup>20</sup> Our pre-1969 work was undertaken for military ends with precision, quality assurance, safety and other requirements that would be unlikely to apply to other states, not to mention terrorist organizations. Certainly new technologies that enable biological weapons have emerged since the era of the previous offensive program. We therefore have a suspect base of experience from which to extrapolate.

In the main, though, the “difficulty in assessing difficulty” is that the range of possible biological weapons is vast, the routes to success are varied, and the field is dynamic. As the science rapidly advances, today’s Nobel Prize complexity becomes tomorrow’s graduate work. If generalizations are suspect, we can, nonetheless, gain some perspective by focusing on the five reference cases and noting five problems that affect them all. An aspiring biological terrorist must (a) acquire a pathogen; (b) amplify it (that is, grow it in substantial quantity with adequate virulence); (c) be able to weaponize it (that is, stabilize it in a form that will permit both interim storage and ultimate effective release); (d) field test it; and (e) disperse it.

## HOW HARD ARE THESE TASKS?

**Acquisition** is modestly, but not dramatically, difficult. Three simple routes are to buy, steal, or harvest a pathogen. *B. anthracis*, *Clostridium botulinum* (the organism that produces botulinum

toxin), and various strains of the foot and mouth virus are available for purchase because widespread research is relevant to constraining natural occurrences of the diseases they cause. Smallpox is known to be kept only at a facility in Russia and at the CDC in the United States. Access for research is tightly controlled.

Restrictions on the purchase of the available pathogens have tightened over the last few years.<sup>21</sup> Responsible sellers examine the credentials and credibility of buyers, but commerce in many pathogens is widespread; front organizations can be created and sympathetic scientists (or underpaid alumni of the Soviet program) can be conduits. Microbiologists and veterinarians are notorious for maintaining extensive, badly inventoried and poorly secured samples of pathogens. Experts acknowledge that smallpox might be found in a laboratory anywhere in the world.

To appreciate some quantitative sense of the problem, consider that some 1,500 facilities in the United States are estimated to stock pathogens.<sup>22</sup> A “putative listing” by Western experts of “biotechnology entities” in the former Soviet Union has well over 500 entries.<sup>23</sup> SARS – no longer known to exist in human populations – is estimated to be preserved in 175 laboratories around the world. Harvesting a pathogen is less visible than buying or stealing, and opportunities are prevalent. All pathogens (except smallpox) are extant, and particularly so in parts of the world that are associated with terrorists.<sup>24</sup>

Of course, there are complications. A strain may be available but not potent, or it may be insufficiently concentrated or difficult to collect. A would-be procurer may be deterred by his own vulnerability, and even a highly motivated group may run into difficulties. Aum Shinrikyo, for example, attempted to develop biological weapons before the group dispersed Sarin on the Tokyo subway system in March of 1995. They are reported to have dispatched members to Africa to attempt to collect samples of Ebola, but without success. They then ordered an anthrax strain from a Japanese type culture organization. Their order was filled without complication, but the cult had mistakenly requested a benign veterinary vaccination strain.<sup>25</sup> As a result, when they mounted a device to aerosolize and spray anthrax slurry from the rooftop of their offices in Northern Japan, they succeeded in infecting no one, though neighbors complained about the smell.<sup>26</sup>

On the other hand, most experts think that a potent sample of foot and mouth viruses – endemic in many parts of the world – can be obtained simply by wiping a cloth under an infected cow’s nose.

Case X opportunities for states<sup>27</sup> or terrorists to modify existing pathogens or to create their own “super pathogens” are proliferating.<sup>28</sup> At the simplest level, antibiotic resistant anthrax can be created by culturing naturally occurring samples, spreading an antibiotic over the plate, and selecting only for bacteria that manifest resistance. By repeating this process over a number of generations (anthrax takes about 30 minutes to divide and produce a new generation under good culturing conditions) antibiotic resistant pathogens can be obtained.

Contemporary graduate students transfer genes between bacteria as a routine part of their education. Cutting-edge techniques in the most sophisticated U.S. labs include gene shuffling – randomly redistributing genes among large numbers of specimens, followed by selecting among them for a desired characteristic, then random shuffling among the agents that exhibit this characteristic, further selecting from among this group, further shuffling, and so on. By molecular breeding a scientist can, in weeks, induce processes that would normally take millennia, and achieve unpredictable outcomes.<sup>29</sup>

**Amplification** is at about the same level of complexity/simplicity as acquisition, with similar variability. Modern pharmacology grew out of the brewing and dyeing industries. A number of related industries, particularly makers of biological insecticides, have adapted fermenting tools and dissemination technologies to their own ends. Bacterial pathogens can be produced with the same techniques.

Bench-level production, generating a few liters of liquid agent or a few grams of dry agent every week, would be familiar to those trained in biology. The necessary equipment would also be easy to obtain at costs in the range of a few tens of thousands of dollars. Large fermenters are controlled for export, but until recently fermenters at or below 100 liters were obtainable without restriction. (Now the restrictions reach to 20 liters, still substantial enough to produce significant quantities of agent.<sup>30</sup>) Related equipment, such as sterilizers to avoid contamination and centrifuges to separate an agent from the medium in which it is grown, is unregulated and inexpensive. Most bacteria can be amplified by a single perpetrator with craftsman level skills.

Small-scale production lines can be proliferated and their product stored to yield substantial quantities of agent. Ten fully operating twenty-gram production lines might yield a kilo of agent within two months, but multiplying production lines demands more manpower, entails greater expense, increases complications, provokes more visibility and incurs more risks of accident and error. Raising production volumes through larger and more sophisticated equipment would be more attractive, but it requires larger, more expensive, more visible, and more complicated equipment and supporting infrastructure. Processes that would produce a kilogram of material in a single batch would demand mechanical and engineering skills as well as biological expertise. Unfortunately, these skills are not particularly subtle and the equipment is widely available on used material markets at prices in the hundreds of thousands of dollars.<sup>31</sup>

Techniques for proliferating viruses are also well known. Whereas bacteria is supported in protein cultures, viruses typically require a medium of living cells. Smallpox for example, may be grown in eggs; the eggs are then mashed in a blender and the product purified. Generations of medical students learned to do this before smallpox was eradicated. Alternatively, viruses can be grown in, and harvested from, animals or tissue cultures.

**Weaponization** would be the most difficult and time consuming step in the process. While collection and purification knowledge is widespread among ordinary scientists, weaponization is obviously a military subject and much of the knowledge that surrounds it is classified.

The central challenge for an aerosol attack would be to produce a pathogen formulation in sizes that would be within the human respiratory range and could be reliably stored,<sup>32</sup> handled, and spread as a stable aerosol rather than clump and fall to the ground. Mastering these somewhat contradictory requirements is tricky. The challenge becomes greater as attackers seek higher concentrations of agent and higher efficiency in dissemination.<sup>33</sup> A terrorist or state that would disperse anthrax, smallpox or similar agents might be satisfied with an inefficient and awkward, but more easily produced, liquid medium; it might aim for a dry powder that would be more difficult to refine, but easier to store and transport; or it might hedge its bets by pursuing both routes.

If a powder is produced, there will also be challenges in keeping too much of the resulting product from floating away. Open literature discusses techniques such as adding silica or research-grade graphite as an effective means to this end. Micro-encapsulation (a more sophisticated technique that applies wet-form preparations) and charge neutralization are also often discussed, but these technologies demand more equipment and skill.

Though they pose substantial challenges, the evidence suggests that problems of weaponization can be solved for a number of agents and/or that these problems can be circumvented by using means of dispersion that are less challenging than an aerosol attack. Several such methods are noted below in the section on dispersion.

**Field testing** was a substantial focus of energy and dollars for our offensive biological weapons program and for the Russians. The Japanese use of pathogens against Chinese populations during World War II may predominantly have been for test purposes. Testing would be a substantial difficulty for a less endowed state, attempting to act secretly, and it would be a particular challenge for terrorists. Any Case X pathogen will obviously require more testing than an established pathogen.

Today, states and terrorist groups may choose to test by cruder methods or not at all. Aum Shinrikyo apparently tested chemical weapons against sheep in Australia and then, as noted, sprayed anthrax from the rooftop of its offices in Japan. A terrorist could decide to release an untested or rudimentarily tested pathogen on a target population and observe the consequences. (If the anthrax letters of 2001 were not the work of a “super patriot” as suggested by the FBI, they may have had this purpose.) The absence of testing introduces uncertainties, but does not appear to pose fundamental difficulties.

**Dispersion** by physical contact is relatively straightforward. It can be accomplished, for example, by transferring foot and mouth virus from one cow to another by rubbing cloth under the nostrils of each in succession or by impregnating blankets with smallpox. Aerosol dissemination potentially infects greater numbers, faster, but is more complex. Aerial dissemination is now a common practice for crops, but this involves large droplet sizes dispersed over open fields.

Dispersion control for human targets is notably more difficult: the targets are often in urban areas and particles that are readily inhaled by humans are mainly in the one to five micron range – smaller than those dispersed in a normal crop dusting effort. Some testing of dispersion methods will be required. Aum had difficulty running liquid anthrax slurry through a spray device – the system clogged. If weaponization problems have been solved, however, aerosol dispersion is not likely to pose a significant challenge. For an adequately weaponized agent (especially a powder) many sources in the open literature suggest that simple backpack sprayers will be sufficient.<sup>34</sup>

A dispersed biological agent would be vulnerable to winds and degradation from sunlight. Anthrax survives in summer sunlight for only two and a half hours.<sup>35</sup> Smallpox would degrade even faster. Here, too, however, there is a range of possible solutions. At the most sophisticated level, coatings will inhibit degradation. More simply, the problem may be attenuated by using an outdoor aerosol at night and only under desired weather conditions.

Alternatively, an attacker may circumvent weather concerns by dispersing an agent through a heating or air conditioning system. Within a subway system, the piston effect of trains will drive dispersion while protecting from environmental influences. As the Indian victims of British smallpox epidemic found, blankets can spread the disease when impregnated with virus from smallpox scabs. Humans can be intentional or unwitting carriers as well. If botulinum can be infiltrated into a central mixing vat, a producer of beer will unwittingly effect distribution on behalf of an attacker.

The highly contagious foot and mouth disease captured, as described above, by wiping a cloth under a cow’s nose, can be disseminated by wiping the same cloth under another cow’s nose. The virus, which is the most contagious known, will then move with winds and with the movement of the cattle involved. (Livestock in a modern economy are extraordinarily mobile and concentrated.)

Three overarching conclusions emerge from this analysis:

First, there is a large range of biological weapons; it is too facile to speak generally of their simplicity or complexity of development. It is altogether too easy to harvest some agents and apply them to some uses; other uses require some craftsman-like skills for amplification and perhaps adaptation; some catastrophic opportunities with aerosolized weapons require substantial effort and absent classified military knowledge will take considerable trial and error before they are likely to be mastered.

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**Only a thin wall of terrorist ignorance and inexperience now protects us.**

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Second, notwithstanding the above, it seems fair to say that biological weapons as they are now understood (for example in Cases 1-4) fall between conventional explosives and nuclear weapons. On one hand, the technologies have not yet been integrated and weaponization mastered by substantial numbers of terrorists the way explosives have. On the other hand, it is much easier and cheaper to master and covertly exercise these skills than it is with nuclear weapons. Over time, the skills associated with biological weapons are likely to be acquired and exercised, first in more rudimentary forms and then with increasing sophistication. Only a thin wall of terrorist ignorance and inexperience now protects us.

Third, there is a frightening category of biological weapons – those that do not exist in nature – in the wings. The ability to generate these Case X weapons is proliferating with the expansion and spread of biological knowledge and biotechnology, and their diversity will make it harder to predict and harder to defend against their use than against pathogens that exist in nature. Preparing for them will be yet more difficult and more dangerous than preparing for nuclear weapons.

## **OUR ABILITY TO LIMIT PROLIFERATION AND DEVELOPMENT OF BIOLOGICAL WEAPONS**

Confronted by weapons of mass destruction, a wise country pursues non-proliferation as a part of its repertoire of defensive steps. World efforts to prevent nuclear proliferation have been difficult, but for six decades they have substantially constrained the spread of these weapons. We must make similar efforts with respect to illegitimate uses of biotechnology – attempting to control pathogens, equipment, people, and the pursuit or publication of certain kinds of knowledge.

Unfortunately, the principal international agreement in this respect, the 1972 Biological Weapons Convention,<sup>36</sup> focuses on state programs and has no functional force. The BWC does not limit the flow of pathogens or equipment and it makes no significant effort to regulate research. The three and a half page document simply declares<sup>37</sup> that the signatory nations undertake “never in any circumstances to develop, produce, stockpile, or otherwise acquire and retain” biological weapons (Article I); that they will destroy existing stockpiles (Article II); that they foreswear helping others to develop such weapons (Article III); and that they will not permit others to develop such weapons in their territories (Article IV). Breaches of these commitments are subject to complaint to the UN Security Council (Article VI). A 2001 attempt to begin to provide teeth for the Convention by establishing monitoring procedures was rejected by the United States and others on the grounds that it would be ineffective, while potentially damaging national security and permitting theft of intellectual property.<sup>38</sup>

Clearly, the United States and the community of nations can achieve more to inhibit terrorist access to biological weapons than we have so far through the BWC. There is real value in initiatives that increase proliferators' risks of detection, multiply their obstacles, and raise their costs. However, our non-proliferation initiatives must be accompanied by a clear-eyed view of the likely limits of our success. Unfortunately, the relative simplicity of the five steps described above and the diversity of routes through which they may be accomplished suggests that, though proliferation of biological weapons may be constrained and complicated, non-proliferation initiatives will likely fail against a determined and resourceful adversary.

**Pathogens and Equipment.** Some useful steps have been taken to limit the opportunities for purchase and theft of pathogens. These raise the bar, but no one believes that they create very imposing barriers.<sup>39</sup> Unfortunately, equipment is similarly accessible.

Some considerable effort has gone into export controls, principally through the so-called Australia Group.<sup>40</sup> The 34 states participating in this effort enforce export restrictions on fermenters, sequencing equipment, pathogens, encapsulation technologies and scores of other items. These efforts are useful, but only modestly effective. One advocate of these controls likens the task to gun control in the United States.<sup>41</sup> The analogy is telling, not only with respect to the magnitude of the task, but also with regard to its likely success. Efforts to license and control equipment and pathogens seem at best likely to capture a small number of potential users and modestly raise the risks and costs for others.<sup>42</sup> This is worth doing, but it should be with the recognition that the supply of all relevant equipment is too extensive and already too distributed to be powerfully constrained. Domestic dual-use chemical, pharmaceutical, agricultural, brewing and academic research and training laboratories provide ample sources of supply with low visibility, especially for used equipment that is exchanged in unregulated markets.

**People.** There is a high enough level of sophistication in collection, amplification, testing, dispersion, and, particularly, in weaponization to make it likely that terrorists interested even in natural pathogens will attempt to recruit experts. In particular, any effort to produce Case X agents will demand experienced and skilled professionals.

Unfortunately, the number of people who have the relevant skills is large and growing.<sup>43</sup> Analysts and policy makers should, I think, distinguish between two categories: "Weaponers" who have substantial experience with biological weapons in state programs and "The Broadly Skilled" scientists and technicians who have relevant training but no experience applying it to biological weapons. Weaponers include those whose activities are defensive; they will know less than participants in offensive programs, but much more than generalists. The Broadly Skilled can be as, or more, sophisticated than the Weaponers, but they will pursue more false paths, make more errors, and therefore need more time and money – implying greater risks of failure, self-infection, and/or capture – than the Weaponers.<sup>44</sup>

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**World efforts to prevent nuclear proliferation have been difficult, but for six decades they have substantially constrained the spread of these weapons. We must make similar efforts with respect to illegitimate uses of biotechnology.**

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As an order of magnitude assessment,<sup>45</sup> I would suggest that the first class might be between one and ten thousand people.<sup>46</sup> A majority of this group comes from the Soviet program, but significant numbers also will be Americans, British, Iraqis, and alumni of, or present participants in, unacknowledged programs. (I include our own and allied programs in calculating the pool of potential terrorists because terrorism is not simply a foreign phenomenon. A reported FBI theory is that the anthrax letter perpetrator is an American drawing material and expertise from our program. The primary previous example of bioterrorism on American soil was perpetrated by an Oregon-based religious group.<sup>47</sup> And, of course, Unabomber Theodore Kaczynski and Timothy McVeigh provide striking examples of American-bred terrorism.)

It is plausible for us to co-opt and/or monitor Weaponeers to the extent that we know and have access to them. This is, and should be, one of our most effective means of controlling non-proliferation. Quite wisely, our efforts have focused on the former Soviet Union. Our Cooperative Threat Reduction Program (created in legislation proposed by Senators Nunn and Lugar) has employed nearly 50,000 former nuclear, biological, chemical, and missile scientists in the former Soviet Union.<sup>48</sup> Many of the biologists are researchers at Russian institutes on vaccines and drugs intended to protect people, animals and crops. An imaginative new Department of Defense initiative under CTR has employed a number of scientists in a human and animal health surveillance network in Georgia, Kazakhstan and Uzbekistan.<sup>49</sup> The State Department's Office of Proliferation Threat Reduction similarly employs former Weaponeers in a Russian flu (including avian influenza) surveillance network. Using a one-time \$30 million appropriation, with \$5-6 million annual operating funds, this office has also vigorously begun to back business collaborations between "former Soviet biological weapons scientists" and U.S. industrial partners, and approximately forty drug and vaccine projects have been established so far.<sup>50</sup>

These programs offer high rewards relative to their costs. A senior Russian scientist earns approximately \$2,500 a year. Taking administrative and infrastructure costs and inefficiencies into account, a supporting program might cost \$10,000 per scientist. Less than \$100 million a year could accordingly buy us substantial relationships with as many of the foreign Weaponeers as might be found and engaged. It should be stressed, however, that the important variable is "relationships." An American payment to a former Weaponeer may diminish that individual's propensity to avoid working on a weapons program, but it doesn't guarantee it. Some may find bribes from terrorists or states too attractive to resist. Others may use our funds to continue their old activities.<sup>51</sup> Our best gain from these programs is not to win the compliance of all, but rather to establish deep relationships with a substantial number so that these in turn will police their colleagues and if necessary advise us of questionable individuals and activities. There is evidence from the Russian program that this is achievable, though of course imperfectly so.<sup>52</sup>

More troublesome is the fact that though this model works for the former Soviet Union, it will apply less effectively to more controlled societies, like China, and hardly at all to essentially closed societies like Iran and the extreme case of North Korea. At best, the several thousand individuals possibly engaged in programs in those countries should be monitored from a distance. Unfortunately, our efforts in that regard are likely to generate, at best, a few successes (which should be much valued) and many failures.<sup>53</sup>

The intrinsic difficulty of this effort is likely to be compounded by our own resource and bureaucratic problems. The number of intelligence agency employees who speak Farsi or Mandarin (not

to mention Arabic or Korean) and understand biology will be severely limited. Careers using those rare skills in our intelligence system are not likely to be rewarding. Our systems are keyed to recognizing and advancing those who report actionable intelligence. A lifetime of surveying a facility or collection of scientists in the developing world may never yield anything actionable.

When we move from the thousands of Weaponeers to The Broadly Skilled, the limits of the tracking strategy become yet more apparent. As a very rough approximation, I would suggest that this group encompasses more than a million people – at least two and perhaps three orders of magnitude larger than the Weaponeers.<sup>54</sup> Members of this group may become dangerous by obtaining expertise from Weaponeers. Unfortunately, they can also develop dangerous expertise through their own trial and error. The great majority of them, of course, would not undertake this work and a number who did would not be successful, but it seems likely that, over time, broadly skilled individuals equipped with modest laboratory equipment could develop biological weapons. They could do this in state programs, as members of terrorist groups, or simply as individuals.<sup>55</sup> If the Unabomber had been a biologist instead of a mathematician, he might well have mailed pathogens instead of pipe bombs.<sup>56</sup> Worse still, our experience with bombs made from conventional explosives suggests that the success of a very few who are members of groups, rather than hermits like the Unabomber, will proliferate as they train others and provide recipes to them.

Our strategy for dampening the risks from The Broadly Skilled must engage our science community and encourage it to interact heavily with colleagues in developing countries, to use moral suasion to stigmatize work on biological weapons, and to report what appear to be instances of such work. Ultimately, our success or failure will be most affected by the extent to which other nations and their scientists also stigmatize and report on this research.<sup>57</sup> There is a role for the Biological Weapons Convention in this context. This international agreement could, as has been recommended by several commentators<sup>58</sup> and nations, including the United States, commit member states to criminalize research and development directed to improper ends. In pursuing these efforts, however, we should recognize that our present approach of denying visas to third world scientists is precisely wrong. The costs to our relationships with future colleagues in foreign countries outweigh the gains we may achieve by attempting to keep knowledge from some who may misuse it.

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**The Pursuit and Publication of Knowledge.** The biological revolution initiated by Watson and Crick a half-century ago cannot, and should not, be stopped. It leads, however, to the intensification of the threat from biological weapons.

We can make, and are making, efforts to control this knowledge.<sup>59</sup> Efforts in the United States and a few other countries were particularly stimulated by the publication of research results demonstrating abilities to synthesize the polio virus and to create pox viruses that might circumvent vaccines.<sup>60</sup> We are now introducing controls on laboratory experiments.<sup>61</sup> These are useful,<sup>62</sup> but obviously do not apply on a global basis.<sup>63</sup> Nor do they do more than diminish one route that might lead to biological weapons.<sup>64</sup> Worst of all, from the standpoint of proliferation, the fundamentals of this knowledge are already widespread and legitimately proliferating. They are the basis of phar-

maceutical, biotech, medical and agricultural progress. We can channel some activities, but we must recognize that the river of knowledge is already at flood stage and cannot be drained.<sup>65</sup>

As a result, I believe that alongside non-proliferation activities, the United States must urgently prepare to manage the consequences and recovery from biological attacks, even though this preparation was not a materially successful part of our approach to nuclear weaponry.<sup>66</sup>

Consequence management should be perceived not only as a means of limiting damage and rapidly restoring normalcy, but also as a mechanism of dissuasion. Biological weapons have disadvantages: They are unfamiliar, may rebound against some constituencies (particularly if contagious), and will be viewed by some as overstepping “red line” boundaries of acceptable warfare. The history of weapons use suggests, unfortunately, that someone, someday will use them.

If our defensive responses are disorganized, ineffective or divisive and undermine confidence in government, then the incentives for copy-cat attacks will rise. If, conversely, we are prepared and effective, and an attack emphasizes the qualities of our government and the unity of our population, then the incentives to attack again in that manner will be dramatically reduced.

## ENDNOTES

- 1 I am very grateful to Siddharth Mohandas for fine research assistance, to Seth Carrus for an exceptionally productive review of this paper, and to Roger Breeze, Don Burke, Michael Callahan, Jerry Epstein, David Franz, Brian Jones, Bob Kadlec, Terry Leighton, Judy Miller, Bill Patrick, Jason Rao, Amy Smithson, Steve Prior, Tara O’Toole, Jerry Warner, Andy Weber, Larry Wein, Dean Wilkening, and Ray Zilinskas for comments on this paper as well as for basic education on the subject. This paper would not have been written without the catalyzing effect of Kurt Campbell’s support, imagination and energy in the Aspen Strategy Group and at CSIS.
- 2 I recommended using these reference cases, in a slightly different form, in Richard Danzig, “Catastrophic Bioterrorism: What Is To Be Done?” (GPO: 2003)
- 3 A toxin is a poison produced by natural sources. Toxins are commonly treated as biological weapons, but they also have the attributes of chemical weapons and are regulated by the Chemical Weapons Convention as well as by the Biological and Toxin Weapons Convention.
- 4 While adopting the reference cases from Danzig, *op cit.*, the Science and Technology Directorate of the Department of Homeland Security renamed Case 5, “Case X.” I think this is an improvement and will use that term here. For a recent survey of Case X possibilities see Mark Wheelis, “Will the New Biology Lead to New Weapons?” in *Arms Control Today* (July-August, 2004). Dr. Wheelis, a microbiologist, sees such weapons as arising from “new technologies” including “genomics, proteomics, micro-array technology, high-throughput screening techniques, combinatorial methods in chemistry and biology, site-specific mutagenesis, knock-out mice, and many others.”
- 5 See generally, Erhard Geissler (ed.) *Biological and Toxin Weapons: Research, Development and Use from the Middle Ages to 1945* and Jeanne Guillemin, *Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Bioterrorism* (forthcoming, Columbia University Press). The extent of Japan’s use of this weapon against China is difficult to determine, but as more evidence as has been uncovered, it has led to increasing estimates of deaths. Daniel Barenblatt, *A Plague Upon Humanity* (2003) writes that “As of 2002, historical researchers in China estimated the number of people killed by Japanese germ warfare and human experiments to be approximately 580,000. This is the figure that was presented and mutually agreed upon at the International Symposium on the Crimes of Bacteriological Warfare, a conference on the subject . . . attended by scholars and investigative journalists . . .” (p. xii). Barenblatt argues that this figure is “only a preliminary accounting.” (Id.) More convincing is the documentation of a number of incidents. Sheldon H. Harris, *Factories of Death* (rev. ed. 2002) reviews, among many examples, a five-month campaign against the treaty port of Ningbo. In 1940, 1,000 people were infected and 500 people died from cholera, typhus and plague. (Id., p. 102). “Most alarming is that the diseases . . . unleashed in the summer and fall of 1940, and subsequently in 1941 and 1942, had long-term effects. Plague ravaged Ningbo and nearby communities in 1941, 1946, and 1947. Occasional outbreaks occurred in the region as late as 1959.” (Id. p. 103).

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- 6 A summary of the Iraqi disclosures can be found at <http://www.fas.org/nuke/guide/iraq/bw/unscom.html>. UNSCOM monitoring efforts and the defection of Saddam's son-in-law in 1995 revealed subsequent further activity. UNSCOM report, S/1999/94, 29 January 1999 at <http://www.un.org/Depts/unscom/s99-94.html>.
- 7 The Henry L. Stimson Center reports that "according to the US government, 13 nations currently have active biological weapons programs" and comments on nine of those programs. See "Biological Weapons Proliferation Concerns" at [www.stimson.org/cbw](http://www.stimson.org/cbw).
- 8 This, like many other scientific assertions about bioterror weapons is subject to debate and certainly has a margin of error. For a summary of the evidence and alternative views, see Thomas V. Inglesby et al., "Anthrax as a Biological Weapon, 2002: Updated Recommendations for Management," *Journal of the American Medical Association* 287, no. 17 (May 1, 2002) pp. 2236-2252.
- 9 In 1979, an accidental release in Sverdlovsk infected at least 88 people, killing 64. The best present estimate is that the release was on the order of a gram. Dean Wilkening, unpublished brief, 2004. Wilkening concludes that the release may have been as small as .025 milligrams. Some authorities believe the release was larger – on the order of 50 grams.
- 10 There is also uncertainty about the residual benefits for those who were vaccinated decades ago.
- 11 If we succeed in eradicating polio, we are likely to create the same vulnerability to terrorism with this virus as we have to smallpox.
- 12 I use the term "leakage" to emphasize that states seem more likely to inadvertently lose control of these agents than they are to intentionally place them in the hands of terrorists. Indeed, the apparently dominant FBI theory about the 2001 anthrax letter attacks is that the attacker stole a weaponized agent from one of our (or our allies') labs. A state could provide agents to proxy terrorist groups, hoping particularly to benefit from the difficulty of attributing biological weapons to a specific source. The ability to "reload" described below would, however, place such great power in the hands of a group that it may be doubted whether a state would be willing to assume that risk.
- 13 In 1978, Bulgarian dissident Georgi Markov was killed after he was injected with a tiny ricin-filled pellet while walking on a London street; <http://news.bbc.co.uk/1/hi/uk/2636459.stm>. From 1981 to 1995, "Project Coast," a South African program researching chemical and bioterror weapons was focused on agents "intended to be used for assassination and crowd control." Chandre Gould and Peter Folb, *Project Coast: Apartheid's Chemical and Biological Warfare Programme* (Geneva: United Nations Institute for Disarmament Research, 2002) p. 2. See pp. 159-168 for a catalog of "incidents of poisoning" associated with the program.
- 14 Larry Wein. Unpublished manuscript. 2004.
- 15 The British government cites a figure of about eight billion pounds in combined damage to agriculture and tourism; see Department for Environment, Food and Rural Affairs and Department for Culture, Media and Sport, "Economic Cost of Foot and Mouth Disease in the UK: A Joint Working Paper," March 2002. Official and third party reports are unanimous in their view that these events could have been better handled. Accordingly, these costs may be at the high end.
- 16 The weaponization process is described below. In general, moving from grams to kilograms requires complementing modest biological skills with modest mechanical skills.
- 17 I applied this label in Danzig, *op cit*.
- 18 Some experts think this generally accepted estimate is too prolonged and that immunity might be achieved in 25 days. Further evidence on this point is being pursued. There is also not much evidence as to how efficacious the vaccine would be for very large populations in heavily contaminated environments. I note also that the present vaccine, as licensed, requires annual boosters after an initial six shot regimen.
- 19 This discussion would apply as well to the ability of states to develop biological weapons.
- 20 Our commitment to the Biological Weapons Convention also complicates our conducting "proof of principle" experiments that might demonstrate the ease or difficulty associated with production processes.
- 21 See footnote 34 below.
- 22 Jonathan Tucker, *Biosecurity: Limiting Terrorist Access to Deadly Pathogens* (United States Institute of Peace, 2003) p. 21.
- 23 Ivor Gutmanis, "FSU Biotechnology Entities: Putative Listing, 1998-2002" (Hobe Corporation, September 2003).

- 24 Thus, for example, as this paper was submitted, news reports carried an account of seven people hospitalized from anthrax in Kazakhstan; <http://news.scotsman.com/latest.cfm?id=3155820>.
- 25 Paul Keim et al., "Molecular Investigation of the Aum Shinrikyo Anthrax Release in Kameido, Japan," *Journal of Clinical Microbiology* 39, no. 13 (December 2001) pp. 4566-4567.
- 26 Hiroshi Takashi et al., "Bacillus anthracis Incident, Kameido, Tokyo, 1993," *Emerging Infectious Diseases* 10, no. 1 (January 2004) pp. 117-120.
- 27 The Soviet Union was intensely committed to this research even as its economy imploded.
- 28 These same techniques can be used to synthesize agents that already exist in nature. It is hard to see, however, why attackers would trouble to acquire natural agents by this route rather than by purchase, harvesting, or theft. Smallpox may be an exceptional case because it is eradicated and known samples are tightly controlled.
- 29 Recently, an alarming natural evolution was reported when samples from pneumonia patients disclosed that the protective antigen toxin from *B. anthracis* was being produced by a different bacterium, *Bacillus cereus*. Alex R. Hoffmaster, et al., "Identification of anthrax toxin genes in a *Bacillus cereus* associated with an illness resembling inhalation anthrax," *Proceedings of the National Academy of Sciences* 101, no. 22 (June 1, 2004) pp. 8449-8454.
- 30 Arms Control Association, "The Australia Group at a Glance," September 2003. <http://www.armscontrol.org/factsheets/australiagroup.asp>.
- 31 Large national programs (the Soviet Union was the leading example) have historically produced tons of agent in large fermenters that ran continuously for months. In a well-documented example, the U.S. Defense Department noted that ten 5,000 gallon fermenters were operated at the former anthrax facility in Stepnogorsk, Kazakhstan. It estimated that under wartime mobilization conditions, the facility would produce 300 metric tons of weaponized anthrax in eight months. As suggested above, a terrorist would need nowhere near such a supply. (It is doubtful that the Soviet Union had use for it!) Andy Weber, "Cooperative Threat Reduction: Biological Weapons Proliferation Prevention Program," Briefing Presented in Stockholm, June 2004 and subsequent communications with the author. The capability has now been dismantled. Large numbers of abandoned fermenters may be observed at former Soviet facilities with little or no security protection.
- 32 Different agents are differently sensitive to variations in heat and humidity. Most degrade if separated from the nutrition that sustains them.
- 33 The high concentration of spores in the anthrax powder sent to Senator Daschle suggests that the perpetrator possessed remarkable scientific knowledge and technical skill or obtained the material from a program that had these attributes. Dana Shea, in a Congressional Research Service Report, "Small Scale Terrorist Attacks Using Chemical and Biological Agents: An Assessment Framework and Preliminary Comparisons" (May 20, 2004, Order Code RL 32391) pp. CRS-11-16 usefully provides flow charts and a discussion contrasting the lower demands on terrorists from producing smaller quantities of lower quality agent as compared with more ambitious military programs. A chart (on pp. 24-25) provides an assessment of the ease of acquisition and dissemination, as well as other factors, for different biological agents.
- 34 At a more sophisticated level, particle sprayers are produced in high volume for use in industrial coatings.
- 35 Takashi, *op. cit.*, p. 119.
- 36 "Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and Their Destruction." The document includes 15 articles, but those not described in this paragraph are essentially procedural.
- 37 By contrast, Amy Smithson notes that the Chemical Weapons Convention is 46 pages, with over 140 pages of annexes. "Compliance Through Science: US Pharmaceutical Industry Experts on a Strengthened Bioweapons Nonproliferation Regime," Henry L. Stimson Center, 2002, p.8, fn. 33.
- 38 An international group of verification experts arrived at an opposite judgment. It concluded that state programs would be inhibited by a requirement for declaration of programs and facilities working in related areas (e.g., vaccines) coupled with short-notice inspections to assess the accuracy of the declarations. See United Nations, *Special Conference of the State Parties to the Convention on the Prohibition of Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction: Final Report* (Document BWC/SPCONF/1, 1994). However, whether significant or not in restraining state action, these steps would not directly address the risks of weapons development by terrorists.
- 39 A neo-Nazi's 1995 purchase under false pretenses of vials of the pathogen that causes plague prompted a 1996

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statute that directed the Department of Health and Human Services to regulate transfers of dangerous biological agents. A year ago, 335 facilities were registered. Tucker, *op. cit.* p. 19, citing Stephen Morse, U.S. Centers for Disease Control, "The New Select Agent Regulation" (presentation at the ABSA conference on "Biosecurity: Challenges and Applied Solutions for Our Future Needs," Alexandria, VA, April 22, 2003). The anthrax letter attacks prompted a strengthening of these provisions with the Bioterrorism Preparedness Act, enacted in June of 2002, that required all users of pathogens to develop inventories of these agents, lists of those with access to these pathogens, and security measures to reduce the risk of improper access. *Op. cit.* p. 21. Tucker calculates that "an estimated total of 1,469 facilities will be affected by the new biosecurity regulations." *Op. cit.* p. 21. Section 817 of the USA Patriot Act makes it a crime for a person knowingly to possess a biological agent or delivery system without "a prophylactic, protective, bona fide research, or other peaceful purpose." Facilities abroad remain less regulated. DTRA Nunn-Lugar expenditures have bought increased physical security in the former Soviet Union. It should be noted, though, that while these efforts limit the ability of terrorists to break in, they are only marginally effective in diminishing the ability of scientists to carry pathogens out of their laboratories. A former Director of our Plum Island Animal Disease Center notes "it has been known for 30 years that those working in the labs can take foot and mouth virus home in their noses and that live virus can be recovered for 36 hours afterwards. This is the basis for denying workers the ability to have susceptible livestock at home, and to visit a farm, a circus or a zoo. So what are the guards guarding?" Personal communication from Roger Breeze to the author, July 7, 2004. Probably the most useful activity in this regard is to concentrate dangerous pathogens in a limited number of facilities with well-controlled access.

- 40 The Australia Group, founded in 1985 to coordinate regulation of precursors for chemical weapons, expanded its focus to include biotechnology in 1990. It is an informal effort that aims to coordinate national efforts. For general information, see [www.australiagroup.net](http://www.australiagroup.net).
- 41 Robert Wright, "A Real War on Terrorism," Part 8, September 12, 2002, *Slate*, <http://slate.msn.com/id/2070210/entry/2070799>. Regarding control mechanisms, see also Jonathan Tucker, *op. cit.*
- 42 A conversation with an administrator of the U.S. controls yielded an estimate that there were some 1,500 biology related export applications per year, of which roughly 80 percent were approved, 15 percent returned with no action, and 5 percent rejected. Telephone conversation of Siddharth Mohandas with Mark Sagrams, Export Policy Analyst, Chemical and Biological Controls Division, Department of Commerce, June 28, 2004.
- 43 How many are there? Though this question is fundamental to a theory of non-proliferation, I cannot identify any place where it has been substantially addressed.
- 44 This difference is material. Terrorist groups can be thought of as investors with limited capital and a focus on rewards within the next few years. The CIA is reported to have assessed al Qaeda's budget at some \$30 million per year. National Commission on Terrorist Attacks Upon the United States, "Overview of the Enemy," Staff Statement No.15, p.11. For an organization at this level, access to a Weaponeer makes pursuit of a biological weapon much more attractive because it lowers the likely cost and time of the effort and increases the apparent probability of success.
- 45 Hopefully, the back of the envelope first assessments offered here will stimulate a sounder calculation of the numbers of "Weaponneers" and of the "Broadly Skilled."
- 46 My aim here is not to claim some spurious precision but to offer an estimate that suggests the order of magnitude of the problem. Higher or lower numbers could be supported. The Federation of American Scientists has written: "At its peak, the former Soviet Union had the world's largest biological warfare program, with somewhere between 25,000 and 32,000 people employed in a network of 20 to 30 military and civilian laboratories and research institutions. An additional 10,000 or so worked in Defense Ministry bioweapons laboratories. According to other estimates, at least 47 labs and test facilities were scattered across Russia, employing more than 40,000 workers, 9,000 of whom were scientists. Between 1,000 to 2,000 of those scientists were experts on deadly pathogens. Biopreparat suffered dramatic downsizing after the dissolution of the Soviet Union in 1991, with more than half its scientific staff departing, many of whom left Russia for more sophisticated laboratories of the West." <http://www.fas.org/nuke/guide/russia/agency/bw.htm>.
- 47 See the description of the September 1984 food contamination attacks of the Rajneeshee cult in Miller, Judith, Stephen Engelberg and William Broad, *Germs* (2001) pp. 15-33. The cult sought to influence an election by disabling their opponents. "By the end of the outbreak, almost a thousand people had reported symptoms to their doctors or the hospital; 751 were confirmed to have salmonella ..." (Ibid. pp. 19-20). See also, W. Seth Carus, "The Rajneeshees" in Jonathan B. Tucker, *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons* (2000).
- 48 Kenneth Luongo and William Hoehn III, "Reform and Expansion of Cooperative Threat Reduction," *Arms Control Today*, vol. 33, no. 5 (June 2003) [http://www.armscontrol.org/act/2003\\_06/luongohoehn\\_june03.asp](http://www.armscontrol.org/act/2003_06/luongohoehn_june03.asp). See also,

“UZBEKISTAN: US to increase aid to reduce biological weapons” IRIN News (United Nations Office for the Coordination of Humanitarian Affairs), August 28, 2004 <http://www.irinnews.org/report.asp?ReportID=42654&SelectRegion=CentralAsia&SelectCountry=UZBEKISTAN>.

49 Weber, *op. cit.*

50 See “BioIndustry Initiative of the U.S. Department of State: Annual Report, 2003” and [www.bii.org](http://www.bii.org).

51 Second-order problems (the diversion of funds, etc.) afflict these programs. Over time a new set of issues will arise: How do we employ or support older workers whose skills are outmoded? Do we want to provide support for the proliferation of new skills amongst Weaponers?

52 I derive this judgment from conversations with those centrally involved in the effort and from one commendably precise, though limited, analysis. At the end of 2003, Deborah Yarsike Ball and Theodore P. Gerber employed a Russian survey firm to query 603 Russian physicists, chemists and biologists about their willingness to entertain job offers from a number of countries, including North Korea, Syria, Iran and Iraq. “Will Russian WMD Scientists Go Rogue? Measuring Russian Scientists’ Willingness to Work in High-Threat Countries and the Impact of ISTC” (Unpublished Lawrence Livermore National Laboratory study for the State Department Science Centers Program, January 2004). They found that “20 percent of our sample would consider taking a job in at least one high-threat country.” (p. 5. Italics in the original.) They recorded substantial differences between the general sample and those who were “principal investigators” on Nunn-Warner grants – only seven percent of those investigators described themselves as open to employment elsewhere. (These results remained significant when variables of age, income, and status were controlled for.) On the other hand, they observed no significant differences between those who participated at a lesser level in grant programs and those who did not participate at all: “ISTC participants who are not project managers are only slightly less likely than those who never applied at all to ISTC (19 percent vs. 23 percent) to demur from the chance to work in a high-threat country” (p. 6). The Russian Academy of Sciences reports that 2,900 Russian scientists emigrated in 2002, of whom a third were biologists. This accounted for five percent of the staff of the 300 Institutes studied. Three quarters of the biologists are reported to have relocated to the United States and Europe. The destinations of others are not reported. (Russian Academy of Sciences, Institute of Economic Forecasting, Center for Demography and Human Ecology, [http://www.informnauka.ru/eng/2004/2004-07-19-041\\_40\\_e.htm](http://www.informnauka.ru/eng/2004/2004-07-19-041_40_e.htm)).

53 In these societies we may also hope that hostile states will, from their own self-interest, limit the proliferation from their own scientists to other states. The nuclear proliferation that stemmed from A.Q. Khan is worth studying as a case in point: How well did we track his activities while they occurred? To what extent does his behavior indicate the limits of state control over its own scientists?

54 The number is, not surprisingly, difficult to calculate and subject to debate. To assess order of magnitude, however, it may be helpful to consider a society to which we have complete access: our own. How many Americans might be able, with trial and error, to aerosolize an effective biological weapon? As a rough indicator I note that the most recent data from the Bureau of Labor Statistics reports 75,000 biological scientists (<http://www.bls.gov/oco/ocos115.htm>), 48,000 biological technicians (*Ibid.*), 20,000 agricultural and food science technicians (*ibid.*), 58,000 “medical scientists” (<http://www.bls.gov/oco/ocos008.htm>), 583,000 medical doctors not included in the first categories (<http://www.bls.gov/oco/ocos074.htm>), and 58,000 veterinarians (<http://www.bls.gov/oco/ocos076.htm>). In addition, the National Science Foundation calculates that there are 61,132 graduate students in biological sciences (National Science Foundation, Division of Science Resources Statistics, “Graduate Enrollment in Science and Engineering Fields Reaches New Peak; First-Time Enrollment of Foreign Students Declines,” NSF 04-326 (June 2004), <http://www.nsf.gov/sbe/srs/inf-brief/nsf04326/start.htm>). Of course, these numbers are only suggestive and skills within this group are widely variable. Their total of 903,132, however, points to the magnitude of the problem. (Another indicator is that between 1966 and 2001 American institutions are calculated to have awarded 2 million B.S. degrees, some 270,000 M.A. degrees, and some 50,000 Ph.D.s in biology. <http://www.nsf.gov/sbe/srs/nsf04311/pdf/nsf04311.pdf>, Table 47.) World-wide data is yet less precise, but obviously amplifies the relevant numbers. As examples, I note: In the late 1990s there were some 78,000 doctors in Pakistan. (I calculate this by multiplying WHO figures for doctors per 100,000 population in 1997 by the reported population at the time. World Health Organization, [http://www3.who.int/whosis/health\\_personnel/health\\_personnel.cfm](http://www3.who.int/whosis/health_personnel/health_personnel.cfm); U.S Bureau of the Census, International Database.) In the same period, there were some two million doctors in China (*Ibid.*, 1998 figures). In 1999, some 2.6 million students are estimated to have received B.S. degrees in science and technology. Almost half of these were earned at institutions outside the United States and Europe. <http://www.nsf.gov/sbe/srs/seind02/c2/c2s4.htm> World-wide, it could be argued that the number of The Broadly Skilled capable of developing biological weapons is in the many millions. It will suffice for purposes of this paper to suggest that it is over a million and thus that the

## The Nature of the Challenge: Intelligence Concerns & New Weapons of Choice

group as a whole is not realistically susceptible to the one-on-one engagement and surveillance that can be (heroically) pursued with regard to the Weaponers.

- 55 The context of the effort certainly matters. Larger and better financed efforts are more likely to produce large quantities of agent and the agent is likely to be more efficient and more effective.
- 56 The perpetrator of the 2001 anthrax letter attacks may be just such a biological Unabomber.
- 57 International scientific associations may be particularly helpful in this regard. John Steinbruner and Elisa Harris comment that “Few U.S. officials appear to recognize the global scope of the microbiological research community, and thus the global nature of the threat.” (“Controlling Dangerous Pathogens,” *Issues in Science and Technology* (Spring 2003) <http://www.issues.org/issues/19.3/steinbruner.htm>.) Steinbruner and Harris suggest a system of peer committees to review “high-consequence biological research.”
- 58 Mathew Meselson, “Averting the Hostile Exploitation of Biotechnology,” *CBW Conventions Bulletin* 48 (June, 2000) p. 16; Malcolm Dando and Graham S. Pearson, “The Fourth Review Conference of the Biological and Weapons Convention: Issues, Outcomes and Unfinished Business” *Politics and the Life Sciences* 16, no. 1 (March 1997), pp. 105-126.
- 59 See generally, Steinbruner, John and Elisa D. Harris, *op.cit.*
- 60 Jeronimo Cello, Aniko V. Paul, and Eckard Wimmer, “Chemical Synthesis of Poliovirus cDNA: Generation of Infectious Virus in the Absence of Natural Template,” *Science* 297 (2002), pp. 1016-1018; Ronald J. Jackson et al., “Expression of Mouse Interleukin-4 by a Recombinant Ectromelia Virus Suppresses Cytolytic Lymphocyte Responses and Overcomes Genetic Resistance to Mousepox,” *Journal of Virology* 75, no. 3 (February 2001), pp. 1205-1210. The rapid creation of a synthetic virus by Craig Ventner’s Celera Corporation points to the same problem. “Generating a synthetic genome by whole genome assembly: phiX174 bacteriophage from synthetic oligonucleotides” *Proceedings of the National Academy of Sciences USA* 100, no. 26 (Dec 23, 2003) pp.15440-5. See generally, Steven Block, “A Not-So-Cheap Stunt” *Science* (2003) pp. 297, 769 and Phillip Ball, “What is Life? Can We Make It?” *Prospect*, August 2004. Noting these and other developments, an unclassified CIA report states: “A panel of life science experts convened for the Strategic Analysis Group by the National Academy of Sciences concluded that advances in biotechnology, coupled with the difficulty in detecting nefarious biological activity, have the potential to create a much more dangerous biological warfare threat.” Central Intelligence Agency, “The Darker Bioweapons Future,” November 2003, <http://www.fas.org/irp/cia/product/bw1103.pdf>.
- 61 A recent report from the National Academy of Sciences argues that our government should rely on a combination of expanding existing regulations and self-regulation by the scientific community, rather than enacting intrusive new policies. Its key recommendations include: the government should not regulate scientific publishing but should rely on scientists and editorial boards to police themselves; create an International Forum on Biosecurity to ensure that regulation applies not just to U.S. scientists but reaches around the world; and require approval for seven types of potentially dangerous experiments – such as creating more virulent or vaccine-proof diseases – from the Institutional Biosafety Committees that already supervise recombinant DNA research at institutions across the United States. Committee on Research Standards and Practices to Prevent the Destructive Application of Biotechnology, National Research Council of the National Academies, *Biotechnology Research in an Age of Terrorism* (Washington, D.C.: National Academies Press, 2004). (This is frequently referred to as “The Fink Report” after its chair.) In response to this report, the National Institutes of Health recently established a National Science Advisory Board for Biosecurity to oversee federally funded life sciences research.
- 62 Some of these constraints also play a useful role in reducing the risks of accident.
- 63 Regarding the spotty global efforts, see Tucker *op. cit.* pp 28-34.
- 64 They may also inhibit the very research that is required for effective biological defense.
- 65 I have urged, Danzig, *op. cit.*, that it is important for our intelligence agencies to form a Case X committee that will engage academics and pharmaceutical and biotechnology experts to monitor scientific developments that may lead to new pathogens. A committee of this type would help identify indicators and warnings and provide advice on the allocation of our operational and analytic resources.
- 66 Investment in this regard will yield the additional value of substantial collateral gains in countering natural illnesses.



THE INTERNATIONAL  
DIMENSION AND THE  
ELEMENTS OF A  
U.S. GRAND STRATEGY  
TO CONFRONT THE  
CHALLENGE OF PROLIFERATION



# DO U.S. ALLIES AND OTHER INTERNATIONAL INSTITUTIONS SHARE A COMMON SENSE OF URGENCY WHEN IT COMES TO THE PERILS OF GLOBAL PROLIFERATION?

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## DAY III

### INTRODUCTION

This paper examines post-9/11 threat perceptions within the transatlantic alliance concerning the proliferation of nuclear, biological, and chemical weapons, and the areas of cooperation and disagreement on the policy instruments and strategies necessary to respond to these threats. The popular stereotype of Europeans from Venus and Americans from Mars has a kernel of truth with respect to non-proliferation policies, but this planetary image does not adequately describe conditions on Earth, where there is no single European approach on non-proliferation, any more than there is a single American approach, and where there is considerable overlap between different European and American approaches. As a result, this paper will address “European” non-proliferation perspectives both in terms of the collective European strategy and policies as expressed by the European Council and the European Union and in terms of the national policies of key European states, mainly the UK, France, and Germany.

### HISTORICAL BACKGROUND

While the United States and its European allies share a basic commitment to oppose the spread of nuclear, chemical, and biological weapons, tensions over non-proliferation policy have been a constant in transatlantic relations. During the 1970s and 1980s, the primary dispute was over export policy, with Washington accusing some European capitals of selling nuclear and dual-use technology to dubious recipients, and Europeans responding that Washington was interfering with legitimate civilian commerce. In the aftermath of the 1974 Indian test and the revelations of Iraq’s WMD programs after the 1991 Gulf War, these disputes over export controls gradually faded, as the United States and European countries worked together to strengthen international and national export controls over sensitive technologies.

During the 1990s, after the Cold War’s end and with an increasing American focus on the threat posed by “rogue states” seeking WMD and long-range missiles, the central dispute within the

alliance shifted to the now familiar image of Venusian Europeans and Martian Americans. In particular, some European officials and experts expressed concern that U.S. pursuit of missile defenses and the development of a “counter-proliferation” doctrine and capabilities, which included the option of preemptive military strikes against WMD facilities, could undermine the rules-based system of multilateral arms control and non-proliferation treaties, norms and institutions that they saw as the centerpiece of non-proliferation policy.

While pursuing counter-proliferation and missile defenses, however, the United States was also actively working with its European allies to create new instruments of the multilateral regime, such as the Chemical Weapons Convention (CWC), Comprehensive Test Ban Treaty (CTBT), and Biological Weapons Convention (BWC) verification protocol. For its part, Washington complained that some European countries neither took the threat of proliferation seriously enough nor were prepared to back up multilateral efforts with the hard edge of economic and political leverage and coercive measures. The most serious disagreements centered on Iraq, where France decided not to join the 1998 U.S.-UK Desert Fox air strikes, and Iran, where the United States expressed skepticism about the effectiveness of Europe’s constructive engagement efforts with Tehran.

These underlying Venusian-Martian differences, which had begun to emerge in the Clinton administration, erupted more openly in the initial months of the Bush administration as Washington (in European eyes) mounted an assault on cherished instruments of multilateralism, including the Anti-Ballistic Missile (ABM) Treaty, CTBT, and BWC protocol. By the summer of 2001, Washington began to develop a less confrontational approach, presenting missile defense as one element of a comprehensive non-proliferation strategy, including support for international treaties and export controls, but the initial impression persisted in Europe that the administration’s commitment to international treaties and institutions was more rhetorical than real. The disclosure of the Nuclear Policy Review confirmed European suspicions that the United States was intent on developing new types of nuclear weapons that would lower the nuclear threshold and eventually require a resumption of nuclear testing.

## **9/11 AND THE IRAQ SMASH-UP**

Initially, the 9/11 terrorist attacks reduced friction within the transatlantic alliance over non-proliferation policy, as both sides sought to confront a common strategic threat. At the BWC review conference in November 2001, for example, many U.S. allies (especially the UK) were furious at Washington for making last minute demands that scuttled the meeting, but there was little official outcry because most capitals did not want to distract attention from the anti-terrorism front. By December 2001, the decisions by Moscow and Beijing to line up with Washington against global terrorism gave the administration more confidence that it could withdraw from the ABM Treaty without sparking strong opposition, and as a result, European concerns were muted. Finally, 9/11 produced greater transatlantic cooperation on Cooperative Threat Reduction programs with Russia and the newly independent states, resulting in the Global Partnership initiative announced at the G8 summit in Kananaskis in June 2002.

Ultimately, however, the 9/11 terrorist attacks produced the most serious rift within the alliance over non-proliferation policy. Prior to the attacks, the Bush administration viewed rogue states seeking WMD and long-range missiles as the primary security threat facing the United States, and the administration advocated missile defense as the primary response to this threat, since other elements of non-proliferation policy such as treaties and export controls could – at best – only delay

a determined proliferator. In Washington's view, the shock of 9/11 conflated the threat from proliferation and terrorism in two ways. First, the attacks made more vivid and plausible the danger that al Qaeda (which was known to be seeking nuclear, chemical, and biological weapons) would be prepared to use such weapons against the United States if it could obtain them. Second, the attacks spawned the fear that rogue states known to be seeking WMD and with a history of supporting terrorism – especially the three states in the so-called “axis of evil” – would be prepared to lend assistance to an al Qaeda WMD attack against America. As expressed in the U.S. National Security Strategy document of September 2002, meeting this new danger from the “crossroads of radicalism and technology” required the United States to be prepared to “stop rogue states and their terrorist clients before they are able to threaten or use weapons of mass destruction.”

Convinced of this new threat and the need to act preemptively, President Bush (and Prime Minister Blair) determined that Iraq had to be disarmed, even if force was required to overthrow the regime. For France and Germany, opposition to the war was partly based on principled issues regarding the legitimacy of preemptive attacks, but more importantly, on a disagreement about whether Iraq posed a serious enough threat to justify the risks of invasion. All Western intelligence agencies basically agreed that Iraq maintained a stockpile of chemical and biological weapons and harbored ambitions to develop nuclear weapons and long-range missiles, but for Paris and Berlin, Iraq's limited capabilities posed no serious regional threat. More importantly, France and Germany did not believe it was likely that Baghdad would run the risk of providing WMD to al Qaeda. Had there been convincing evidence that Iraq was involved in the 9/11 attacks or was prepared to cooperate with al Qaeda in future operations, France and Germany would likely have supported the Iraq war, just as they supported the invasion of Afghanistan to remove the Taliban.

#### **EMERGENCE OF A EUROPEAN SECURITY STRATEGY AND EU NON-PROLIFERATION STRATEGY**

In April 2003, in the wake of the transatlantic and internal European smash-up over Iraq, the European Council instructed the High Representative for Foreign Policy Javier Solana to draft an overall European security strategy and a more detailed action plan to deal with non-proliferation. The intent of the effort was to develop a common European approach to match the September 2002 U.S. National Security Strategy document, both to mend European divisions and to establish a basis for European engagement with the United States post-Iraq. Initial drafts, largely the work of Richard Cooper, a British diplomat serving on the Council, were circulated at the European Council summit at Thessaloniki in June 2003, and the final versions of these documents – “A Secure Europe in a Better World: European Security Strategy” and “EU Strategy Against Proliferation of Weapons of Mass Destruction” – were adopted by the European Council in December 2003.

These documents were advertised as proof that Europe was ready to get tough against the twin threats of terrorism and WMD proliferation, but a close reading of the documents suggests a continuing gap in threat perceptions and policy prescriptions compared to the prevailing view in Washington. The European Security Strategy (ESS) lists terrorism and WMD proliferation as the top security threats facing Europe, and judges that “the most frightening scenario is one in which terrorists acquire weapons of mass destruction.” However, the EU documents do not recognize the threat emphasized by Washington and London that hostile regimes could assist terrorists to acquire or develop WMD.

In large measure, the ESS and the more detailed non-proliferation plan evaluate the threat of terrorism (including use of WMD) and the threat of WMD proliferation to additional countries as separate and distinct threats. While taking a global perspective that proliferation in the Korean peninsula and South Asia threatens European interests, the ESS places special focus on the threat of a WMD arms race in the Middle East.

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**The inability of the EU strategy documents to fully address the integration of soft and hard power reflects both the limitations of the EU's authority over foreign and defense policy of individual members and the continuing disagreements among the major European powers over the role of coercive measures in overall non-proliferation strategy.**

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In part, the absence of an explicit link between potential terrorism use of WMD and proliferation to countries reflects continuing European disagreement over whether the Iraq war was justified, but it also represents a genuine threat perception.

In general, the European focus is more on conventional terrorism (as in the Madrid bombings) rather than terrorist use of biological, chemical, nuclear, or radiological weapons. For most European analysts and officials, terrorist use of biological, chemical, or radiological weapons, which terrorists could acquire or manufacture on their own, is much more plausible than use of nuclear weapons. Europeans see the terrorist nuclear threat as serious enough to take prudent measures to strengthen protections over nuclear materials, for example, by supporting the U.S. proposal to amend the Convention on the Physical Protection of Nuclear Materials to cover

domestic use and storage, but are less easily convinced that the threat is great enough to ban production and use of weapons-usable nuclear materials in the civilian fuel cycle. This is especially true in countries like France that have large nuclear power programs.

In terms of policy responses to proliferation, the ESS champions “preventative engagement” and “effective multilateralism” – not very subtle allusions to American preemption and unilateralism. In Venetian fashion, the ESS places first priority on the international regime of treaties, norms, institutions and export controls to combat proliferation, but recognizes that a comprehensive strategy must include “coercive tools” for states that fail to observe the rule-based international order. The EU documents are sparse, however, in explaining how to integrate coercive means with effective multilateralism. The most heavily negotiated paragraph in the EU non-proliferation strategy says that:

Political and diplomatic preventative measures (multilateral treaties and export control regimes) and resort to the competent international organizations form the first line of defence against proliferation. When these measures (including political dialogue and diplomatic pressure) have failed, coercive measures under Chapter VII of the UN Charter and international law (sanctions, selective or global, interceptions of shipments, and, as appropriate, the use of force) could be envisioned. The UN Security Council should play a central role.

The inability of the EU strategy documents to fully address the integration of soft and hard power reflects both the limitations of the EU's authority over foreign and defense policy of individual members and the continuing disagreements among the major European powers over the role of coercive measures in overall non-proliferation strategy.

## NON-PROLIFERATION POLICIES OF THE BIG THREE

Given the EU's inherent limitations, the most important determinants of "European" non-proliferation policy are the national and collective policies of the big three – the UK, France, and Germany. While the policies and actions of smaller European powers can be important on specific non-proliferation issues, they generally lack the resources, interest, and influence to be decisive within the EU or on the broader world stage. As expressed in the European Security Strategy, the big three agree on the central role of multilateral treaties and institutions for overall non-proliferation strategy and explicitly disagree with Washington on specific arms control issues, such as the CTBT and Fuel Material Cutoff Treaty (FMCT). All support a greater role for the Security Council in non-proliferation policy, which serves both national interests, in the case of France and the UK as permanent members of the Security Council, and the broader Venustian vision of creating a rule-based international order.

Aside from these common views, however, there are a number of differences among the big three on non-proliferation policy, which reflects in large part the broader contours of strategy and foreign policy. With its post-World War II pacifism and focus on integration in Europe, Germany's non-proliferation policy is the least global and the most Venustian, a tendency reinforced by Germany's status as a non-nuclear weapons state in the NPT. Relatively speaking, Germany is the strongest believer in the importance of nuclear disarmament as an essential element of the NPT bargain, a view largely shared by the smaller powers of Western Europe.

In contrast to Germany, non-proliferation perspectives in the UK and France are more globalist and Martian, although London and Paris have tended to use power politics to pursue opposite objectives vis-à-vis Washington. Given the special U.S.-UK relationship, including intelligence-sharing, the UK has traditionally been America's closest partner on the most sensitive non-proliferation issues, whether in war (Iraq) or diplomacy (Libya), while France has more often seen non-proliferation policy through the prism of its more strategic objective of balancing the American hyperpower. Nonetheless, American and French non-proliferation officials and experts share the same realist framework that international non-proliferation norms and treaties must be backed by national interest and power.

As nuclear weapons states, the UK and France also share America's need to balance arms control and disarmament measures with the need to preserve their nuclear arsenals. Some French officials, especially in the Ministry of Defense, are not displeased when the U.S. takes the lead in challenging the linkage between disarmament and non-proliferation, and they share some of Washington's skepticism about the value of additional arms control treaties, such as the FMCT. On nuclear disarmament issues, London is generally positioned between Paris and Berlin. Similarly, on issues relating to the importance of nuclear power and its implications for non-proliferation, the British generally take positions between French advocacy and German rejection.

## PRACTICAL TRANSATLANTIC COOPERATION POST-IRAQ

While the European Security Strategy underscores that differences persist on threat perception and the relative importance of different policy instruments, the United States and its European allies have been able to increase cooperation on several practical non-proliferation measures since the invasion of Iraq. In part, this cooperation reflects the broader diplomatic efforts to patch up transatlantic relations after the battle over Iraq and not allow that rift to get in the way of dealing with common threats. For example, the Proliferation Security Initiative, proposed by President Bush in May 2003, served both

Washington's desire to show it could be more multilateral and European desires to prove they could be tougher on proliferation. Aside from the larger geopolitics of mending transatlantic relations, both sides of the Atlantic could agree on the practical value of strengthening measures to interdict shipments of dangerous commodities, such as missile exports from North Korea.

Similarly, President Bush's proposal in September 2003 for a Security Council resolution designed to help prevent non-state actors from acquiring WMD appealed to the European desire for a stronger Security Council role in combating proliferation. Lengthy negotiations in New York were required to iron out a number of issues, including typical transatlantic disagreements. To satisfy German concerns, language was added to confirm international obligations under multilateral arms control treaties, and Washington had to be convinced to accept a UK proposal to create a special committee of the Security Council to report to the Council on national measures to implement the mandatory resolution. The final result, UNSCR 1540, which passed on April 28, 2004, requires states to criminalize proliferation activities, enact stronger export controls, and secure sensitive materials that terrorists might seek to acquire for WMD use.

In addition to the broader effort to mend transatlantic relations, Washington's non-proliferation policies after the Iraq war naturally began to shift toward more traditional diplomatic efforts, as inherent constraints on U.S. power and the mounting difficulties of the Iraq occupation limited U.S. options to threaten military force or pursue regime change to achieve non-proliferation objectives in the cases of Iran and North Korea. More by accident than design, the allies developed a de facto division of labor toward Iran: the American bad cop threatened to refer Iran to the Security Council for IAEA safeguards violations, while the European good cop offered to protect Tehran from international pressure if it satisfied IAEA concerns about past nuclear activities and accepted the Additional Protocol without condition – promising technological inducements if Iran agreed to forgo its fuel cycle program. In October 2003, Iran and the EU 3 (the UK, France, and Germany) reached an agreement, which appeared, at the time, to be a significant step toward containing Iran's nuclear weapons program.

In December 2003, the United States and UK announced what has proved to be a more enduring and comprehensive diplomatic deal with Libya, which agreed to abandon its nuclear and chemical weapons programs and limit its ballistic missile program in exchange for normalization of political relations and lifting of economic sanctions. For Washington and London, the Libya deal offered an alternative model of disarmament through diplomacy, in contrast to the Iraq model of disarmament through force and regime change, although neither Iran nor North Korea are likely to follow the Libyan example. As part of the agreement, Libya also provided enough concrete information on its nuclear procurement efforts to allow the United States and UK to pressure Pakistan to finally put the A. Q. Khan nuclear network out of business.

On North Korea, as six-party talks got underway after the Iraq war, Europe decided to defer to Washington and reject Pyongyang's entreaties to pursue an independent path. While Asian hands in key European Foreign Ministries are sometimes privately critical of the Bush administration's policies toward North Korea and its conduct of the six-party talks, the issue is not seen as important enough by European leaders to expend serious political capital trying to influence Washington's policies. Moreover, with little interest in preserving or improving relations with Pyongyang, European capitals are more inclined to view the North Korea nuclear issue in the context of its threat to the international non-proliferation regime. As a consequence, the European powers resisted Pyongyang's entreaties to substantially improve bilateral relations or EU-North Korea relations or increase foreign assistance to North Korea until the nuclear issue is resolved.

## STRENGTHENING THE NUCLEAR NON-PROLIFERATION REGIME

The challenges posed by North Korea and Iran to the NPT and the revelations of Libya's clandestine nuclear weapons program and the A. Q. Khan nuclear network have created a common sense on both sides of the Atlantic that the nuclear non-proliferation regime is under serious duress. In February 2004, President Bush proposed a set of seven measures to correct weaknesses and strengthen the regime, and London and Paris soon followed with their own set of recommendations. While these various proposals differed in detail, they stemmed from a similar analysis, and it was possible to reach agreement on several modest, but concrete measures, announced by the Sea Island G8 Action Plan on Non-proliferation and the subsequent EU-U.S. Declaration on the Non-Proliferation of Weapons of Mass Destruction in June 2004.

Among these measures, the G8 and EU-U.S. leaders agreed to:

- Adopt the Additional Protocol as an “essential new standard” for nuclear supply agreements and strengthen Nuclear Suppliers Group (NSG) guidelines accordingly by the end of 2005. (Making the Additional Protocol a standard for nuclear supply was endorsed by the EU-U.S. summit statement of June 25, 2003, but was blocked by Moscow in the G8 context until Iran agreed to accept the Additional Protocol in its October 2003 agreement with the UK, France, and Germany.)
- Support the suspension of nuclear fuel cycle cooperation with states that violate their non-proliferation and safeguards obligations. (This represents a compromise between a French proposal that all peaceful nuclear cooperation should be suspended with states that the IAEA reports is in non-compliance with its safeguards agreement and a UK proposal that states failing to comply with their safeguards obligations should “forfeit the right to develop” a nuclear fuel cycle.)
- Endorse a U.S. proposal to support establishment of a special committee of the IAEA Board of Governors, comprised of states in compliance with their NPT and IAEA commitments, to prepare a “comprehensive plan for strengthened safeguards and verification.”
- Oppose states under investigation for non-technical violations of their IAEA safeguards obligations being allowed to participate in decisions by the IAEA Board of Governors regarding their own case. (This is a compromise version of the original U.S. proposal that countries under investigation should not be allowed to serve on the Board at all.)
- Endorse a U.S. proposal to expand cooperative threat reduction programs to include weapons scientists from Iraq and Libya.

Agreement on more ambitious proposals to strengthen the nuclear non-proliferation regime eluded the G8 and EU-U.S. summits. In his February speech, President Bush proposed that the NSG impose a ban on any exports of enrichment and reprocessing facilities and technology to any state that does not already possess “full scale functioning” facilities and ensure that any country that renounces enrichment and reprocessing be given reliable access to fuel for civilian power reactors. In its March non-paper, France counter-proposed that the NSG adopt more stringent guidelines for the transfer of fuel cycle technology, rather than an outright ban, while endorsing the concept of supply guarantees to states that elect not to pursue fuel cycle capabilities, provided that no “monopoly situations” are created.

In the end, the G8 could not agree to oppose additional fuel cycle facilities worldwide, but compromised on language to strengthen NSG guidelines to ensure that sensitive nuclear items would not be exported to “states that may seek to use them for weapons purposes or allow them to fall into terrorist hands.” In the meantime, the G8 agreed to a symbolic one year moratorium on transfers of enrichment or reprocessing items to additional countries, while seeking to “develop new measures to ensure reliable access to nuclear materials, equipment, and technology, including nuclear fuel and related materials, at market conditions, for all states.” In addition, the leaders could not agree to endorse a French proposal for a Security Council resolution that would require a suspension of all peaceful nuclear cooperation with any country found in violation of its NPT obligations, and a resolution that would prohibit any country that withdraws from the NPT from using any nuclear facilities it acquires as an NPT party.

## PROSPECTS FOR FUTURE COLLISIONS AND COOPERATION

Under the Bush administration, transatlantic disagreements over non-proliferation policy have been worse than ever, highlighted by the spectacular failure of the alliance to agree on whether to disarm Iraq through inspections or invasion. Despite these tensions, however, or sometimes because of them, practical cooperation has expanded in such areas as interdiction (PSI), efforts to prevent terrorists from acquiring nuclear, biological, chemical, or radiological weapons (Global Partnership, UNSCR 1540), and proposals to strengthen the nuclear non-proliferation regime. These and similar measures should be sustainable by the next U.S. administration. To the extent that the United States revises its position on traditional multilateral arms control measures, such as the CTBT and negotiation of a verifiable FMCT, it could facilitate agreement with Europe on additional proposals to strengthen controls on nuclear materials and sensitive technologies in civilian nuclear programs.

The most difficult test for future transatlantic cooperation for the next U.S. administration, however, is likely to be Iran. As long as Tehran felt vulnerable, the good cop, bad cop division of labor between the United States and the EU 3 was having some success in pressuring Iran to cooperate with the IAEA and suspend its fuel cycle program. Increasingly, however, as Tehran feels more secure, it is proceeding to resume its fuel cycle program and acquire a nuclear weapons break-out option, even if it cooperates with the IAEA to correct past safeguards violations and implements the Additional Protocol.

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**The most difficult test for future transatlantic cooperation for the next U.S. administration, however, is likely to be Iran.**

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To meet this challenge, the United States will increasingly urge its European allies to threaten and apply “coercive measures,” and Europe will press the United States to seek a negotiated agreement with Iran before international pressures and sanctions are imposed. The application of more European sticks and more American carrots

is the most promising formula for stopping (or delaying) Iran’s acquisition of a nuclear weapons capability, but if this approach fails, the transatlantic alliance will face a stark choice between acquiescence and military action.

# NUCLEAR SECOND THOUGHTS? STATES THAT MIGHT RECONSIDER THEIR OPTIONS

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## DAY III

U.S. diplomacy and national security strategy have had for decades as one of their central features the prevention of the spread of nuclear weapons. Over the last decade, this pursuit has focused primarily on stopping unsavory regimes such as North Korea, Iran, and Iraq from acquiring or developing a nuclear capability. After 9/11, the need to stop terrorists from getting their hands on such destructive power took on new urgency. Yet, there has been less attention given to another class of future potential proliferators: those states that in the past chose to forgo the nuclear option, but for a variety of reasons could now revisit that decision. Today there is some risk that the concerted post-war diplomatic efforts aimed at slowing, halting, or reversing nuclear proliferation may be showing signs of fray and so-called “responsible” states may be reconsidering their nuclear options.

What factors might trigger a nuclear “tipping point,” whereby a collection of currently non-nuclear states might look at nuclear weapons again? What can the United States do to dissuade them from looking too closely?

### FACTORS THAT COULD PROMPT RECONSIDERATION OF NUCLEAR OPTIONS

A host of states in the non-nuclear club have periodically reviewed their national options for acquiring weapons of mass destruction. Japan, South Korea, Saudi Arabia, Syria, Egypt, Taiwan, Brazil, Taiwan, and Turkey, among others, have at one time or another reconsidered nuclear options. In the past, however, a combination of security guarantees, domestic politics, and international pressure has been enough to dissuade them. In the simplest terms, the potential costs outweighed the perceived benefits.

Today, much has changed that could upset the delicate balance of incentives and disincentives put in place during and after the Cold War. There have been rapid changes in the international system and major new sources of global upheaval and uncertainty, including the end of a Soviet Union that enforced non-nuclear discipline on members of its empire; a former Soviet Union with an ocean of fissile material subject to varying degrees of security; new nuclear weapons states in India and Pakistan; international terrorism, sometimes linked to state sponsors; the proliferation of biological and chemical weapons programs during the 1990s; the growth of a robust black market in nuclear technology, as exposed by the A. Q. Khan revelations; anxieties about the preeminence of American power and what it means for others in the international community; an Iran and North Korea that are openly contemptuous of their non-proliferation commitments; failed and failing states and havens of lawlessness and volatility throughout an “arc of instability” from North Africa to Southeast Asia; and new threats from terrorists with global reach.

Several of the states named above have experienced enormous domestic changes. For many, the surrounding regional situation or larger international environment has become less stable and in some cases more ominous. For instance, talk of a nuclear option was virtually unthinkable in Japan a decade ago, but more recently a rising chorus of commentators both in and out of government have publicly supported open debate around Japan’s potential nuclear future. It would be an exaggeration to suggest that a collection of comments and opinion pieces indicate a nuclear program on the horizon, but it also would be imprudent to rule out a future world with more nuclear powers.

The potential for nuclear proliferation among states that had formerly foresworn the option deserves study and attention from U.S. policy makers. Identifying the potential factors that could lead to a new round of proliferation among these countries should be a critical new feature of American intelligence collection and analysis, preventive diplomacy, and a factor in U.S. decision-making on issues ranging from national strategy to public diplomacy.

What specific factors would inspire a country to retreat from a well-established non-nuclear national identity in favor of an arsenal that includes atomic devices and the means for their delivery? Five international and domestic factors stand out:

- Eroding regional or global security situation
- Domestic imperatives
- Increasing availability of technology
- Direction of U.S. foreign and security policy
- Breakdown of the global nuclear non-proliferation regime

The most likely case would involve several factors interacting and reinforcing in complex ways. For example, there have always been terrorist groups, but there has never before been the simultaneous concentration of terrorist groups with global reach, the diffusion of bomb design information and the possibility of unaccounted nuclear material from the former Soviet Union. The growing transnational trade in weapons of mass destruction and related technologies is a development and one that can exponentially increase the threat of nuclear proliferation. A country like Pakistan could miniaturize a nuclear device with assistance from China and place it on top of a ballistic missile purchased from North Korea. These technical and regional factors coincide with an unstable international environment and anxieties about the sustainability of the global non-proliferation regime.

## ERODING REGIONAL OR GLOBAL SECURITY SITUATION

Existing or historic tensions between neighboring nations could lead one or more states to reconsider the value of developing a nuclear capability. As general insecurities transform into regional rivalries, a state could consider nuclear capabilities as a way of winning the strategic upper hand, or balancing a larger nuclear neighbor. For example, as India strengthened its nuclear competencies, Pakistan found it increasingly necessary to develop a nuclear weapons capability of its own. Japan, troubled by China's economic growth and military expansion, as well as historic tensions reemerging in the region, has reacted with renewed debate on the nuclear issue, at least in some quarters. In addition, regional tensions are being driven by the relationship between China and Taiwan, threatening to lead to an arms race with greater potential for misunderstanding and miscalculation over time.

A nation's desire to achieve a balance of military power with its neighbors is another possible incentive to adopt a pro-nuclear stance. On the Korean peninsula, for instance, there has long been considerable concern that an increasing conventional military capability in the North could present an overwhelming challenge to South Korea. This concern echoes the belief at the height of the Cold War that the conventional might of Warsaw Pact member countries threatened the stability and security of Western Europe. With the chronic problems plaguing the North, concerns over an enduring and widening gap in conventional forces in Korea have eased somewhat, but conventional imbalances have been a key trigger in driving nuclear decisions elsewhere. For example, the imbalance in battlefield forces in Europe led directly to the development of tactical nuclear weapons for the European theater; the nuclear capability of NATO forces was seen as the great equalizer that would enable Western Europe to face off against the far superior conventional might of the Soviet Union and the Warsaw Pact.

Currently, the increasingly militarized relationship between China and Taiwan has sparked similar concerns. China's steady conventional build-up of fighter planes, medium-range ballistic missiles, naval assets, and expeditionary forces is worrisome. Many fear that, absent external assistance, Taiwan could become vulnerable to a conventional attack by the mainland. For this reason, Taiwan has considered a nuclear alternative at points in the past, but was dissuaded through quiet pressure from Washington. An increasing conventional imbalance and any sense of alienation or lack of support from Washington could cause Taiwan's leaders to reconsider.

A primary reason for seeking to block various states – such as Iran, Iraq, and North Korea – from achieving nuclear status is the concern that a rogue state's successful acquisition of a nuclear weapon could trigger a range of potentially destabilizing regional responses, including the proliferation of nuclear weapons beyond the rogue. This concern has been one of the driving factors behind U.S. diplomacy in the recent past, including the "Agreed Framework" nuclear deal with North Korea in 1994 and the Bush administration's Six Party Talks with North Korea. This issue is also arguably one of the animating features behind the "axis of evil" phrase in the President's State of the Union address, and the harder U.S. line toward Iraq, Iran, and North Korea – all states that are seeking to develop or acquire nuclear weapons.

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Policy makers realize that the regional impact of particular states acquiring nuclear weapons could be great, particularly in Asia and the Middle East, where nuclear and non-nuclear states maintain an uneasy coexistence. For example, the development of a nuclear capability by North Korea might quickly lead to nuclear proliferation in Japan and South Korea, heighten tensions with an already nuclear-armed China, and destroy the tenuous balance of power in the region. The domino effect could reach farther, upsetting regional relations with the United States, Russia, and South Asia.

Finally, international stability is also an important factor, and global terrorism is one development that could contribute to a growing sense of unease. Much has been written about the national and global implications of the 9/11 terrorist attacks against New York and Washington. While there is certainly heightened vigilance to new domestic threats inside the industrialized democracies and elsewhere, less attention has been focused on how an increase in domestic terrorism could lead to larger systemic insecurity. The logical response to greater homeland security challenges is to tighten borders, heighten intelligence and situational awareness, and increase cooperation with the United States and other leading states – not to seek to build nuclear weapons.

Yet, wider and more frequent terrorist attacks might lead to non-linear responses. In such an environment, states might view a nuclear capability as a psychological assurance domestically as well as a viable deterrent against external threats, particularly when non-state actors have been supported by rogue regimes. The potential interaction between groups such as al Qaeda and rogue regimes with nuclear ambitions has not been lost on many American allies and friends abroad, and a nuclear capability could be seen in this context as a deterrent to state-sponsored terrorists. While a manifest increase in homeland security threats globally is probably not enough on its own to trigger a nuclear recalculation, heightened anxiety over domestic vulnerability to external threats coupled with other troubling trends either at home or abroad could trigger a broader reassessment of nuclear options.

## DOMESTIC IMPERATIVES

States in decline often suffer from a kind of societal insecurity over future economic and security shortfalls. Such anxiety could trigger national consideration of nuclear options to forestall the heightened vulnerability that naturally accompanies decline. Just as failing or slipping states have

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**Domestic political upheaval and bureaucratic politics can also have a potentially decisive influence on the decision to move down the nuclear path.**

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sometimes sought to wage preventive war against rising competitors, declining states may consider the nuclear option as a relatively cost-effective and technically achievable equalizer. This complex societal dynamic of “regime pessimism” is currently in play among virtually all of the states in the Middle East and, some might argue, Japan as well. Countries that once aspired to international greatness or at least to a level of prominence but now fear irrelevance or worse might regard nuclear weapons as a way to provide not only a psychological hedge but potentially a strategic one as well.

Countries that have previously chosen to renounce nuclear weapons have also generally implemented greater transparency throughout national security and scientific agencies as part of their move toward greater democratization. It is less clear, however, what kinds of domestic political developments might provoke the pursuit of nuclear weapons. India’s populist political movements

no doubt played a role in the administration's decision to test a nuclear weapon in 1998, and the influence of Pakistan's military was similarly decisive in its internal deliberations about nuclear development over the course of the last decade. The important factor here is that not only regional and international developments drive potential proliferation. Domestic political upheaval and bureaucratic politics can also have a potentially decisive influence on the decision to move down the nuclear path. In some cases, even individual policy makers are instrumental in moving forward a country's nuclear weapons program. Ambitious bureaucrats, secretive atomic power agencies or ministries, the national security apparatus, and military organizations are all key domestic variables in the complex decision-making surrounding nuclear choices.

A country's previous experience with nuclear energy, politics, or weapons is a factor that should not be overlooked when considering the potential for a nuclear breakout. For instance, the atomic bombing of Hiroshima and Nagasaki at the close of World War II still casts an enormous shadow over contemporary Japan when it comes to consideration of nuclear matters. The international circumstances would have to be extraordinarily worrisome to override the strong domestic opposition that would no doubt follow any Japanese decision to consider formal nuclear status. The depth of preconceived public attitudes surrounding nuclear capabilities are important in gauging how political choices are framed inside a particular country. These domestic particulars are in some cases much more important than the strategic circumstances or the regional challenges facing a particular country.

#### **INCREASING AVAILABILITY OF TECHNOLOGY**

Another reason countries might revisit a prior decision not to pursue nuclear weapons is simply that the capability is now easier to acquire and perhaps easier to acquire surreptitiously. Bomb design information has long been widely available, but the most difficult part of developing nuclear weapons – acquiring fissile material – may have become less difficult. The main potential source for these materials is the former Soviet Union, where, despite nearly a decade of heroic effort on the part of the United States, Russia, and others, large quantities of bomb-grade material are dispersed throughout a large area and are difficult to account for. Even without access to the former Soviet Union's stockpile, recent revelations stemming from the A. Q. Khan network have highlighted the spider's web of illicit purveyors of nuclear technology and training around the globe.

Potential availability of material is unlikely to be the sole driver of a country's decision to go nuclear, but a lowered bar to acquiring nuclear weapons, together with other rationales, may make proliferation more likely. And again, if a country fears that others in the neighborhood are seeking to get into the nuclear game, it might decide that the most prudent course of action is to get there first.

#### **DIRECTION OF U.S. FOREIGN AND SECURITY POLICY**

One of the most important ingredients in a new international calculation of the attractiveness – or perceived necessity – of acquiring nuclear weapons is the future direction of U.S. foreign and security policy. For decades, U.S. friends and allies – such as Japan, South Korea, Taiwan, Germany, Egypt, and others – have depended on several aspects of American policy when making calculations about their own security and nuclear posture. These include the stability of the American nuclear deterrent and U.S. security guarantees; U.S. rhetorical commitment to, active

pursuit of, and participation in global non-proliferation policies and regimes; American restraint in publicly contemplating the use of nuclear weapons, particularly against a state that does not possess weapons of mass destruction; and commitments not to “de-couple” U.S. security from that of its allies through the development of defensive systems. U.S. policy and priorities are changing as a consequence of many factors, including the global war on terrorism, and it is important to appreciate how these changes might directly or inadvertently influence nuclear decision-making in other countries.

Many in the international community perceive that the United States has dramatically changed its approach to deterrence, in favor of preemption and preventive war. They see evidence for this in the 2001 Nuclear Posture Review, the 2002 U.S. National Security Strategy, and U.S. policies towards Iraq. Coupled with the U.S. desire (however justified in some cases) to jettison Cold War era agreements such as the Anti-Ballistic Missile Treaty, this perception has led some to conclude that U.S. policy has become more unilateralist and focused on U.S.-only concerns over other global commitments and responsibilities.

It is yet to be determined what impact, if any, this new perception of the United States has with respect to alliance commitments and security assurances, and in turn, on proliferation decision-making. It is possible that this more forward-leaning U.S. approach will create insecurities among certain states that could lead them to move closer to a nuclear weapons capability. It also could be argued, however, that a United States that is more, not less, engaged in the world because of the global war on terror, is a more, not less, reliable partner. Likewise, a United States that has demonstrated its willingness to use force against countries that harbor WMD ambitions may be more reassuring to allies and more effective at deterring adversaries. Certainly, there has been no perceptible erosion of current U.S. security commitments in Europe, Japan and South Korea; they are still grounded in the viability and consistency of the U.S. nuclear umbrella.

U.S. rhetorical and policy commitment to the global non-proliferation regime also has a significant impact on international confidence in the regime and its ability to carry out its charter. Previous American administrations, both Republican and Democratic, have made the Non-Proliferation Treaty a centerpiece of U.S. strategy to prevent the spread of nuclear weapons. Continuing and strengthening this trend is an important factor when other states consider the continuing viability of global non-proliferation norms.

Certainly, the United States is not the only factor in the calculations countries make about their own security, but it is a significant one. The policies and actions of the most powerful and influential country in the world affect every nation and have an impact on everything from global and regional security to economic stability, international norms and practices, and the sustainability of whatever global consensus exists. Much like the brilliant (or simply martinet) professor whose every sneeze or cough is anxiously noted by students for fear of missing something on the final exam, U.S. actions are closely observed, noted, and (over)interpreted by states around the world. American policy can, sometimes inadvertently, increase or decrease confidence substantially – a key factor in any country’s calculation of if, or when, a nuclear capability is required.

## **BREAKDOWN OF THE GLOBAL NON-PROLIFERATION REGIME**

The world has not witnessed a nuclear device used in anger since the dropping of the atomic bomb on Nagasaki in August 1945. Contrary to expectations, for much of the Cold War nuclear

proliferation was actually slowing down, with China becoming the last member of the so-called “nuclear club” in 1964. The last decade, however, has seen a weakening of this trend. India and Pakistan – both of which have had active nuclear programs for decades – openly became nuclear weapons countries when they detonated nuclear devices in May 1998, and have been further developing their nuclear arsenals ever since.

Three new nuclear powers – yet unacknowledged by the NPT – have emerged, and a number of “rogue” states are widely known to be pursuing nuclear programs and to be close to fielding a weapon (if not already there). It is widely suspected that Israel possesses a nuclear deterrent. North Korea has been openly flouting the global non-proliferation regime for nearly a decade and is estimated to already possess nuclear devices. Iran is continuing a decades-long effort to develop nuclear weapons. Other states are further behind in the pursuit, but no less ardent.

The non-proliferation regime has been battered by the facts: the on-the-ground emergence of new nuclear weapons states to be sure, but also of critical importance, the lack of real consequences for those states that have defied the international community. The three unacknowledged nuclear powers have suffered little to no long-term diplomatic or economic penalties for their defiance, and Iran and North Korea continue their programs apace. Some critics see the current high standing in Washington of Israel, India, and Pakistan as actually encouraging other potential nuclear states on the brink to take that next fateful step, or at least as not discouraging them from doing so.

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**The non-proliferation regime has been battered by the lack of real consequences for those states that have defied the international community.**

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## CONCLUSION

None of the conditions mentioned above should be taken as signaling an impending break-out on the part of any non-nuclear weapons state. Indeed, a striking feature of the international environment in this respect is how few countries have openly reconsidered earlier decisions to forgo nuclear capabilities. Nevertheless, it is important to appreciate the particular influences that affect nations’ nuclear status calculations. While the inhibitions that have stopped the nuclear club from growing have been preserved thus far, no one can be certain how long the systemic disincentives, the still powerful taboo associated in many quarters with things nuclear, regional factors, strong internal restraints, or simply old patterns of thinking involving nuclear weapons will hold true.



# NUCLEAR PROLIFERATION AND THE CASES OF RUSSIA, CHINA, AND INDIA

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## DAY III

In the 2002 *National Strategy to Combat Weapons of Mass Destruction*, the Bush administration argued that, to face the challenges of proliferation in the age of transnational terrorism, the United States “must take full advantage of today’s opportunities, including...the strengthening of alliance relationships, *and the establishment of new partnerships with former adversaries.*” In his February 2004 speech at the National Defense University, President Bush presented a number of proposals to operationalize this pledge, including expanding the Proliferation Security Initiative, tightening export controls, strengthening the rules of the Nuclear Suppliers Group, and revising the guidelines of the International Atomic Energy Agency.

Many of these proposals will only come to full fruition with the cooperation of the original nuclear weapons states, the world’s biggest economies, and the world’s largest democracies. As such, the ability to work with Russia, China, and India is crucial.

This paper examines the challenges and opportunities of cooperating with these three nations. Is significant non-proliferation cooperation feasible? What are the interests of these nations in working, or not working, with the United States on a common non-proliferation agenda? How do domestic constraints, real or imagined threat perceptions, and historical animosities affect the ability to cooperate? Does our experience to date with Iran’s nuclear weapons program suggest shared goals?

The short answer is that currently these three countries do not share the proliferation concerns of the United States, or at least do not prioritize them in the same manner. While leaders in Moscow and New Delhi certainly stay awake at night worrying about the prospect of a nuclear armed jihadi, how concerned are those in Zhongnanhai? While both India and China have expressed interest in creating more effective systems of export controls to curtail proliferation, will Russia determine that the benefits of such a system outweigh the costs associated with losing a much needed revenue stream? And while China and Russia are intrigued by calls from the IAEA to strengthen the NPT, India is unlikely to be a positive force in creating any new system that continues to view it as less than a full member of the nuclear club.

The task for policy makers is to induce these three countries to recognize that the risks of inaction are far too high and that it is in their own interest to cooperate on a non-proliferation agenda. This can be accomplished by expanding the understanding of the threat and its lethality. It can also be achieved by recognizing and helping to diminish the economic hurdles and political constraints these countries face in cooperating on a serious non-proliferation agenda, which in part may entail raising the costs

associated with the refusal to cooperate. However, policy makers must also evaluate alternative options for the United States if joint collaboration on specific non-proliferation cases is impossible.

For example, the United States should not expect these nations to willingly play a salutary role in preventing the Islamic Republic of Iran from acquiring a full-blown nuclear weapons program. U.S. resolution of purpose may sway Iran's benefactors, protectors, and associates toward cooperation but it may not. Inducements should be considered, diplomatic leverage should be applied, but at the end of the day, resolving the Iranian nuclear weapons program may fall to the United States with assistance from other like-minded nations.

Yet even that scenario need not spell the end of potential cooperation with Russia, China, and India. Unfortunately, the problems of proliferation extend far beyond Iran into Syria and North Korea and any number of address-less jihadis. Exploring ways to cooperate, if only on a limited basis, could move the United States further down the long road toward its non-proliferation goals.

### **WORKING WITH RUSSIA: REORDERING THEIR THREAT MATRIX**

Variables such as domestic political constraints and historic animosities play a role in determining whether Russia can become a dependable non-proliferation partner for the United States. More important, however, cooperation with Russia requires a better understanding of the current Russian assessment of its own place in the world and how Moscow prioritizes its threats.

While Russia is on the rebound since the early days after the Soviet Union's demise, economic and societal troubles still plague the country. The core manufacturing sector is decrepit; the infrastructure that supports it is obsolete. Corruption riddles all levels of society.<sup>2</sup> On top of this, Russia is quickly depopulating. In 1992, Russia's population was estimated at 148.7 million. In mid-2003, the population had declined to 144.5 million, with deaths outnumbering births at a rate of 170 to 100.<sup>3</sup>

Corruption and population stressors were two of the factors RAND cited in 2002 as leading to a general disintegration of military morale and capability.<sup>4</sup> On February 25, 1997, shortly before his dismissal, then-Defense Minister Igor Rodionov stated, "What kind of Defense Minister am I? I am the Minister of Defense of a disintegrating army and a dying fleet."<sup>5</sup>

Faced with a weakening conventional force and lacking the resources to significantly strengthen it, Russia has expanded its reliance on its nuclear forces. The implications for non-proliferation cooperation are, at once, both positive and negative. On the plus side, this increased reliance on the utility of nuclear weapons could turn a Russian deficit into an asset. As Rose Gottemoeller has pointed out, "Russia's nuclear weapons give it a stronger role on the world stage than its economic or political heft would otherwise warrant, and Russia's pride in this role should be harnessed to accomplish larger international goals."<sup>6</sup> At the same time, as former Senator Sam Nunn suggested in a recent speech, this re-emphasis increases the chance of accidental launch and worsens the problem of forward proliferation.<sup>7</sup>

Many of the same underlying economic and societal factors that are driving Moscow to rely on its nuclear arsenal are also driving it to make other choices vis-à-vis aiding or hindering the spread of nuclear weapons and capabilities. A case in point is Russia's relationship with the Islamic Republic of Iran. While Iran maintains its position in the now re-dubbed "axle of evil" and lies at the center of the Bush administration's non-proliferation challenges, Moscow continues to support

and expand its connections to Tehran. Given the importance Washington has placed on preventing the Islamic Republic from becoming a nuclear weapons power, it is difficult to square Russian aid to that very program with a belief that the United States and Russia can find a broad-based common understanding on halting the spread of nuclear weapons.

Although Undersecretary of State for Arms Control and International Security John Bolton testified that “Russian leaders repeatedly assured us that they will not supply fuel for the Bushehr reactor until agreement is reached with Iran to return all spent fuel to Russia,” there are significant concerns about the strength of this pledge.<sup>8</sup> Aside from the transfers of technology and components themselves, the Bushehr project will immerse Iranian personnel in nuclear technology and provide extensive training and technological support from Russian nuclear experts. The United States must remain seized with this issue; if Iran withdraws from the NPT once the Bushehr reactor is up and running, within three years (and perhaps as little as one) Iran could possess enough plutonium for dozens of nuclear weapons.<sup>9</sup>

It is difficult for some Americans to understand why Russia continues to supply a state-sponsor of Islamic terrorism with the means to develop nuclear weapons. After all, Russian citizens continue to be terrorized by Islamic extremists making their way into the heartland and the cities from Chechnya. But in the Russian view, the Iranian relationship counters growing U.S. dominance in the region, provides needed economic relief, and keeps Iran from causing Russia trouble in the Muslim-dominated areas to the south.

Russia sees itself as one of the few major foreign actors to possess an independent foreign policy. Furthermore, according to parts of the Russian establishment, the United States – not nuclear proliferation and terrorism – remains the premier threat. As such, building an alliance of sorts with an enemy of the United States is not only an important symbol of self-sufficiency; it has the practical application of fending off the growing dominance of the United States in Eastern Europe and Central Asia.

Iranian money is hard to pass up – even for those within the Russian government who would rather move Moscow into a Western orbit. The Russian economy has been battered over the last decade, and the importance of the billions of dollars Russia may earn from Bushehr and other future reactor projects cannot be overestimated.<sup>10</sup> Additionally, powerful energy and defense interests in Russia will most likely use their considerable influence to ensure the continuation of these projects.

Continued Russian support for Iran will certainly confound the broader relationship. As such, the U.S. must continue its efforts to find the incentives to convince Moscow that Russia’s economic and security interests can be better served by halting its nuclear relationship with the Islamic Republic. Realistically, however, the United States may not be able to find common ground with Russia on this issue, at least in the near term. It is unlikely that Russia will stop its cooperation with Tehran, no matter how hard the United States pushes. Russia views Iran in a much broader strategic context than simply as a purchaser of nuclear supplies. Likewise, it is doubtful that the United States and the Islamic Republic will reach a rapprochement.

Rather than conditioning the totality of U.S.-Russian non-proliferation cooperation on a resolution of the Iran issue that may not occur, both countries should lower their sights and attempt

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**Iranian money is hard to pass up – even for those within the Russian government who would rather move Moscow into a Western orbit.**

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to move ahead with limited collaboration. A number of such avenues do exist and much is ongoing under the rubric of the Nunn-Lugar Cooperative Threat Reduction and the Global Partnership, to which the G8 recommitted at the Sea Island Summit. However, more can and should be done to impress upon the Russians the severity of the threat, provide steps to reduce it, and suggest ways that they can “do the right thing” without suffering severe economic pain.

To help change the prioritization of the threat, one important program that should be undertaken is the establishment of a series of “loose nuke” war games with the Russians. A game similar to the highly successful *Black Dawn* exercise conducted by the Center for Strategic and International Studies (CSIS) could potentially be as illuminating for the Russians as it was for European lawmakers. *Black Dawn* was a scenario-based exercise held in Belgium in May 2004. In the scenario, terrorists acquired highly enriched uranium, made a crude device and detonated it in Brussels. According to press accounts and participant reviews, the scenario served as a wake-up call for European officials and galvanized commitment to consolidate, secure, and eliminate the most dangerous nuclear materials from around the world.

Conducting a similar nuclear terrorist attack scenario with the Russians would probably reveal the same deficiencies in defense, detection, planning, and response. The lessons learned could help increase the efficiency and effectiveness of existing programs (port and border security in particular), expand the level of access to sensitive Russian facilities (a major factor preventing the implementation of a number of programs), as well as point out the need for joint crisis management planning.

Another possibility is to build off the U.S.-Russian rapid reaction teams that secure and retrieve HEU from Soviet-era facilities. These teams have been making headlines for successful missions in Bulgaria and elsewhere.<sup>11</sup> Such cooperation should be expanded beyond simple retrieval into the conversion of the HEU research reactors themselves.<sup>12</sup>

However, the bottom line of U.S.-Russian non-proliferation cooperation may, in fact, be *the bottom line*. Understanding the importance economics play in influencing Moscow’s policy choices should push the United States toward adopting Richard Perle’s suggestion that, “If you want to get [proliferation] solved, don’t send a diplomat [to Russia]. Send a banker to discuss it.”<sup>13</sup>

While there appear to be areas for potential U.S.-Russian cooperation on non-proliferation, the challenges to finding and exploiting these opportunities are significant. In the coming months, if the IAEA case on Iran moves forward, Russia will be faced with a difficult choice between protecting its financial assets in the Islamic Republic by shielding Tehran at the UN or sanctioning Tehran, thereby risking losing its contracts. On this and other issues of proliferation concern, the United States must help make the correct choice as easy as possible for Russia.

## WORKING WITH CHINA: WHY GOOD BEHAVIOR IS IN BEIJING’S INTEREST

When assessing whether the United States can find common ground with China on a non-proliferation agenda, it is important to recognize that the People’s Republic of China (PRC) envisions any cooperation with the United States in the context of its own position in the world. The PRC sees itself, for many good reasons, in the ascendancy. In 2003, China became the second-largest economy in the world after the United States (measured on a purchasing power parity basis).<sup>14</sup>

Beijing is also on a major public relations campaign to convince the world that it will use its growing might benevolently. Despite its missile build-up opposite the island democracy of Taiwan, the repression of political rights in Hong Kong, and the proliferation of missiles and WMD to some of the most dangerous regimes in the world, the public relations campaign (augmented by the lure of 1.2 billion consumers) seems to be working. Irish President Mary McAleese, visiting China in 2003, even went so far as to say that, “We see China as strategically and morally an extraordinary force for good in the world.”<sup>15</sup>

Bad behavior on the proliferation front, therefore, may come at a steep price for China as it tries to remake its world image. Some analysts argue that the most dangerous Chinese proliferation behavior is a thing of the past (including the PRC’s crucial role in the development of the Pakistani nuclear weapons program and the transferring of nuclear technology and know-how to Algeria, Libya, Syria, Saudi Arabia, and possibly Egypt).<sup>16</sup>

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Yet China’s relationships with countries such as Iran remain problematic and are illustrative in assessing the ability of Washington and Beijing to cooperate on proliferation issues outside of the Korean peninsula in the future. While the PRC does have concerns over the prospect of a nuclear armed Iran (which could, one day, find cause to support China’s own restive Muslim population), there are other factors that weigh in Beijing’s foreign policy determinations towards Tehran and other dangerous regimes. Oil and the need to thwart U.S. power are two such factors.

China has long been a supporter of Iran’s nuclear weapons program. Despite a 1997 pledge to cancel all nuclear cooperation with the Islamic Republic (including the provision of two 300MWe reactors and a uranium hexafluoride production facility), a March 1999 Pentagon report revealed that China had renewed “negotiations on the construction of a graphite production facility that would allow Iran to produce 200 tons of nuclear-grade graphite a year...”<sup>17</sup> As recently as April 2004, the United States sanctioned Chinese entities for WMD exports to Iran.

In order to gain access to the oil that fuels its economic engine, China seems willing to risk tarnishing its international image. Ten years ago, China was an oil exporter. Currently, the PRC imports one third of its oil and by 2020 it will import close to three quarters of its needs.<sup>18</sup> To make matters worse, the United States is now in Iraq and is firming up relations with the oil rich nations of Central Asia. As China has always had a troubled relationship with Russia, maintaining good relations with Iran is vital. To further this relationship, in March 2004 the People’s Daily reported that a Chinese company, Zhuhai Zhenrong Corp, signed a preliminary agreement with Iran to buy \$20 billion (2.5 million metric tons) of liquefied natural gas over the next 25 years – purportedly the largest ever deal of its kind.<sup>19</sup>

If the oil trade were not enough to propel the China-Iran relationship, their shared goal of limiting U.S. power might be. Although the Islamic Republic never shies away from damning the United States rhetorically and threatening American safety and security in a real sense, the PRC vacillates between accepting U.S. primacy and working to undermine it. Beijing views its rise as thwarted by the United States – with U.S. troops in Japan and South Korea, U.S. economic might, and the U.S. leadership role in NATO and the WTO. By expanding its own economic sphere, woo-

ing the EU and Southeast Asian nations, and talking up its new role as a “responsible world power,” the PRC hopes to secure a more advantageous position relative to its strategic competitor, the United States. Likewise, a United States pulled in numerous directions and consumed with the threat of a nuclear armed al Qaeda, has fewer resources to devote to that competition.

Understanding these motivations could help the United States reach its own non-proliferation goals. Even if China does not share the United States’ fundamental non-proliferation values, there are certain aspects of the non-proliferation agenda that are in China’s interest to uphold. First among these is a significant strengthening of export controls. If the story of the A. Q. Khan network had not gotten lost in the subsequent naming of Pakistan as a major non-NATO ally (which actually made it appear to some that the U.S. was *rewarding* Pakistan for the Khan debacle), China might actually have been unnerved, especially as China’s own connections to Khan and his network were exposed.<sup>20</sup>

China maintains that it is in full control of its nuclear industry. As a result, it is often tongue-tied when asked why, if the Chinese laws to halt illegal exports are so good, there is still so much “leakage.” Western opinion is divided on whether the cause is lack of technical expertise or the lack of political will to enforce the laws.

In May, the United States announced its support for China to join the Nuclear Suppliers Group in hopes that the strict rules of the NSG would compel China to curtail exports that can be used to make nuclear weapons. However, even as the announcement of U.S. support for NSG admittance was being readied, Beijing and Islamabad were negotiating a deal for a second Chinese 300 megawatt nuclear power reactor to be built in Pakistan, a clear violation of the spirit, if not the letter, of the NSG.

The United States should build on China’s relentless public relations campaign to be seen as a responsible nation by using the specter of an A. Q. Khan story “with Chinese characteristics” to propel future cooperation on enforcing export controls. The U.S. should publicize (or threaten to publicize) the type of duplicity exemplified by the Pakistan reactor deal, or exhibited in the significant gaps between China’s export laws and its willingness to enforce them. As with most behavior modification, while the wrong path is being foreclosed, the right one needs to be illuminated.

The United States should offer to work with Chinese officials to implement an integrated network database for export companies and custom officials to help ensure that outbound shipments are not helping to produce WMD. A program like the Wisconsin Project’s *Risk Report* could serve as an important non-proliferation tool for the Chinese. The *Risk Report* provides a continually updated database of the latest unclassified intelligence on WMD programs worldwide, including lists of suspect buyers, shell companies and pass-throughs. It was first developed after the first Gulf War when many of the world’s leading high-tech companies learned that their products had been helping Saddam Hussein build WMD and the missiles to deliver them. If China adopts and implements such a program, the United States should be the first to applaud.

Perhaps the most important action China can take in stemming proliferation and showing its bona fides to the world is to help resolve the Democratic People’s Republic of Korea (DPRK) issue. Certainly China has become less sanguine about the DPRK and seems to have determined that allowing a delusional tyrant like Kim Jong-Il to become nuclear capable and competent is a bad idea – not simply because North Korea is a dangerous, unpredictable neighbor, but also because a nuclear North can lead to a nuclear Japan and/or hostilities on the Korean peninsula, which could end with U.S. troops at the Yalu River.

China has been instrumental in getting the six-party talks off the ground and has, by most accounts, been a relatively honest broker at the meetings, but more should, and can, be done. The United States should encourage China to begin serious discussions on the most difficult topics. What if all the inducements in the world do not stop Kim from pursuing and acquiring a nuclear capability? If the DPRK begins to unravel, will the PRC prop it up or let it fall? Will the PRC become part of the solution by moving North Korea toward a better future, or be part of the problem that allows a tyrannical regime to remain in place? Serious discussions will not only force greater recognition of the problem but hopefully will also allow the United States and China to create viable, coordinated contingency plans.

### WORKING WITH INDIA: UNDERSTANDING ITS HESITANCY, TEMPERING U.S. ENTHUSIASM

The United States has been trying to figure out how to cooperate on non-proliferation with the world's largest democracy since well before India's nuclear tests in 1998. Soon after the UN condemned the tests, the Clinton administration announced a series of steps the Indians could take to get the relationship back on track. These "benchmarks" were created with the mindset that the rollback of India's weapons program was a possibility. It was not. Consequently, the Bush administration took a different tack with India, focusing instead on safeguarding and export controls.

In the immediate wake of 9/11, India lined up with the United States to fight terror and was rewarded with the removal of certain nuclear-related sanctions. In December 2001, the U.S. Defense Policy Group met in New Delhi for the first time since 1998 and sketched a new partnership to include cooperation on proliferation and terrorism. In January 2004, while re-affirming his commitment to a strategic partnership with India, President Bush stated that the United States and India are "partners in the war on terrorism and...partners in controlling the proliferation of weapons of mass destruction and the means to deliver them."<sup>21</sup>

However, despite the President's words and the Bush administration's clear enthusiasm to create a new partnership with India, it is uncertain whether the Indians share this vision for a joint venture. With the surprising May victory by the left-leaning Congress Party headed by Sonia Gandhi, fundamental cooperation should be reassessed.

Like China, India views itself as a rising power. Yet, unlike its giant neighbor to the north, India does not believe it gets the respect it deserves (acceptance as a nuclear power, a seat on the UN Security Council, and other perks that should be the right of the world's largest democracy). And while many in Washington talk of a "transformed relationship," New Delhi still takes its role as a leading independent actor quite seriously.

In the context of building a joint non-proliferation agenda with New Delhi, it is important to recognize that India's main enemies are already nuclear weapons states. Controlling Pakistan and containing China keep Indian policy makers up at night; not whether North Korea, Syria, or Iran is closer to getting the bomb.

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**In the context of building a joint non-proliferation agenda with New Delhi, it is important to recognize that India's main enemies are already nuclear weapons states.**

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In the case of Iran, India may actually be more of a problem than a viable partner. India and Iran share centuries of close cultural ties and New Delhi prides itself on having good relations with the Muslim country. Additionally, during the latter half of the 1990s, India and Iran grew close in their cooperation over the threat from the Taliban – a threat that Tehran, not Washington, took seriously – as the Indians like to remind us.

Like China, India has a growing appetite for energy. Iran's large energy reserves clearly intrigue New Delhi. Out of the \$2.04 billion that India imported from Iran in 2001, oil imports accounted for three quarters of that amount.<sup>22</sup>

While India has always maintained that it has not contributed to Iran's nuclear weapons program, the eager assistance to Iran's civilian nuclear energy industry raises serious concerns, as most analysts agree that India created its own weapons program through the back door of a civilian program. These claims became even more suspect after the *Hindustan Times* reported that the retired head of the Nuclear Corporation of India, YSR Prasad, helped Tehran establish the technical and physical infrastructure of an Iranian nuclear enrichment plant.<sup>23</sup>

India's cooperation and relationship with Iran is interesting beyond the issues of oil and cultural affinity. What may lie deeper is India's skepticism over the new words of friendship flowing from Washington. Despite talk of shared democratic principles and new strategic partnerships, New Delhi remains unconvinced that the United States intends to treat it with the respect it thinks it deserves. Many in the Indian establishment do not believe (for good reason) that the United States accepts India as a nuclear power. They are also confounded by the mixed message from the administration that the NPT is a dying document (something the Indians would like to see) but with no real follow-up with New Delhi on crafting the supposed new mechanisms that would replace it.<sup>24</sup> Finally, India has neither forgotten nor forgiven America's relationship with Pakistan and its shielding from the world Islamabad's nuclear ambitions and capabilities.

So when the United States talks of a new U.S.-Indian partnership on non-proliferation, it is not surprising that the Indians remain somewhat aloof. According to some officials, the Indian government was upset by the U.S. decision not to ask it to join the PSI. With its blue-water navy and commitment to fighting terrorism, the Indian government believed it should have been given an equal voice in PSI's formation. However, when probed on whether they would join PSI if asked, Indian officials were quick to reply that they would have to determine the impact on India's own nuclear program.<sup>25</sup>

Finding new ways to ease India's insecurity and recognize its standing is essential to create a cooperative non-proliferation relationship that must encompass both U.S. and Indian core concerns – including not only export controls, interdiction and Kashmir but the broader threats from Pakistan and China. The United States needs to rein in the grand rhetoric and start putting action behind its words. First steps could include putting meat on the bones of a long-term bilateral dialogue that does not hide the nuclear issue but instead makes it paramount. It is time for the U.S. to end the counterproductive path of trying to convince India to give up its nuclear weapons and sign the NPT. Rather, the United States should engage New Delhi on steps to make the Indian program more secure and where necessary use surrogates such as the IAEA to accomplish this goal.

Washington should also help put India's technological prowess to good use by exploring ways to cooperate on new systems of tagging, tracking and surveillance. Additionally, the United States should seek ways to involve India's blue-water navy in the vital task of safeguarding the seas from nuclear trafficking.<sup>26</sup> Finally, the United States should recognize that India's need for energy is a key factor in its

Iran relationship. As such, a broader discussion on how best to ease India's energy constraints could be an important step in building a closer relationship overall. Meanwhile, the Indians need to show they intend to move beyond the parochial concerns and paranoia of the Non-Aligned Movement (NAM) by accepting U.S. proposals in better faith and re-evaluating their relationship with Iran.

## CONCLUSION: POLICY RECOMMENDATIONS

Cooperating on a non-proliferation agenda with Russia, China, and India is vital to halting the spread of the world's most dangerous weapons. However, these three countries may not fully share the U.S. assessment that nuclear proliferation and terrorism are the gravest threats to the world. Forging closer non-proliferation cooperation thus demands recognizing and accounting for their economic and political constraints; their real or imagined threats; and the historical grievances that affect their decision-making.

Each additional terrorist attack in Russia may help convince Russia that terrorism, not the United States, is the premier threat – and thus make Moscow a more willing partner. While the Iran issue will prevent a joint strategic vision on non-proliferation, there may be ways to continue more limited, but worthwhile, cooperation.

- To increase the saliency of the threat, the United States and Russia should hold a series of nuclear terror scenarios, akin to the CSIS *Black Dawn* exercise.
- The United States should continue to evaluate rational economic solutions to Russian non-proliferation problems.

China, on the other hand, may find its interests are better served by thwarting U.S. initiatives rather than promoting them, although the PRC cannot afford an A. Q. Khan-like scandal if it intends to attain recognition as a responsible world actor. The United States should use Beijing's vision of itself to advance non-proliferation cooperation.

- The United States should seek to foreclose Chinese bad behavior by publicizing, or threatening to publicize, Beijing's continued proliferation activities, and at the same time encourage the PRC to move down the right track by helping to increase export controls and giving international credit and recognition for positive steps.
- One export control measure whose adoption the United States should encourage is a networked database, akin to *The Risk Report*, that allows companies and custom agents easy access to information on end-users so that the excuse, "I didn't know it would be used for an illegal purpose" is eliminated.

Finally, a path toward better cooperation with India may depend on the United States treating New Delhi with the respect it deserves and turning the grand rhetoric of the last few years into actions that take into consideration India's broader security and economic concerns. Likewise, India must earn the respect it demands by seeing the goal of non-proliferation beyond the narrow confines of itself or the NAM.

- The United States should help India become a responsible nuclear power by discontinuing the counterproductive talk of rollback and the NPT; engaging New Delhi on technical cooperation (such as tagging, tracking, and surveillance technologies); and, finding ways to vest India further in the cause of non-proliferation by putting its world-class blue-water navy capabilities to good use.

- The United States should also recognize that India's energy needs are a key variable in its decision-making process. A broader U.S.-Indian energy dialogue can be an important tool in strengthening the overall relationship.

The evidence suggests that strategic non-proliferation partnerships with Russia, China, and India may not be feasible anytime soon. Taking Iran as a case in point, it is unlikely, although not impossible, that these nations will cooperate with the United States in denying the Islamic Republic a nuclear weapons capability.

Given that numerous other non-proliferation challenges exist beyond Iran, the United States should pursue limited collaboration while finding ways to alter these nations' calculus, convincing them that it is in their interests to halt, rather than facilitate, WMD proliferation.

Finally, energy may lie at the heart of our non-proliferation problems. Whether it is the quest for nuclear energy technology or the need to purchase (or sell) good old crude oil, energy weighs heavily in the decision-making calculus of Russia, China, India, and, of course, the United States. In this respect, our options for confronting the challenges of proliferation over the next decade are constrained by the lack of alternative energy sources.

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EFFORTS TO CONFRONT  
PROLIFERATION: A STATUS  
REPORT AND NET ASSESSMENT



# CAN TRADITIONAL ARMS CONTROL EFFORTS DEAL WITH NEW NUCLEAR CHALLENGES?

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## DAY IV

It is largely accepted that elaborately detailed arms control treaties and the protracted negotiations required to produce them are atavisms of a passing era. The most recent U.S.-Russian agreement to be reached – the Strategic Offensive Reductions Treaty (SORT or the Moscow Treaty) signed in May 2002 – is a pallid version of its predecessors. While the 500-page START I treaty took years to conclude, the Moscow Treaty is a three-page document that was forged over the course of a few months and contains neither an implementation schedule nor verification requirements.<sup>1</sup> Much remains to be resolved between the United States and Russia to reduce nuclear dangers, but it is commonly understood that any new agreements will not likely be achieved through formal negotiations.

It is now taken for granted that the risk of deliberate strategic nuclear conflict is remote or perhaps even non-existent.<sup>2</sup> This has allowed the focus of security planning to shift toward combating global terrorism and stemming the spread of mass destruction weapon technologies. Multilateral treaties that address proliferation – including the 1968 NPT and the international conventions on chemical and biological weapons<sup>3</sup> – continue to serve as the lynchpin of the global non-proliferation consensus. That fact alone has created problems for the Bush administration, which prefers to limit involvement with multinational institutions. It is also posing challenges for the agencies that comprise the non-proliferation regime, and which are generally unaccustomed to the highly charged politics of the current debate.

The diplomatic apparatus for non-proliferation has been the target of growing domestic controversy since the end of the Cold War. Questions about the effectiveness of treaty arrangements began in earnest in the early 1990s, when Iraq first revealed its arsenal of unconventional weapons. Since then, clandestine nuclear weapons programs have been found in Iran and North Korea, both of which were parties to the NPT, while Israel, India and Pakistan (not NPT members) have kept their nuclear arsenals steadfastly beyond international regulation.

The treaty's failure to win universal adherence, along with the glaring lack of enforcement powers in agencies like the IAEA, has incited opposition in the Congress and the administration. The discovery of a complex commercial network for trafficking in proscribed nuclear technologies operating out of Pakistan under A. Q. Khan, is one example of movement toward an operational nuclear arsenal in North Korea, and the revelation in September 2004 that South Korean scientists engaged in clandestine uranium enrichment has added to the perception that the NPT cannot contain the pace of nuclear ambitions.

For some, the existing agreements are not just flawed but counterproductive. According to this view, weak regimes divert attention from the gravity of security threats by imposing diplomatic encumbrances that impede the United States from pursuing its national interests. At the same time, harsh criticism has been levied internationally and domestically against the George W. Bush administration for

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**The administration’s “go it alone” strategy is seen by many to have severely damaged long-standing efforts to elicit international support for global proliferation norms.**

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seeking to replace imperfect multilateral measures with what are seen to be even more ill-conceived unilateral initiatives. The administration’s “go it alone” strategy is seen by many to have severely damaged long-standing efforts to elicit international support for global proliferation norms.

As was true in previous decades, ongoing disputes about arms control/non-proliferation policies are a microcosm of fundamental questions about the relative merits of international cooperation. Arms control initiatives – indeed, any efforts to advance security interests through diplomatic accommodations – have traditionally been a political lightning rod in the United States. This

old debate is not about to end. Despite fundamental disagreements about means, there seems to be at least implicit agreement among both advocates and opponents of multilateral measures that there is a need for a more robust and articulated international non-proliferation strategy.

This paper explores the changing nature of arms control and proliferation challenges over the last two decades, considers the potential utility of some of the tools that derive from the Cold War arms control legacy for contemporary security, and suggests some policy innovations that might improve the regime and garner bipartisan and international support.

## **A FIRST STEP: RIDDING THE WORLD OF IDEOLOGICAL BAGGAGE**

A new national consensus to combat the spread of WMD has been hobbled by partisan disputes that resemble Cold War debates about arms control. The ideological fault lines of the past century sometimes seem to get reincarnated in current battles over non-proliferation. It is fitting to raise this point in Aspen, as the Aspen Strategy Group has a tradition of serving as a tempering influence on overheated debates, allowing for constructive dialogue that cuts across party lines.

Arms control/non-proliferation is not, as some would have it, a preoccupation of pacifists or the naïve. The legacy of arms control is a set of tools and procedures to advance an enduring objective: containing the diffusion of and preventing the use of nuclear and other mass destruction weapons. Whether asserted by liberals or conservatives, the notion that there is an inherent dichotomy between arms control diplomacy and other instruments of statecraft, including the use of force, is badly misguided. After all, the Joint Chiefs were always the greatest stakeholders in the strategic arms control process, understanding the value of verifiable arms limitations for assuring the survivability and stability of the U.S. deterrent. As was evident during the first Gulf War and again in the months prior to the second Iraqi invasion, the threat of force can be essential for achieving non-proliferation objectives. Even former chief UN weapons inspector Hans Blix concedes that the inspection teams operating in Iraq from 2002 to 2003 were granted greater access to suspect facilities after the deployment of coalition forces into the region.<sup>4</sup>

Calibrating the mix of instruments to be used in crafting strategy is obviously difficult. It is virtually impossible, however, when the discourse digresses to political beliefs instead of pragmatic objectives. There may be no hope of reconciling the views of those who occupy the two extreme ends of the political spectrum, but one would hope that there is enough common ground in the center to conduct serious analysis.

## FROM CONSENT TO COERCION

Like strategic arms control agreements, the NPT and other consensual non-proliferation treaties were conceived in a different global order. The nuclear non-proliferation regime owes its genesis to the monopoly on nuclear capabilities maintained by the large powers for many years. It was long held together by a widespread consensus about the unique dangers of nuclear weapons, and operated with the clear objective of retaining a hierarchy between nuclear and non-nuclear states. In the case of chemical (and biological) weapons, eliciting multinational support for a restraint regime was possible because of the less than compelling military utility of these weapons among the large powers, shared concerns about their potential misuse by terrorists and lawless states, and the moral opprobrium raised by the risks these weapons pose to non-combatants.

The current proliferation landscape shares few of these attributes: the five-country monopoly on nuclear weapons has been shattered by the emergence of several new nuclear powers, the legitimacy of a hierarchy of nuclear haves and have-nots is manifestly rejected by many, and perceptions of the potential utility of chemical weapons and biological weapons programs among some states and sub-state actors threaten to undercut the taboo against the use of these weapons.

This does not mean, however, that the non-proliferation regime should be scrapped. The fact that the NPT enjoys continued support by a majority of countries – 185, including the nine states that renounced their WMD programs since the treaty was implemented in 1968 (Taiwan, South Korea, Argentina, Brazil, South Africa, Ukraine, Belarus, Kazakhstan, and now perhaps Libya) – suggests that abandoning the treaty would be a serious mistake. Moreover, contrary to popular misconceptions, the number of NPT members that have violated the treaty and acquired nuclear programs since the treaty's implementation in 1968 is not in the dozens; it is five. An additional three countries that are not NPT adherents (Israel, India and Pakistan) brings the total number of new nuclear states to eight.<sup>5</sup>

The NPT regime long relied on a presumption of consent among its members. Serious efforts to give it credible enforcement authority have only recently become a priority; for example, the IAEA was not even empowered to conduct surprise inspections until 1997. Devising credible verification and inspection arrangements for Cold War arms control agreements was of paramount importance but for various reasons was not considered vital for proliferation objectives.

Skeptics who doubt that the NPT can ever serve U.S. interests point to loopholes in the treaty that suggest the regime is actually working as a facilitator of global proliferation. The NPT is based on a *quid pro quo*, allowing states access to safeguarded civilian nuclear energy in return for forgoing weapons development. Since signatories are currently permitted to enrich and reprocess materials under safeguards, this has raised the possibility that would-be proliferators could join the NPT with the intention of opting out once they have secured sufficient materials to start a weapons program – known as the “closed fuel cycle loophole.”

There is little disagreement, however, that the regime needs major reforms to clarify its mandates, to consolidate overlapping and redundant jurisdictions, to train personnel in advanced detection and enforcement measures, and generally to reconcile it with 21st century security requirements. Eight new nuclear states is still eight too many, and the NPT's credibility is sorely tested whenever it is violated.

The Bush administration has not generally been supportive of or interested in multinational agreements. The President suggested in February 2004 that the United States should revoke its membership in the NPT in light of North Korean and Iranian violations.<sup>6</sup> However, the administration has instead supported a ban on the use of civilian reactors for producing highly enriched uranium, stating that access to nuclear material should be denied to states that refuse to renounce enrichment and reprocessing activities and urging that exports from the forty-member Nuclear Suppliers Group require recipients to adopt new, tougher inspections by the IAEA.<sup>7</sup> The Director General of the IAEA, Mohammed Al Bareidi, welcomed these steps.

The Bush administration's July 2004 decision to oppose stringent verification requirements on facilities capable of uranium enrichment and plutonium reprocessing, adversely affected the UN's Conference on Disarmament negotiations for a global treaty to end the production of fissile material for weapons purposes (the Fuel Material Cutoff Treaty). A year-long review conducted by the Bush administration prompted the conclusion that the inspections envisioned for the FMCT "...could compromise key signatories' core national security interests" and prove so expensive that few countries would abide.<sup>8</sup> This position puts the United States squarely at odds with its major allies, who are convinced that a treaty without verification is meaningless and that effective measures are, in fact, politically and technically achievable. Moreover, because the administration also called on the states in the Conference to reach agreement on new terms for the FMCT negotiations, there is concern that these talks will not soon resume.

Although by no means a panacea, tightening the provisions that guide the commerce in nuclear technology, imposing strict penalties on states that do not comply, and providing for inspections of suspect enrichment facilities could significantly enhance the NPT treaty regime – as well as the IAEA's mandate.<sup>9</sup> If linked to an aggressive inspection system that takes full advantage of the breakthroughs in monitoring and inspection techniques of the kind used in Iraq,<sup>10</sup> such steps would help create genuine enforcement powers. Should the administration drop its current opposition, these new inspection measures could serve to increase confidence in the biological weapons and chemical weapons restraint agreements as well.

## **FROM SUPPLY TO DEMAND**

Since World War II, governmental controls on the supply of technology – from export controls, to supplier cartels, to outright embargoes – have been the principal method of stemming the global diffusion of sensitive technologies. Under the non-proliferation regime, exports of dual-use products of potential utility for chemical, biological or nuclear weapons programs and ballistic missiles are monitored and restricted by supplier groups such as the Zangger Committee, the Nuclear Suppliers Group, the Australia Group, and the Missile Technology Control Regime.

The current export control apparatus for non-proliferation has not kept pace with sweeping changes in the international technology market. Fundamental alterations in the content, pace and destination

of trade in recent decades have undercut the ability of governments to control the flow of defense-related products. Critical technologies vital to defense – from supercomputers to biotechnologies to fiber optics – are increasingly commercial in origin. Exports of these commodities may be considered essential to commercial competitiveness, whether or not they pose implications for proliferation.

The relative ease with which Saddam Hussein and A. Q. Khan until this year were able to establish networks of multinational suppliers and acquire proscribed technologies underscores the weaknesses of the existing apparatus. The increasingly diffuse and commercialized international technology market means that protectionist trade instruments aimed at denying states access to sensitive technologies will work only for products where there is still a relative monopoly – an ever shortening list.<sup>11</sup> Supplier restrictions still play a critical role in identifying and targeting selective technologies pertinent to weapons of mass destruction (such as fissile materials or advanced guidance systems for ballistic missiles), but the accelerating pace of international technical diffusion may eventually render even selective controls on supply ineffectual.

The shortcomings of the proliferation regime's export policies have long been evident. The Nuclear Suppliers Group, for example, is limited in its membership, has no formal mechanisms to enforce its guidelines, lacks the authority to compel states to accede to inspections and other safeguards, and uses a "trigger list" of proscribed technologies that is not consistent with the lists maintained by other supplier groups, such as the Zangger Committee. Information sharing even with the IAEA is neither automatic nor reliable.

Some of these problems are bureaucratic. Some may be fixed by including a larger number of countries as members of the supplier groups, making controls binding, imposing legal requirements for inspections as a condition of exports, and, as called for in Security Council resolution 1540 of April 2004, by criminalizing the efforts of individuals and companies seeking to acquire nuclear weapons.

Yet, secular trends in international trade suggest that strengthening supply-side controls, however laudable, will inevitably confront diminishing returns. This argues for an export control system that begins to shift the focus away from monitoring exports to one that imposes controls on the actual application of dual-use technologies. It also makes the case for consolidation of the trade control regimes that pertain to not just nuclear but other forms of proliferation.

The chronic clashes between industry and the U.S. government over exports of advanced computers, space-related technologies, and various other kinds of commercial technologies provide a compelling reason to consider lifting some export restrictions in return for a system that requires disclosure and active monitoring of end-use. Under current arrangements, denying export licenses for American commercial products that are available from other countries penalizes U.S. business without advancing non-proliferation objectives.

Such arrangements would require far greater levels of transparency in international trade than are currently in place. They also would require a system of cooperative enforcement among like-minded states to verify compliance and isolate and penalize violators. There may be added incentives for supporting such an approach if states and private companies understand that freer trade in non-sensitive technology will result from disclosure of the applications to which sensitive tech-

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**The current export control apparatus for non-proliferation has not kept pace with sweeping changes in the international technology market.**

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nologies are being applied. These limitations would need to be accompanied by proper rules of transparency and, above all, by a reliable assurance of supply to legitimate would-be users.

Western enterprises that manufacture and trade dual-use products have long adhered to cumbersome requirements for prior approval under restrictions imposed by national legislation, the Coordinating Committee for Multilateral Export Controls (CoCom) or more selective cartels such as the Missile Technology Control Regime (MTCR). Many of these arrangements were directed against the former Soviet Union and its Warsaw Treaty allies and have lost much of their original political rationale. There remains, however, a strong inclination to maintain these requirements against newly identified targets such as Iran. As an improvement over the increasingly futile export control apparatus based on licensing of a wide range of dual-use technology transfers, an international registry and a regulating regime founded on the premise of transparency about the intended application of the technology could actually reduce the burden of regulation.

## **PREEMPTION AND PROLIFERATION**

In 218 B.C., the Romans adopted a policy of military preemption following their overwhelming defeat by Hannibal at Carthage. The sheer brutality of Hannibal's forces, which included the truly terrifying war elephants, persuaded the Romans that only preemptive strikes against even incipient opponents could prevent a repetition of the horrors they had experienced. In this case, preemption was seen as a drastic but necessary precaution against the return of Hannibal's weapons of mass destruction.

If there is a parallel with current American strategy, it is the perceived imperative to be prepared to use overwhelming force against foes that are both unfamiliar and believed to be very violent. This policy reflects a sense of heightened but uncertain risk that resembles the fears and perceptions common to the early Cold War era, dominated by the threat of a Soviet "bolt-from-the blue" nuclear attack. It is often said that rogue states or terrorists, especially those armed with unconventional weapons, are particularly threatening because they can strike anywhere at any time. These are not the kind of adversaries who observe established codes of conduct or the rules of war.

Although this comparison may seem facetious, it is apt. In the eyes of the current administration, rogue states have a lot in common with Hannibal's war elephants. It is naïve to imagine that either can be persuaded to resolve differences through regulation or diplomacy, or that they can be trusted to abide by the norms of civilized society.

The administration's rather fatalistic depiction of the proliferation threat clearly puts it at odds with the more common view that most states will eventually be persuaded to join in cooperative ventures because it is in their self-interest. Among critics, a policy of preemption that includes nuclear options seems operationally impractical, out of proportion to the scale of the threat and/or needlessly provocative. For the Bush administration, however, the idea of restraint in the face of rogues and terrorists seems both quixotic and imprudent.

If there is one single issue that most divides the United States from the international arms control community, it is the administration's unabashed support for nuclear weapons. Some believe that the United States bears unique responsibility for undercutting the legitimacy of the NPT because of its very public embrace of nuclear-based security. Prior administrations have at least paid lip service to Article VI in the NPT, the pledge that commits the nuclear states to make progress toward disarmament – even if this promise, like negative security assurances, was never

accepted as operationally binding. In their defense, administration officials emphasize their successes in reducing strategic nuclear forces and in various cooperative threat reduction activities.<sup>12</sup>

Whether U.S. nuclear policies directly affect other states' aspirations to acquire WMD is questionable. There may be a more direct correlation to the rhetoric used officially to describe the threat. It has become almost standard practice to discuss scenarios of WMD strikes on the U.S. homeland or interests overseas in terms that border on the apocalyptic. Without belittling the seriousness of the threat, one might still wonder about the message that is conveyed internationally when officials suggest that the United States cannot reliably deter countries that are wielding a handful of nuclear devices. The formal adoption of a policy of nuclear preemption against non-nuclear states, moreover, also might be interpreted as implying an elevation of the stature of states that possess even modest WMD arsenals.

A strategy of military preemption at least in the classical sense also is unlikely to be compelling against terrorist threats, especially when the terrorists' identity is not known or when the threat is diffused across national boundaries. Successful counter-terrorism military operations require identification of the aggressor and the ability to target its assets effectively – an immensely difficult task against contingencies such as radical groups with chemical or biological devices operating clandestinely in urban environments.

As the first Gulf War demonstrated, a country's military infrastructure can prove very resilient to military strikes, however superior the attacking forces. The core of Iran or North Korea's military potential is entrenched in their industrial capabilities, their human capital, and the resources they can command to attract suppliers. The way in which this potential is used, moreover, will depend on motivations. None of these are readily susceptible to military or political eradication.

Since Iraq, critics have alleged that the Bush administration's emphasis on military measures to manage proliferation have contributed to the marginalization of other measures that might have had more lasting and positive effects on security. This includes providing adequate funding for prevention programs like Cooperative Threat Reduction; investing in better human intelligence about potential terrorist movements; or devising measures to protect against the threat of accidents or sabotage in states with fragile nuclear infrastructures, such as Pakistan. Little attention has been paid to the need for complex kinds of bilateral and regional negotiations that the Clinton administration undertook to contain nuclear developments in either aspiring or de facto nuclear states, including India and Pakistan.<sup>13</sup> Above all, there is a common concern that both diplomacy and security will suffer from the enduring estrangement of key Islamic states whose perceptions of the West have grown increasingly antagonistic since the Iraqi occupation.

## CONCLUSION

The Bush administration seems to have gradually come to the conclusion that it is not in its interest to ignore, much less to vilify, multinational institutions. Whether this realization will result in presidential leadership to help repair and revitalize the non-proliferation regime remains to be seen. The challenges of nuclear and other mass destruction weapons are not likely to be resolved without reliance on international cooperation. Much as one might wish that the institutions that manage these arrangements could be less cumbersome and more responsive to changing circumstances, only sustained attention will achieve needed reforms.

Some of the most intractable issues that could only be touched on in this paper – such as the

need to move more quickly to secure nuclear facilities and materials against terrorist compromise – are particularly dependent on new forms of cooperation that are still not fully formed. The management of the international technology trade, similarly, will require fundamental rethinking and the support of participants who have not been much involved thus far, including private industry and emerging regional powers.

In pursuing new initiatives to combat proliferation, it will be important to expand the constituencies involved and avoid the many impediments that can arise as a result of long-standing but largely irrelevant partisan disagreements. The legacy of arms control is definitely a double-edged sword. On one hand, it provides important tools and procedures that can inform and guide future policy. On the other hand, it brings with it a long history of controversy, particularly about how much the United States can and should rely on international cooperation to advance its security interests. Now that the most significant security threats being faced by the United States are global in scope, the most difficult challenge will be calibrating national interests against the demands of a diverse and often fractious international community whose support is essential.

## ENDNOTES

- 1 The Moscow Treaty limits the United States and Russia to between 1,700 and 2,200 operational nuclear weapons by the year 2012. It does not set any limits on the number of weapons each country can keep in its stockpile, however, nor does it cover tactical nuclear weapons.
- 2 Conversely, the risk of accidental nuclear war has become far more pronounced.
- 3 Including the 1975 Biological Weapons Convention and the 1993 Chemical Weapons Convention.
- 4 Hans Blix, *Disarming Iraq* (New York: Pantheon Books, 2004).
- 5 It is widely known that President Kennedy predicted in the early 1960s that there would be 25 or more nuclear powers within the next ten years.
- 6 Dana Milbank and Peter Slevin. “Bush pushes crackdown on nuclear proliferation: President wants to tighten regulations, go after black-market sales.” *The Washington Post*. 12 Feb. 2003, A3.
- 7 See *Arms Control Today*, op. cit., p. 30.
- 8 According to its supporters, the FMCT would strengthen the NPT by formalizing the current cessation of production of fissile material for weapons by the five established nuclear-weapon states, as well as stem the global availability of weapons-grade material to non-NPT nuclear states such as India, Pakistan and Israel.
- 9 The UN Security Council does not currently have the authority to impose prompt sanctions on states threatening to withdraw from the treaty, although a proposal for such a response mechanism was recently advanced by the French. See “UN Nuclear Expert Diagnoses NPT Ills, Offers Prescriptions,” *Arms Control Today*, June 2004, p. 30.
- 10 The Pentagon began in 2003 to develop a cadre of weapons inspectors with experience in Iraqi operations or Cooperative Threat Reduction programs to serve as “Mobile Exploitation Teams,” training them to use highly advanced detection devices which can remotely identify the presence of chemical molecules or the DNA of biological samples. This is just one example of advances in inspection. See Joseph Cirincione, “How Will the Iraq War Change Global Nonproliferation Strategies?” *Arms Control Today*, April 2003, p. 5.
- 11 This has become particularly important in light of the potential nexus between terrorist movements and the expanding black market in nuclear technologies.
- 12 See, for example, “The Bush Administration’s Nonproliferation Policy: An Interview with Assistant Secretary of State John S. Wolf,” *Arms Control Today*, June 2004, p. 16.
- 13 For more discussion of this kind of diplomacy, see for instance Strobe Talbott, *Engaging India: Diplomacy, Democracy, and the Bomb* (Washington, D.C: Brookings Institution Press, 2004.)

# THE ELEMENTS OF A COUNTER-PROLIFERATION STRATEGY

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## DAY IV

### BUILDING A COMPREHENSIVE STRATEGY TO COMBAT WEAPONS OF MASS DESTRUCTION

From the beginning of his administration, President George W. Bush has made clear his determination to put in place new counter-proliferation strategies and capabilities to meet the preeminent challenge to American and international security: threats from weapons of mass destruction in the possession of hostile states or terrorists. Recognizing that these threats are as complex as they are dangerous, he has pursued an ambitious agenda establishing the first comprehensive national strategy to combat proliferation. While incorporating, and expanding, existing non-proliferation assistance programs that contribute to preventing the spread of sensitive materials and technologies, the new strategy has added many new tools necessary to deal with all aspects of the WMD threat, from prevention, to protection, to response. Moreover, this strategy has been explicitly articulated in a series of presidential speeches and unclassified strategy documents that provide a detailed blueprint for action. The results reflect a fundamental transformation in how we think about WMD proliferation and how we respond to it.

### ARTICULATING THE STRATEGY

The 9/11 attacks on the United States had a substantial influence on the administration's proliferation policy, as with all aspects of the nation's security posture. Yet, well before 9/11, the President had established both the national priority and the strategic framework in which we would combat the proliferation of weapons of mass destruction. The President's first major address on the new strategic framework was given at the National Defense University in May 2001 – four months before 9/11. At the time, this speech was mischaracterized by some as solely about missile defense – a reflection of what some critics were fond of saying was an obsession with ending the 1972 ABM Treaty.

While the President certainly did speak of the need to move beyond the constraints of the ABM Treaty and to deploy missile defenses against a North Korean-type threat, this was but one element of a much broader strategy that would bring together all our tools for preventing and protecting against proliferation. The President described “a dangerous world, a less certain, a less predictable one,” in which some of the world's “least responsible states” seek WMD to intimidate neighbors

and “to keep the United States and other responsible nations from helping allies and friends in strategic parts of the world.” Contrasting today’s security challenges with those of the Cold War, the President made clear that we must deal with the full range of threats we face from proliferation – that we need new capabilities and new ways of thinking if we are to meet contemporary threats. He emphasized that these new threats – and in particular, the spread of nuclear, chemical and biological weapons – require us to move beyond Cold War thinking for both deterrence and defense. To quote the President, “Today’s world requires a new policy, a broad strategy of active non-proliferation, counter-proliferation and defenses.”

In that early speech, the President also stressed the need to work with like-minded states both to deny those who want to acquire WMD, and to create new opportunities for prevention of, and protection against, proliferation threats. In particular, he reached out to Russia for a new strategic relationship and urged cooperation in dealing with common threats such as proliferation. Rejecting a relationship based on mutual annihilation, and foreshadowing what would be achieved in the Treaty of Moscow one year later, he also reaffirmed his commitment to dramatically lower the number of nuclear weapons in the U.S. stockpile – weapons that were not needed for deterrence of today’s threats.

The President dispatched high-level teams to discuss with our allies and friends, including Russia and China, not just missile defense, but the new strategic environment and our approach for dealing with today’s threats. In the President’s words, these teams were “to discuss our common responsibility to create a new framework for security and stability that reflects the world of today.” From the outset, the administration emphasized that proliferation was a threat requiring a global response.

The events of 9/11 magnified the President’s sense of urgency in confronting the threats from WMD. Given the stated, and now demonstrated, goal of our enemies to kill as many of our citizens as they could, what better means than through the use of such weapons? And what greater danger than the nexus of terrorism with WMD? For this reason, in his first State of the Union Address after those attacks, the President vowed that “The United States of America will not permit the world’s most dangerous regimes to threaten us with the world’s most destructive weapons.” Making good on this vow, the President intensified work to put in place a comprehensive strategy, involving proactive diplomacy, actions to counter proliferation directly, and better means for organizing and equipping ourselves to meet the challenges we face.

The impact of 9/11 was evident in the next milestone in our strategy to combat WMD – the September 2002 publication of the National Security Strategy. Preventing our enemies from threatening us and our allies with WMD was emphasized as one of the key means for achieving our national security goals. The document outlined our comprehensive strategy, including:

- Proactive efforts to protect against the threat; and the need for corresponding capabilities such as detection, active and passive defenses, and counterforce capabilities.
- Strengthening non-proliferation efforts to prevent rogue states and terrorists from acquiring the means necessary for WMD.
- Effective responses to limit the casualties and damage if WMD are used against our forces or our population.

The administration’s National Security Strategy was built on the premise that traditional concepts of offensive deterrence may not work against hostile states that would use WMD to deter the United States and others from coming to the assistance of the victims of their aggression. This is

not a first strike/second strike situation in which the United States must deter an initial strike against our territory or population by another state; that is not why North Korea or Iran or other proliferators are seeking WMD and long-range ballistic missiles. Instead, these states may seek WMD capabilities to hold a few American cities hostage so that the deterrent calculus changes in their favor. If they can threaten the destruction of even one or two American cities, will the United States be willing to respond to their aggression in another part of the world even if “vital interests” are involved? In other words, they see WMD as their best means of deterring us from using our conventional superiority to defeat their aggressive ambitions.

Traditional deterrence also will not work with an enemy whose avowed tactics are wanton destruction and the targeting of civilians. In an age when our enemies openly seek the world’s most destructive technologies, we cannot remain idle as dangers gather. This is not, and was never, a strategy or doctrine or policy of preemption. Rather, as stated in the strategy document, pre-emption is an option that every president has had, and must have, available to exercise under carefully proscribed conditions – and the potentially catastrophic consequences of a WMD attack more than justify taking out the threat before absorbing horrendous casualties.

In December 2002, the administration published the National Strategy to Combat Weapons of Mass Destruction. That strategy detailed the three pillars initially presented in the National Security Strategy:

- Counter-proliferation, including interdiction, deterrence, and defense.
- Non-proliferation, including support for regimes such as the Nuclear Non-proliferation Treaty and the Chemical and Biological Weapons Conventions, increased cooperative threat reduction efforts, controls on nuclear materials, export controls, and sanctions.
- WMD consequence management.

To integrate the pillars, the strategy calls for improvements in several key enabling functions, including: intelligence collection and analysis, research and development, international cooperation, and targeted strategies against proliferators.

## IMPLEMENTING THE STRATEGY

The administration has undertaken an active, global diplomatic campaign to implement its comprehensive strategy. One key area is providing more resources to prevent proliferation by securing materials of proliferation risk. Following a detailed review of U.S. non-proliferation assistance programs, including those that had been sponsored by Senators Nunn, Lugar and Domenici, the administration reaffirmed the critical importance of this assistance and has successfully advocated record budgets for their implementation. However, U.S. assistance alone is not sufficient to meet the challenges of what is a global threat and a global responsibility. For this reason, the President sought commitments from the other seven G8 members to match collectively U.S. resources dedicated to this mission. The result was the Global Partnership agreed upon at the 2002 G8 Summit at Kananaskis, in which the other G8 members agreed to match the

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**U.S. assistance alone is not sufficient to meet the challenges of what is a global threat and a global responsibility.**

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U.S. commitment of \$1 billion per year for 10 years. This achievement is bringing even greater resources to the priority mission of securing and eliminating both weapons and materials of proliferation risk. While the \$10 billion level has not yet been met by the non-U.S. members, over \$7 billion has been pledged, and we are confident that the full amount will not only be met, but exceeded. We are pushing hard to achieve this result.

A second key area is stopping the trade in proliferation. In May 2003, the President announced the global Proliferation Security Initiative (PSI) with 10 other countries from Europe to Japan and Australia. The approach was much different from the customary path of seeking universal membership to a formal treaty regime embodying norms that reflect the negotiated outcome with countries of diverse interests and priorities. Rejecting a least common denominator approach that would take years to achieve, the administration instead sought like-minded partners willing to commit now to take action to interdict WMD- and missile-related shipments. The concept was to set the bar high, and then invite in those willing to meet the standard and commit resources to the mission. The results have been dramatic.

In a little over a year, multiple operational exercises have taken place at sea, in the air and on land. PSI partners have published a Statement of Interdiction Principles, the list of core members has grown to include Russia and Singapore, and over five dozen countries expressed their support for the Initiative at the anniversary meeting in Poland. We have entered into landmark ship-boarding agreements with Panama and Liberia, the world's two largest commercial vessel registries, and are pursuing agreements with other nations.

A third key area is leading international diplomatic efforts against proliferation, especially concerning the hard cases of Iran and North Korea, to convince countries that their nuclear weapons programs will not be tolerated. On Iran, we have kept up steady pressure by working with others, including the International Atomic Energy Agency, to highlight Tehran's breaches of its safeguards obligations, and with Russia to deny Iran sensitive technologies and ensure stringent non-proliferation controls on all assistance. On North Korea, President Bush insisted on multilateral negotiations, both because they increase the pressure on Pyongyang to end its nuclear programs and because an agreement involving all important regional parties is more likely to be implemented.

On counter-proliferation, the administration is putting in place the capabilities necessary to deter and defeat the proliferation threats to the United States and our friends and allies. Missile defense is one of several priorities. With the deployments of ground based interceptors that will begin this fall, we will have begun to fulfill the President's promise to protect America and our allies from limited missile attacks. Most important, these early deployments, while rudimentary, will provide a foundation to evolve and grow greater capabilities to keep up with the threat.

The administration is also taking major steps to prepare for, and to defend against possible chemical and biological attacks. Biodefense is a key focus. We have accelerated deployment of military biological detection systems. We have established the domestic BioWatch surveillance program to speed our ability to detect large-scale biological attacks. We have vaccinated nearly three-quarters of a million service members against anthrax and four hundred thousand against smallpox. And, through the BioShield program, we are accelerating the development and procurement of new medicines and other countermeasures to treat the victims of bioterror attacks.

One of our most important advances is that we are better organized to combat WMD. The administration has created an effective interagency mechanism to conduct interdiction activities, including

intelligence gathering, diplomatic consultations, and operations. It has also formed a Counter-Proliferation Technology Coordination Committee to develop the first national program plan to provide strategic direction to our nation's research and development efforts to combat WMD.

## MEASURING SUCCESS

A clear success in combating WMD proliferation is Libya – a case that demonstrates how the policies and new capabilities of the administration work together to produce concrete results. In March 2003, the Libyans approached the British requesting talks with the United Kingdom and the United States. Some have speculated that the timing of this approach may have been influenced by the deployment of hundreds of thousands of U.S. and coalition troops to the region to enforce UN resolutions on Iraqi WMD programs.

In any case, the Libyans at that time did not admit to having a nuclear weapons program; rather they said they wanted to “clear the air” on the WMD issue. Discussions in restricted channels ensued, but progress was slow until October. Why did things change at this time? Because in early October, acting within the context of the Proliferation Security Initiative, the U.S., British, German, and Italian governments worked together to track and interdict a large shipment of centrifuge parts from a factory in Malaysia operated by the A. Q. Khan network and bound for Libya. After the ship, named the *BBC China*, was diverted to an Italian port, and physical evidence of the Libyan nuclear weapons program was firmly in hand, Libya agreed to visits by U.S. and UK experts and, after that, admitted to a nuclear weapons program.

On December 19, 2003, Colonel Qadhafi announced that Libya had voluntarily decided to abandon its nuclear and chemical weapons programs and ballistic missiles beyond 300 km range. This announcement followed an intense round of discussions in which it was made clear that there would be no payment or reward negotiated with Libya for ridding itself of illegal weapons programs. There was no agreement to provide X in exchange for Y. Moreover, all components of the nuclear program were to be removed, including equipment that could theoretically be used in a civilian program.

Libya – acting in partnership with the United States, the United Kingdom, and the IAEA and the Organisation for the Prohibition of Chemical Weapons (OPCW) – proceeded to implement its commitments in record time. In March 2004, a ship arrived in the United States from Libya loaded with over 500 metric tons of cargo – from centrifuges to 800 km range SCUD Cs. This marked an end to Libya's possession of longer-range missiles and signaled the dismantlement of its known nuclear weapons program. Similarly, all known chemical munitions, numbering several thousand, were destroyed; and the agent consolidated and secured in preparation for its elimination.

Why did Libya take these steps? Qadhafi made clear that he believed that these weapons programs no longer added to Libya's security or well-being. On the contrary, as the President stated in his reply to the Libyan public announcement, they brought only isolation and other unwelcome consequences. In contrast, as the President also noted, Libya's abandonment of WMD programs, like its renunciation of terror, would eliminate a major obstacle in the path of improved relations with the West and of the lifting of sanctions to the benefit of the Libyan people.

While Libya had acted in other important areas to achieve these goals, such as its settlement with the families of Pan Am 103, the timing and thoroughness of its decision to end its WMD programs was,

in large measure, a result of the President's comprehensive approach to countering WMD proliferation. While doubling our efforts to prevent proliferation in the first instance, the administration has added new emphasis to taking direct action to combat WMD and their means of delivery. Interdiction can block proliferation directly and produce incontrovertible evidence of its attempt. The prospect for the use of force to defend our security against the threat of WMD proliferation means that those who illicitly pursue these weapons must consider carefully the risks inherent in their actions.

Our success in Libya demonstrates that countries can benefit from abandoning their WMD programs, if done so completely and verifiably. This does not amount to payment of blackmail or rewarding bad behavior, but instead creates the prospect for positive incentives to eliminate these

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programs. The administration is holding out the Libyan model for others to follow. U.S. intelligence successes in Libya and in penetrating the A. Q. Khan network should reinforce the wisdom of this path.

While the Libyan case is a milestone, the cultural change that the President's forceful policies have created is of equal import. Within the U.S. government, agencies and departments are actively working to create new opportunities to prevent proliferation and to roll it back. Outside of the government, among our friends and allies, responding to proliferation is now a matter of highest priority, reflected not only in policy pronouncements but in concrete actions by a wide variety of groups including the G8, NATO, the EU, and the UN Security Council. Among proliferators, there are also new concerns. No longer can they proceed apace, untroubled by potential consequences.

The administration has made substantial progress in implementing all three components of its proliferation strategy. To be sure, significant challenges remain to be addressed and much work needs to be done. In February 2004, in a second speech at the National Defense University, the President put forth a set of proposals to meet the most urgent non-proliferation challenges. These included:

- Expanding the work of PSI to encompass law enforcement cooperation to take action against proliferators and proliferation networks;
- Swift passage of a UN Security Council Resolution urging states to criminalize proliferation, enact strict export controls, and secure sensitive materials;
- Expanding the G8 Global Partnership in funds, donors, and recipients beyond Russia and the former Soviet Union;
- Ending the spread of enrichment and reprocessing;
- Strengthening the IAEA by making the Additional Protocol a condition for the supply of nuclear technologies; by creating a special committee on the IAEA Board focused on safeguards and verification; and exempting states that are being investigated from participating in their own investigation.

Progress has been made in each of these areas. Our PSI partners have agreed to expand cooperation in law enforcement to track down proliferators and networks. The Security Council this spring unanimously passed UNSCR 1540 requiring all UN member states to enact and enforce national legislation to criminalize proliferation activities, establish effective export controls, and ensure the secu-

rity of materials of proliferation risk. In June, the G8 and then the EU acted positively to advance the President's other proposals. They decided to refrain for one year from enrichment and reprocessing-related transfers to additional states, while seeking agreement on long-term measures. They endorsed the Additional Protocol as an essential new standard for nuclear supply, the new special committee of the IAEA Board, and constraints on IAEA voting rights for states under proliferation investigation. Finally, the G8 welcomed seven new donors to the Global Partnership (added to the six that joined last year), and agreed to use the Partnership to coordinate projects worldwide.

Working with our allies, we have much hard work ahead of us to strengthen the NPT regime, to secure materials and technologies of proliferation risk, and to acquire the full spectrum of counter-proliferation capabilities required for deterrence and defense against WMD threats. In particular, we must meet the direct challenges from both Iran and North Korea – challenges that threaten the future of the NPT regime. For 18 years Iran hid its uranium enrichment and reprocessing efforts from the world; what other plausible explanation can there be for a huge clandestine nuclear effort by a cash-strapped, but oil-rich, nation but that this is part of an illicit nuclear weapons program? Tehran continues its own version of cheat and retreat tactics with the IAEA. Iran should know that we will relentlessly work to expose and eliminate its nuclear weapons program. North Korea also has active nuclear weapons programs. Our diplomatic goal is and must remain the complete, verifiable, and irreversible dismantlement of North Korea's nuclear weapons programs – both uranium and plutonium.

We will give diplomacy every chance to eliminate these emerging threats. We will use every available tool to slow and stop these programs. However, if diplomacy and deterrence are not sufficient to meet the threat, we must be prepared to defend against it. This is why the President has pursued a comprehensive strategy. The costs of failure are too great.

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**If diplomacy and deterrence are not sufficient to meet the threat, we must be prepared to defend against it.**

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# HOMELAND SECURITY AND CONSEQUENCE MANAGEMENT

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## DAY IV

Of all topics related to the war on terror, the proliferation of weapons of mass destruction, and homeland security, “consequence management” is surely the most dismal, for it has as its antecedent the failure of the highest priority objective in this area, prevention. When policy makers are called upon to manage the consequences of a terrorist attack, their efforts to prevent the attack have failed. Moreover, the term “consequence management” is too narrow to capture properly all the steps that the U.S. government would take in response to a terrorist attack, a credible terrorist threat, or another such incident of national significance. Hence, this paper will use instead the term “incident management.”

The U.S. government has initiated major changes in its incident management system in the three years since the 9/11 attacks. This new system is, in many respects, a work in progress. Many of the changes currently underway are not well understood outside the government or even, in some cases, within the government. This paper will describe the emerging new national incident management system – principally from a point of view at the apex of the system, the White House.

The paper will provide a few comments on how incidents of national significance are managed in general. It will then offer a number of observations about the special challenges presented by the two most extreme WMD threats: nuclear weapons and biological weapons, and conclude by summarizing a number of outstanding policy challenges in the area of incident management.

The single most significant reason why incident management is important is that lives can hang in the balance. Effective incident management is also critical to maintaining the public’s confidence in the government during crises or times of stress. Unfortunately, it is all too easy for senior officials to relegate incident management to low-level specialists, who labor away in obscurity only to find their plans and procedures swept away at a moment’s notice by the press of events or the idiosyncrasies of principals whom they do not know.

## FEDERAL ROLES AND RESPONSIBILITIES

Federal roles and responsibilities have changed significantly over the three years since 9/11. Before then, national policy was set by Presidential Decision Directive 39, which divided operational responsibilities between the FBI, which handled “crisis management,” and FEMA, which handled “consequence management.” Other federal departments and agencies would provide

support to one or the other of these agencies. Overall coordination was performed by the National Security Council staff.

President Bush ordered changes in this basic structure almost immediately after 9/11, starting with Executive Order 13228, which established the Office of Homeland Security (now called the Homeland Security Council) in the White House Office and directed that the “Assistant to the President for Homeland Security shall be the individual primarily responsible for coordinating the domestic response efforts of all departments and agencies in the event of an imminent terrorist threat and during and in the immediate aftermath of a terrorist attack within the United States and shall be the principal point of contact for and to the President with respect to coordination of such efforts.”

At the same time, President Bush signed National Security Presidential Directive-8 (NSPD-8), which established the position of Deputy National Security Advisor for Combating Terrorism, who was tasked with operational coordination of combating transnational terrorist activities. To alleviate the internal confusion such a distribution of responsibilities could cause, NSPD-8 subordinated this individual to the Assistant to the President for Homeland Security as well as Assistant to the President for National Security Affairs.

In 2002, the Secretary of Defense approved a new doctrine separating “homeland security” from “homeland defense.” This doctrine recognized a category of military activities that would occur within the homeland but which would be governed by the military chain of command as prescribed in the Goldwater-Nichols Act. These activities were defined as “homeland defense” and their scope is essentially to be determined at the discretion of the Secretary or the President. “Homeland security,” on the other hand, was basically everything else that the department could do inside the homeland to support other federal agencies. The department also established U.S. Northern Command to better organize the resources of the department for various homeland defense and homeland security missions.

Even more significant changes occurred in early 2003 with the passage of the Homeland Security Act of 2002, which established the Department of Homeland Security, and the President’s signing of Homeland Security Presidential Directive-5 (HSPD-5), which overhauled the federal approach to incident management. Replacing the bifurcated Presidential Decision Directive-39 framework with the single concept of “incident management,” HSPD-5 was meant to resolve the ambiguity of authority inherent in separated concepts of “crisis management” and “consequence management.” HSPD-5 designated the Secretary of Homeland Security as the “principal federal official for domestic incident management.”<sup>1</sup> This means that the federal government can now always give the same answer to the “who’s in charge?” question in an incident of national significance. Over time, the Department of Homeland Security will evolve into more of an operational integrator for domestic incidents, in Washington and in the field, although the Secretary of Homeland Security will never be formally in charge of all the different entities involved in responding to domestic incidents.

HSPD-5 also called for the promulgation of a National Incident Management System, which is essentially a template for multi-agency, multi-jurisdictional operational command and control in the field, and the National Response Plan, which will replace the Federal Response Plan and a number of other specialized plans. These are profoundly significant changes in the U.S. incident management system, particularly in the field, but their implementation is still underway and as yet the transitional problems are more apparent than the ultimate benefits.

## INCIDENT MANAGEMENT IN GENERAL

The first point to understand about incident management in post-9/11 America is that the public's expectations of the federal government are exceptionally, indeed unrealistically, high. In a domestic incident of national significance, the federal government is expected by many not only to make no errors, but also to be virtually omniscient and omnipotent. Moreover, within the government, there is a chilling appreciation that one's every move could become the subject of endless official inquiry and public scrutiny. This is especially true in an incident that could in principle have been prevented. In recent official tabletop exercises that attempted to simulate realistic media "play" in a domestic terrorist incident, typically only a few hours would elapse before government spokesmen began to field questions about whom the President was going to hold responsible and fire.

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Thus, the second key point to understand about managing terrorist incidents at the national level is that its most immediate and, in many respects, most difficult challenges have to do with communications. The public will thirst for information, not least because the entire population will experience the fear of being the victim of the next attack even as the physical effects of the terrorist attack are being experienced by only a small fraction of the population. This fact, which is not true in the case of natural occurrences such as tornados or hurricanes, puts an enormous premium on what the President and his senior-most officers say to the American people and how they say it. A bit of experience with managing complex national incidents teaches three iron rules:

1. First reports are usually inaccurate;
2. Accurate reports are typically embedded within significant uncertainty; and
3. The public, the media, and the government's communications specialists will demand information much faster than "the interagency" is prepared to provide it.

For these reasons, much of the incident management that occurs in Washington in the first hours of an incident will be dedicated to supporting the communications requirements of senior officials, who need to be extremely careful not to say anything that turns out to be incorrect due to the possible loss of life and public confidence that could result. This is especially true of the President, who will want to speak to the American people in the incident's first news cycle.

The most pressing question in the aftermath of a terrorist attack is going to be "Will they strike again?" To this central question, the federal government can never offer any definitive assurances. Because of al Qaeda's penchant for simultaneous attacks, the concern about follow-on attacks will weigh heavily on everyone involved in managing the incident. Responsible policy makers cannot assume that any attack is a one-off; they will have to devote a substantial portion of their time to maintaining vigilance. Although it has never occurred and decisions of this sort are made on a case-by-case basis, the U.S. government will likely raise the Homeland Security Advisor System level to "severe" ("red") in the immediate aftermath of a significant terrorist attack at home as part of its effort to prevent follow-on strikes and present fewer domestic targets.

An incident of national significance within the homeland will quickly reveal the incredible legal, political, and organizational complexity of the American system of government – much more so than will be the case in a major crisis abroad. The legal authorities of the federal executive branch inside the United States are substantial but confusing, uneven across various economic sectors and relevant policy areas, and often rooted in old statutes, court opinions, and executive orders. In any major domestic incident, America’s federalism and limited government guarantees the involvement of a kaleidoscope of politicians (governors, Senators, Congressmen, mayors, state legislators, assorted county and municipal councilmen, etc.), non-federal public safety officials (police chiefs, fire chiefs, public health officers, etc.), and non-governmental leaders (corporate officers, union officials, experts, etc.) – all with ready access to a microphone or a TV camera and the right to say whatever they wish, irrespective of the preferences of the President or his subordinates. In this environment, the unilateral power and authority of the federal government is in fact quite limited. Effective incident management in a domestic setting requires the federal government to exercise leadership in more informal, politically sensitive, cooperative ways than is customary in the convenient chain-of-command that in theory controls the executive branch.

## INCIDENT MANAGEMENT IN A NUCLEAR WEAPONS SCENARIO

In the event of the detonation of a no-notice nuclear weapon in an American city (a “nudet” in the vernacular of the business), evacuation of the downwind population is the only significant, immediate life-saving step available. Although the precise consequences of a nuclear detonation vary substantially with a large number of variables (yield, weapon type, blast location and elevation, environmental factors, etc.), the three basic effects are blast, thermal radiation, and nuclear radiation. Blast and thermal radiation are fast-acting, and their intensity falls off at the inverse square of distance or faster, making them essentially localized phenomena. Thus, there is little that can be done to save the people or property in the immediate vicinity of the nuclear detonation from the overpressure, building collapses, and conflagration. It is, however, possible to protect people from the effects of nuclear radiation if they remove themselves from the fallout zone before the radioactive particles reach them.

Given the short time available to effect an evacuation after a nuclear detonation, the only tool at the government’s disposal is what it can say to the public in the first minutes after the blast. Specifically, can the government broadcast appropriate evacuation instructions to the affected areas quickly enough to make a difference? The two basic instructions are to move in a specific direction or to shelter in place until further notice. In general, the people in the center of the plume need to move out as quickly as possible if they are to avoid radiation exposure; the people on the edges of the plume may be better off sheltering in place; the people outside of the plume need to stay in place to avoid aggravating the congestion on the roads; and everyone needs to be told not to enter the plume. Once the government has spoken, the downwind population is basically on its own; it is not at all clear that local emergency response personnel will be able to offer appropriate assistance in the relevant timeframe.

In managing a nuclear attack, the key life-saving variables will be the speed and accuracy of the plume model that is provided *within minutes of the detonation*; the government’s ability to translate this plume model into correct, easily understood movement instructions for the general public; and the government’s ability to disseminate this message to the people in the affected area. The

greatest enemies of effective incident management in such a scenario will be time and indecision: the latter will be determined by the yield of the nuclear device and by wind speed, the former by the competence of the officials on duty in the first hour or so after the detonation.

The United States is, at the moment, not well prepared to manage a no-notice evacuation of this sort in the relevant timeframe. The plume modeling capability is ready and can be activated very quickly, but the federal government currently lacks the ability to generate and broadcast specific, geographically tailored evacuation instructions for all U.S. cities in the relevant timeframe. Moreover, a realistic field exercise of such a scenario is impossible, leaving the government with only tabletop exercises to work with, a decidedly second-best option.

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**The longer term consequences of a nuclear attack on a U.S. city are virtually inestimable.**

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The longer term consequences of a nuclear attack on a U.S. city are virtually inestimable. The evacuation, clean-up, and economic recovery of the affected area would be a major challenge, as would the long-term health care needs of the affected people, but these challenges would pale before the profound changes such a calamity is sure to trigger at home and in the world beyond.

## INCIDENT MANAGEMENT IN BIOTERRORISM SCENARIO

For the purposes of incident management, the defining features of a bioterrorism incident will be delayed identification of the attack; enormous uncertainty about the scale and extent of the attack; a race against time to identify and treat infected individuals; widespread popular terror at an invisible, odorless, tasteless menace; and the certainty that there is no inherent limitation to production of bioterrorism agents once initial production capacity has been established.

The world has really experienced only one bioterrorist attack: the anthrax letters of October 2001. The management of this incident revealed a number of major deficiencies, several of which the U.S. government has taken major strides to correct. The United States now has a cadre of real experts on biological warfare and counter-measures that it will be able to draw on when needed. The United States has also invested billions of dollars in researching, developing, and producing a wide range of antibiotics, vaccines, and therapeutics, many of which can be airlifted on pallets to an attack site in a few hours. The government has deployed the first-ever atmospheric sensor system, called BioWatch, which operates 24-7 in most large U.S. cities, is highly sensitive, and provides important early warning possibilities. The government now has reasonably effective procedures and protocols for dealing with the still-relatively frequent “white powder” episodes and the like. And the government has developed a remarkable, largely classified bio-forensics capability, principally in response to the inability to identify the perpetrator of the October 2001 attacks.

There are, however, at least three major remaining problems in U.S. preparedness for a bioterrorism attack. The first, and perhaps most significant, is the limited capacity to perform prophylaxis on the scale and at the speed that will be required in a major bioterrorism incident. The United States currently has enough antibiotics and other drugs to treat more people than any terrorist could conceivably infect with a non-contagious, non-resistant, bacterial bioterrorism agent, such as anthrax or tularemia. Obviously, a contagious agent, particularly if aerosolized, could over-

whelm U.S. pharmaceutical stockpiles, while a resistant bacterial agent or a viral agent could essentially sidestep the stockpile. However, there are two interrelated operational complications for mass prophylaxis even in a non-contagious, non-resistant, bacterial bioterrorism scenario.

Demand for prophylaxis will far exceed actual infection. At the moment, no U.S. city is capable of distributing the medicines contained within the national pharmaceutical stockpile with the speed and efficiency that will be required to save lives in a large-scale, no-notice, symptomatically detected, aerosol attack involving a fast-acting bioterrorism agent such as anthrax. The reason for this deficiency is that the federal government has always relied upon state and local governments to provide “terminal distribution” for the medicines contained within the national pharmaceutical stockpile – that is, the transfer of the medicines from pallets at an airport into the bloodstream of potentially infected individuals. State and local governments have tended to assign responsibility

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**If the bioterrorism attack is a serious one, the government will quickly be confronted with a terrible decision – whether to withhold prophylactic medicine to scared citizens who want treatment but lack any medical evidence of exposure or infection.**

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for this task to their public health agencies, which in general have greeted the bioterrorism threat with great skepticism and have not taken seriously the need to prepare a distribution scheme for the stockpile that would be dramatically faster than that necessary for a naturally caused disease outbreak. These realizations, which have emerged only in the past year or so, have cast doubt on the appropriateness of the long-standing federal reliance on state and local agencies for the terminal distribution of the national pharmaceutical stockpile.

This is not the end of the problem. The atmospheric-dispersion models that will be generated after the initial attack has been first detected will indicate a far larger potentially exposed population than is actually the case; all these people will be tapped to receive prophylaxis. Then, once news about the attack has been broadcast along with the fact that there is no inherent limitation to

production of bioterrorism agents once initial production capacity has been established, people all over the country and indeed the world will start fearing that they will be the next victim of an imperceptible, deadly etiologic agent in the air. Many people, therefore, will make the individually sensible calculation that this risk is sufficient for them and their families to start taking a few antibiotics. If the bioterrorism attack is a serious one, the government will quickly be confronted with a terrible decision – whether to withhold prophylactic medicine to scared citizens who want treatment but lack any medical evidence of exposure or infection.

Tabletop exercises of such scenarios have suggested that decision-makers are likely to take the operationally unwise but politically expedient decision to supply the medicines to whoever wants them; certainly, it would take an unusually cold-blooded and steely elected leader to say “no” in such a situation. Once it is decided not to withhold medicine, stockpiles will evaporate quickly – leaving the country with little or no prophylactic reservoir to handle any follow-on attack.

The second major remaining problem in U.S. preparedness for a bioterrorism attack concerns movement restriction. It is likely that a major, aerosolized bioterrorism attack in a U.S. city will, once it becomes publicly known, trigger a chaotic and uneven evacuation of that city and possibly other cities as well. It is also likely that major commercial conveyance systems (airlines, trains,

buses, and ships) will spontaneously divert from the affected city, region, or country. At the moment, the U.S. government is more likely to be an observer than a manager of these rapid, large-scale changes in transportation patterns.

There are several reasons why this is so but the most significant is that the uncertainties in the early stages of a bioterrorism attack will be so vast that the government will frankly have no idea what to recommend to millions of different actors who will or could take to the roads, rails, waterways, or skies. The trouble is that the interactions of the various systems involved – atmospheric, geographic, transportation, psychological, immunological, logistical, etc. – are so complex that the government at this time simply lacks the capacity to generate correct movement instructions or correct movement restrictions for the relevant segment of the public in the relevant timeframe.<sup>2</sup> The government also lacks the ability to disseminate tailored movement instructions to people by area and, for all intents and purposes, to enforce non-consensual movement restrictions on land.

Finally, the government is ill-prepared to deal with the international dimensions of a bioterrorism scenario. This would be particularly true in a scenario involving an agent that could be treated by a vaccine or therapeutic contained in the U.S. national pharmaceutical stockpile, which is a unique global capability. If there is an anthrax attack in another country, that country is quite likely to immediately ask for U.S. assistance, i.e., the provision of prophylactic medicines from the U.S. stockpile. However, those medicines are a finite resource that might be needed to save the American civilian population. An even harder case would be the contagious viral agent smallpox. The United States possesses enough smallpox vaccine to vaccinate all 250-plus million Americans – but not many more people after that. If smallpox breaks out in, say, Turkey, the U.S. President will instantaneously be confronted with a truly no-win decision: protect all Americans from the dread disease by restarting a universal (American) vaccination program, in effect turning the United States into an immunological island while allowing the disease to run its course in the rest of the world; or jeopardize American lives by deploying the vaccine abroad in an effort to contain the outbreak in Turkey and save Turkish lives. Policy on issues of this sort has not been decided, or, at least, not written down.

## CONCLUSION

So what can the U.S. government do to get better at incident management? In essence, four things:

- Sort out roles and responsibilities in sensible ways
- Acquire world-class expertise to support decision-making and public communication
- Acquire critical operational capabilities that can be deployed in relevant timeframes
- Practice

At this time, the United States has significant, and in some cases unprecedented, efforts underway in all four areas. Progress is, of course, slower than one would like in virtually every respect. Funding is not the rate-limiting factor; it is instead the limited knowledge. Years of experience and study have taught the federal government how to manage certain kinds of repetitive natural disasters, such as hurricanes, as well as certain kinds of man-made disasters, such as industrial accidents, financial crises, and wars. A major WMD attack on the homeland would be unprecedented, fearfully complex, and utterly terrifying. The United States has not yet developed the vast new intellectual capital needed to proficiently manage such an incident.

Another, and indeed related, obstacle to more effective incident management is limited participation of policy makers at the highest level – that is, those individuals who will immediately surge into their command posts and operation centers to manage a major incident if it happens – in intellectual and operational preparation for national incident management. This is, to a certain extent, inherent in an exercise as dismal as incident management. The sheer horror of the scenarios, combined with their low probability of ever occurring, conspire to make most other activities a more attractive use of senior policy makers' time.

Nor is this an entirely illogical outcome. Time is the most valuable commodity possessed by any senior policy maker. Time to do real work – time that is not consumed by testimony, speeches, personnel matters, budget hearings, and the rest of the “in box” – is certainly the scarcest of all. So if a senior policy maker has a choice between spending his or her time on preparing to manage a nasty incident at home, on the one hand, or preventing a nasty incident at home, on the other, it is certainly arguable that he or she should spend as much time as possible on prevention. It is precisely this calculation that has led the Bush administration to attach primacy to prevention in all of its major strategies – the National Security Strategy, the National Strategy for Homeland Security, the WMD strategy, and the combating terrorism strategy. Incident management is a critical capability to develop, but we should never lose sight of the fact that once we have entered an incident management phase, we have already suffered our greatest failure.

## ENDNOTES

- 1 HSPD-5 also modified the responsibilities of the Assistant to the President for Homeland Security, who was made responsible, together with the Assistant to the President for National Security Affairs, for “interagency policy coordination on domestic and international incident management.” This is a highly elastic formulation; its practice will evolve as the Department of Homeland Security matures and as the many interagency frictions associated with the emergence of this new Department are resolved.
- 2 In a serious bioterrorism scenario, it is virtually certain that the right course of action for an individual person, vessel, or company will diverge from the right course of action for the affected region as a whole. For instance, while it may make sense for a person on the fringes of a bioterrorism plume to flee the area, from the region's point of view it would probably be better for that person to shelter in place, thus lessening the congestion on the roads and making it easier for people in the core of the plume to exit and for emergency workers to enter. Similarly, while it may make sense for a trucking company to halt shipments in a city that has experienced a bioterrorism attack, many of those trucks would be carrying urgently needed supplies for the mass medical operations that would be occurring in that city.

POLICY PRESCRIPTIONS  
AND WRAP-UP

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# THE ESSENTIAL FEATURES OF A FOCUSED STRATEGY TO DEAL WITH THE PROLIFERATION CHALLENGE: WHAT HAS BEEN DONE AND WHAT IS TO BE DONE

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## DAY V

President George W. Bush has rightly proclaimed that keeping the worst weapons – weapons of mass destruction – out of the hands of the worst people is America’s highest national security priority. Yet so far, the United States has been waging a war on terror but not a war on WMD, attacking the worst people much more vigorously than the worst weapons.

The war on terror and the needed war on WMD are related, but they are not identical. The terror attacks of 9/11 stimulated a comprehensive overhaul of U.S. counter-terrorism practices and agencies: the struggle was taken on the offensive in Afghanistan and around the world with a global coalition of support; previously casual border and immigration controls were tightened; emergency response was fortified; and a new Department of Homeland Security (DHS) was created.

A comparable and sorely needed overhaul of counter-proliferation remains to be made. The most significant action taken by the United States to counter WMD since 9/11 was the invasion of Iraq, which appeared to be fully justified on the basis of existing intelligence suggesting a recrudescence of Saddam Hussein’s WMD programs. Now we know that the picture painted by that intelligence was incorrect. Meanwhile, North Korea plunged forward unopposed to quadruple its stock of nuclear bombs, a counter-proliferation setback far graver than anything imagined of Saddam’s regime. The initiative for curbing Iran’s evident nuclear ambitions was ironically left by a distracted Washington to the two parties that failed most conspicuously to cooperate with it in the war against Iraq: the Europeans and the United Nations. Perhaps the most important omission in the aftermath of 9/11 was any new effort to prevent “non-state actors” – terrorists – from getting their hands on WMD.

In February 2004, in the wake of the failure to find WMD in Iraq, President Bush delivered a speech at National Defense University laying out his proposals for dealing with the spread of WMD. While some of his ideas are useful, by and large they represent piecemeal extensions of long-standing policies rather than a bold departure.

The term WMD itself is normally used to cover nuclear, biological, and chemical weapons, ballistic missiles and, more recently, “dirty bombs,” which are ordinary high-explosive bombs impregnat-

ed with radioactive materials. In actuality, while still dangerous, chemical weapons are not much more lethal, pound for pound or liter for liter, than ordinary explosives and hardly deserve the WMD label. Similarly, long-range ballistic missiles are only to be feared if they have a nuclear or biological warhead, so they should not be considered a separate category of WMD. Dirty bombs would cause local contamination and costly clean-up – but not true “mass destruction.” The primary focus of an overhaul of counter-proliferation should therefore be nuclear and biological weapons.

A true overhaul of counter-proliferation would aim to eradicate the threat of nuclear terrorism entirely by denying fissile materials to non-state actors and to contain the scale of the most likely forms of bioterrorism. It would revamp outdated arms control agreements, expand counter-proliferation programs in the Pentagon and DHS, and improve the way intelligence on WMD is collected and analyzed. It also would favor countering WMD with non-nuclear rather than nuclear measures, and it would at last develop coherent strategies for heading off the two most pressing nuclear proliferation threats: Iran and North Korea.

## THE COUNTER-PROLIFERATION TOOLBOX

There is no single silver bullet of protection against WMD. Like the defense against terrorism, the defense against WMD must be multi-layered.

Consider, to begin, that most of the nearly 200 nations on earth have not, in fact, resorted to WMD. In one of Arthur Conan Doyle’s famous novels, Sherlock Holmes sees a vital clue in the fact that a dog at the scene of the crime did *not* bark. In a similar way, we should see a clue to one aspect of a successful counter-proliferation policy in the fact that such countries as Germany, Japan, Turkey, South Korea, and Taiwan have *not* resorted to WMD. They were *dissuaded* from doing so by a stable alliance relationship with the United States that offered better security for them than WMD.

This is something the United States has been and should keep doing right. It is an underappreciated benefit of America’s security alliances and partnerships and yet another reason to avoid the temptation to make a virtue of what became a necessity in the run-up to the Iraq war, the so-called “coalition of the willing.”

Compared to stable alliances and partnerships, such coalitions do not serve U.S. interests well. Alliance partners train together, so when they go to war they are not only *willing* but *able* to make a contribution to combined operations. Alliance partners routinely exchange threat assessments, making them more likely to share the United States’ views when it believes use of force is necessary. Importantly for counter-proliferation, alliance partners stably tied to the United States for their defense are unlikely to adopt a drastic, purely national defense approach like acquisition of WMD. For all these reasons, we should reject the notion that the United States can operate effectively through “coalitions of the willing” and use that concept only as a last resort when we have no success in leading our allies in our direction. In the long-term view that is critical to counter-proliferation, dissuasion is vital.

Nations that might otherwise have been tempted by WMD have foregone them as part of a disarmament agreement like the Non-Proliferation Treaty that ensures them that if they forego WMD, their neighbors will also. If disarmament regimes can be strengthened and updated so they offer credible protection, they too can play a vital role in counter-proliferation.

When dissuasion and disarmament fail and a nation heads down the road to WMD acquisition, focused diplomacy by the United States can sometime reverse its course. Recent decades provide

many examples of successful counter-proliferation diplomacy under a variety of circumstances: Ukraine, Kazakhstan, and Belarus after the collapse of the Soviet Union; South Africa, Argentina and Brazil in the 1990s; perhaps Libya in 2004 (though the extent of Qadhafi's conversion remains to be seen). The United States professes to be in this phase with North Korea and Iran, but it has not yet packaged the necessary sticks and carrots to present either "rogue" with a difficult choice. With no upside to stopping their programs and no downside to proceeding, they predictably proceed.

Some proliferators cannot be turned back. At that point our approach must be to deny them the means to make WMD. Enforcement of stricter and universal controls on the export of sensitive technology, covert action to disrupt proliferators' programs, the Bush administration's new and useful Proliferation Security Initiative designed to intercept illicit shipments of WMD technology, and an expanded version of the highly successful Nunn-Lugar program to secure the Soviet Union's WMD legacy can all contribute to the strategy of denial.

Sometimes dissuasion, disarmament, diplomacy, and denial don't work, and despite our best efforts proliferation occurs. At that point a different set of tools comes into play, for which the Department of Defense first coined the word "counter-proliferation" in 1993. When prevention fails we need to offer protection to our forces, people, and allies against use of WMD. Elimination of hair-trigger alert postures, improved permissive action link (PAL) type locks on nuclear weapons, and other defusing measures can reduce the chances of *accidental* or *unauthorized use* of WMD – from Russia, for example, or between India and Pakistan. With respect to *deliberate use*, the United States should continue its current policy of threatening "overwhelming and devastating" retaliation against anyone who uses nuclear, chemical, or biological weapons against us, since in at least some cases deterrence might be effective. Where deterrence fails, defenses – ranging from chemical suits, inhalation masks, and vaccines to ballistic missile defenses such as the one being deployed today in Alaska and California – can offer protection, where they can be made effective. Finally, where the risk of use of WMD is imminent, destruction of hostile WMD – called "pre-emption" in today's argot – might be a necessary last resort.

Dissuasion, disarmament, diplomacy, denial, defusing, deterrence, defenses, destruction – what the Department of Defense began calling the "8 D's" in 1993, are the tools of a comprehensive counter-proliferation policy. Today a "counter-proliferation hawk" should be trying to strengthen and employ all tools in the toolbox – all 8 D's.

## ERADICATING NUCLEAR TERRORISM

Nuclear terrorism is the worst WMD problem by far because it combines the truly mass destructive power of nuclear weapons with the extremist motivations of the terrorist against whom deterrence, let alone dissuasion or diplomacy, are not effective. No single national security goal of a president of the United States compares with sparing our citizens the life-changing specter of imminent, sudden, and catastrophic disappearance of whole cities.

A few facts suggest the surprising conclusion that total eradication of the threat of nuclear terrorism is a realistic goal for the next president to pursue. To make a bomb, terrorists must get fissile materials – either plutonium or enriched uranium. These materials do not occur in nature, and to date and for the foreseeable future, making them is beyond the reach even of large and well-organized terrorist groups. Doing so requires building either uranium enrichment facilities or plutonium production reactors and reprocessing facilities. While recent revelations about the illicit

network of Pakistani nuclear scientist A. Q. Khan show that the underlying technology to make nuclear materials has been spreading in an alarming way, building and operating such facilities undetected for the length of time required is not feasible for non-governmental groups, especially when they can be denied the safe sanctuary of a state.

For all practical purposes, therefore, terrorists must obtain fissile materials from governments, of which relatively few have made such materials thus far. While terrorism itself surely is not a national security problem that can be solved entirely by means of traditional dealings with other governments, it happens that nuclear terrorism can. The formula for eradicating nuclear terrorism is accordingly simple and clear. It consists of (1) Ensuring that all governments that have plutonium and highly enriched uranium lock them up behind “Berlin walls” of security so they cannot be seized, sold, or diverted to terrorists; (2) Ensuring that no more bomb materials are made; and (3) Destroying excess stocks of these materials wherever possible.

If the United States can lead relevant governments in taking these three steps, terrorists cannot make nuclear bombs. As presidential candidate John Kerry succinctly summarized, “No material. No bomb. No nuclear terrorism.”<sup>1</sup> Here is a worthy task for American global leadership. Governments might disagree on many matters regarding nuclear weapons, as, for example, the United States and Pakistan disagree about whether Pakistan should have nuclear weapons in the first place. But all governments should be able to agree that it is in the deepest security interest of all to keep non-governments from obtaining them.

A few further facts warn, conversely, that if terrorists can get access to the necessary materials, there is little hope of relieving civilization from the prospect that any city, anywhere, could suddenly disappear in a poisonous radioactive cloud. First, the atomic bomb is no “secret” anymore – nuclear scientists have little doubt that even a moderately organized terrorist group could fashion a crude bomb if it got the fissile materials. Second, nuclear devices would be exceedingly difficult to find if terrorists were smuggling them into the United States because they are small and, contrary to popular belief, difficult to detect with radiation monitors. Third, unlike bioterrorism, the use of nuclear weapons has a deadly finality: you cannot vaccinate yourself against a nuclear fireball, or take antibiotics against fallout. Therefore nuclear terrorism can only be countered at the source.

Step one is to lock up every lump of fissile material made to date anywhere in the world as if it were a bomb. The United States should promulgate standards for the safe custody of nuclear materials by all governments that have them, whether they are parties to the NPT or not, and establish monitoring and enforcement of these standards. It should be expected of every government – ranging from Pakistan which has nuclear weapons to Japan which reprocesses plutonium as part of its long-term energy policy – that it gives the world reasonable assurance that the materials it has made are safe from both seizure by outsiders and diversion by wayward insiders.

Further, the United States should offer assistance to all governments to meet those standards, through a dramatic expansion of the scale and scope of the Nunn-Lugar programs of the Departments of Defense, State, and Energy. When the United States formed a coalition against al Qaeda after 9/11, it should have formed a parallel coalition against WMD based on the Nunn-Lugar approach.<sup>2</sup> The United States missed a major opportunity to transform counter-proliferation while it had the attention and sympathies of the world, but it is not too late.

A reinvigorated Nunn-Lugar program would begin in Russia. There, efforts to secure the staggering quantities of fissile material accumulated by the Soviet Union have been proceeding in

desultory fashion for more than a decade. It is technically feasible to secure all these materials within the term of the next American president, and he should make doing so his goal. Accomplishing this goal would mean transforming Nunn-Lugar from its current status of a “level-of-effort program,” chewing away slowly at the project of safeguarding Russian bombs and materials with a rate of funding and priority largely unchanged since 1992 when the program began (let alone since 9/11, when the gravity of the problem of nuclear terrorism should have become apparent to all), to a “results-oriented” program focused on getting the job done. Congressionally imposed impediments to Nunn-Lugar and Russian hypersensitivity to intrusion into their facilities should be regarded as obstacles to be overcome in meeting an urgent deadline for completion rather than excuses for the present plodding pace.

An expanded Nunn-Lugar effort should aim to sequester – also within the next presidential term – all significant caches of highly enriched uranium used in research reactors worldwide. These stocks amount to “sleeper cells” of nuclear terrorism. It would offer Pakistan the same kind of assistance to safeguard weapons and materials as Russia. It would draw up plans for the complete and verifiable elimination of WMD programs in Iraq and Libya now, and in Iran and North Korea if and when circumstances permit. It would devise cooperative international responses in the event of loss of control of some fissile materials – nuclear search teams, radiological public health measures, and radiochemical forensics to identify the source of the material used in an explosion, to name a few.

Today, Nunn-Lugar is much praised but little funded in Washington and other capitals. The program falls victim to tenacious foot-draggers in Congress and even in the Bush administration despite the unmistakable wake-up call on 9/11. The G8 initiative announced with much fanfare in the summer after 9/11 as a multilateral parallel to Nunn-Lugar has been a disappointment: the United States pledged no new money as part of the initiative, and the other G8 countries have not yet met their pledges let alone spent the sums pledged. The G8 initiative, like the U.S. Nunn-Lugar program as currently managed, seems content to nibble at the edges of nuclear terrorism rather than eradicate the threat.

Step two on the path to eradicating the threat of nuclear terrorism is to stop adding to humankind’s stock of fissile materials. Above all, this means preventing additional governments, especially those hostile to the United States, from making plutonium or enriching uranium. This will require ending the bureaucratic stalemate in Washington over North Korea and Iran’s nuclear programs and establishing a clear U.S. strategy – diplomatic at first, but coercive if necessary – for the complete and verifiable elimination of these programs. The United States also should seek agreement that there should be no additional production of fissile material for weapons purposes anywhere, including India, Pakistan, and Israel. Addressing the inherent risks associated with nuclear power reactors, U.S. policy should oppose new entrants into the uranium enrichment and plutonium reprocessing markets. Research or isotope production reactors should cease the practice of using bomb-grade uranium fuel. Some of these measures will be controversial, but it is essential in the post-9/11 world to stop the accumulation of the wherewithal of nuclear terror.

Step three is to reduce, wherever possible, the existing stocks of weapons materials. For example, the long-stalled “blending down” of Russian bomb-grade uranium to reactor fuel, and the disposition of excess plutonium, should be accelerated.

These three steps can easily be visualized and communicated. They are practical, and they can be decisive. Terrorism itself is open-ended since it can spring from countless motivations. However nuclear terrorism draws on a finite quantity of man-made materials, and is thus eradicable.

## CONTAINING BIOTERROR

Bioterrorism, the other WMD threat to fear, is completely different from nuclear terrorism. There is no single critical ingredient of a bioterror weapon that can be sequestered; the technology to breed and even to weaponize pathogens is widespread in bioindustry and bioscience. Moreover, the underlying science relevant to bioweapons is progressing rapidly, exposing frontier after frontier of new power to manipulate organisms for good or ill. Tomorrow's bioterror weapons will doubtless be engineered pathogens not found in nature.

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**A reasonable goal is that by the end of the next presidential administration, professionals in the DHSS can certify to the nation that it is immune to mass destruction by today's common bioagents.**

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There is no clear path, therefore, to the eradication of bioterrorism. Still, it is practical for the next president of the United States to establish a program that will permit him to claim within his term, and with confidence, that any attempt to use today's common bioweapons on the U.S. population will not cause mass casualties, but instead be effectively contained. The reason behind this claim is that, while little can be done to keep the underlying technology of bioterror from spreading, there is much that can be done to diminish the consequences of an attack. Again, this is almost the opposite of the nuclear case. After

launch of a bioweapon, it takes days for victims to grow sick. This is precious time that can be used by public health authorities to recognize the first affected patients and to launch a program of quarantine, additional vaccination and treatment that will avoid mass casualties. A reasonable goal is that by the end of the next presidential administration, professionals in the Department of Health and Human Services can certify to the nation that it is immune to mass destruction by today's common bioagents.

## THE ROLE OF ARMS CONTROL

The NPT has been disparaged in the United States in recent years because, it is said, the "bad guys" can ignore it with impunity (since it has inadequate verification and enforcement provisions) and the "good guys" would be good with or without an agreement. This critique is wrong for two reasons.

First, the world does not divide neatly into "good guys" and "bad guys" in regard to proliferation behavior: there is a substantial "in-between" category as represented by Ukraine, Kazakhstan, and Belarus (which chose to forsake the nuclear weapons they inherited from the Soviet Union); Argentina and Brazil (which mutually agreed to give up their nuclear programs); Taiwan and South Korea (which chose U.S. protection over nuclear weapons); and South Africa (which changed regimes and thus its sense of external threat). In all these cases, the allure of greater international acceptance if they abandoned their nuclear ambitions and signed the NPT was one of the deciding factors.

Second, it is important to note that agreements like the NPT are, in fact, useful even in dealing with the "bad guys," in an indirect way. When it becomes necessary for the United States to lead action against the rogues, the international consensus against nuclear weapons embodied in the NPT provides a framework for the United States to marshal the support of other nations.

While the NPT therefore has considerable value in its current form, its provisions can and should

be strengthened. One key problem is that the concept of a so-called “peaceful atom,” dating to the era when the NPT was negotiated, constitutes a huge loophole. The NPT permits all signatories to enrich uranium (to make fuel for power reactors) and to reprocess plutonium (an inevitable by-product in “spent” fuel removed from the reactor after it is used up), provided they declare what they are doing and submit to periodic inspections that confirm the declarations.

The doctrine of the peaceful atom is outdated for several reasons. First, under the guise of a peaceful power reactor program a nation can come too close to having a bomb. All that the owner of such a complete fuel cycle needs to do is withdraw from the NPT, kick out inspectors, and it could turn enriched uranium or plutonium into bombs in short order. Both Iran and North Korea have sought to exploit this loophole. Second, in an age of terrorism any creation of new fissile material, in any guise, poses a lasting danger. Finally, it is simply not economical for every nation that needs nuclear power to make the large capital investments in these facilities.

To plug this loophole, the United States should champion a revision to the understanding of “peaceful atom,” encouraging nuclear power where it is needed but opposing the construction of new enrichment or reprocessing facilities except where they already exist – namely in nuclear weapons states or in stable leading nations like Japan. In return, the nations where such facilities exist would need to protect their materials as if they were bombs, and in addition offer reliable fuel services (provision of enriched fuel and disposition of spent fuel) at reasonable prices to all those nations that wish to use nuclear reactors for electrical power generation and that forego their own complete fuel cycle.<sup>3</sup> Other steps to strengthen the NPT would include stiffening inspection and enforcement provisions, and making withdrawal from the Treaty an automatic trigger for international action.

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**The doctrine of  
the peaceful atom  
is outdated.**

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Arms control plays a limited role in the counter-proliferation toolbox, but in this it is not different from all the other tools. Each tool has its limitations, but also its place. The United States should be taking the lead in fixing the NPT, not in disparaging it.

## COUNTER-PROLIFERATION IN PENTAGON TRANSFORMATION AND HOMELAND SECURITY

In the 1990s the term “counter-proliferation” was used in the Pentagon to signify that contending with WMD was an important DOD mission in the post-Cold War world. A number of counter-proliferation programs were created within DOD to try to focus research, development, and acquisition on producing non-nuclear counters to WMD on the battlefield. Nuclear retaliation for use of WMD against U.S. troops was always an option, but not all opponents will necessarily be deterred in this way. In the event of WMD use against us, the President deserves better options than firing U.S. nuclear weapons.

Over time, the counter-proliferation programs were expanded to protect rear areas – ports and airfields in the theater of war – against chemical and biological weapons attack. Subsequently, the technologies for protecting allied rear areas were recognized to be applicable to protection of the U.S. homeland from WMD attack. Thus, by September 11, 2001, DOD was recognized as the lead agency in the federal government for developing and fielding technology for countering WMD wielded by both state and non-state actors, both on foreign battlefields and on U.S. territory. Examples of counter-proliferation programs include both research and acquisition of chemical

and biological warning sensors, improved vaccines against bioattack, individual and collective protective coverings, decontamination systems, special munitions for attacking and neutralizing enemy WMD, radiochemical forensics, and active defenses such as ballistic missile defense.

Today the Pentagon is quite rightly devoting a portion of its growing budget to the “transformation” of the military to anticipate future threats and field dramatically new technologies. However, the core of the effort remains long-range precision strike, close integration of intelligence information with operations, and closer working of Army, Navy, and Air Force units in “joint” operations. These worthy transformation goals for conventional warfare have not been matched by any comparable counter-WMD emphasis with the sole exception of missile defense. DOD’s counter-proliferation programs remain small and scattered among the Services, Office of the Secretary of Defense, “joint” program offices, and the Defense Threat Reduction Agency. Missile defense spending is more than \$10 billion per year, but the other counter-proliferation programs amount to only a few billion out of the \$420 billion defense budget, far too small a fraction given the importance of the mission. Counter-proliferation needs more resources and a clearer management structure in DOD.

A similar observation can be made about the priority given to WMD in the new homeland security agencies and budget, which total some \$40 billion. Once again, only a small fraction of this effort is devoted to WMD. If the worst kind of terrorism imaginable is WMD terrorism, why is so little of the new homeland security program devoted to innovative efforts to prevent and respond to WMD terrorism?

## PROLIFERATION AND U.S. NUCLEAR WEAPONS POLICY

An important question for counter-proliferation is whether or not U.S. deployments and doctrine for its own nuclear arsenal influence the spread of WMD elsewhere in the world. For the most part, the influence is marginal, both pro and con.

It is entirely unlikely that Pyongyang’s or Teheran’s calculations, let alone al Qaeda’s, are significantly dependent on whether the United States has 6,000, 3,500, or 2,200 deployed strategic weapons (these are the numbers permitted under the last three rounds of U.S.-Russian nuclear arms agreements), or if the United States retains tactical nuclear weapons deployed in Europe, or has a doctrine that either threatens or forswears nuclear retaliation if chemical or biological weapons are used against the United States or its allies, researches or develops earth-penetrating or other new types of nuclear weapons.

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**Defeating al Qaeda depends on cooperation by foreign governments in intelligence and law enforcement; in this area a unilateral option is not available.**

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On the other hand, our efforts to counter North Korean and Iranian WMD ambitions can benefit from the support of other nations. Defeating al Qaeda depends on cooperation by foreign governments in intelligence and law enforcement; in this area a unilateral option is not available. International support for these U.S.-led efforts against WMD is influenced, again perhaps only at the margin, by U.S. nuclear policy. To the extent that the United States suggests a growing reliance of its own on nuclear weapons for security, it makes the job of marshaling international cooperation in a coalition against WMD terrorism or an overhaul of WMD arms control somewhat more difficult.

Also, as described previously, we need to worry not only about the “rogues” but about the “in-betweens.” Their decisions about nuclear weapons are probably more strongly influenced by their perception of the nuclear “order” that we represent and lead, and that is reflected in our own conduct.

U.S. nuclear weapons are a deterrent against use of WMD against us by proliferating governments and a means of destroying WMD before they can be used against us. But the United States has another tool of deterrence and destruction besides nuclear weapons – its unmatched conventional military power. As for the role of nuclear deterrence, China and Russia are adequately provided for by the existing U.S. nuclear posture; the United States does not wish to have, and should not accept, a deterrent relationship with Iran or North Korea; and terrorists, for their part, are likely not deterred by threats of punishment at all.

The marginal benefits of changes in the U.S. nuclear posture to strengthen our capabilities for deterrence and destruction should therefore be weighed against the diplomatic cost of emphasizing the role of U.S. nuclear weapons in its own security.

Recently the United States has embarked on a change that does not meet this test: research and development of a new type of earth-penetrating nuclear warhead, ostensibly to destroy deeply buried WMD facilities. The military rationale for this move is weak since the United States already has earth-penetrating nuclear weapons and the focus on munitions begs the larger question of finding such targets in the first place. The political enormity (and much of the fallout contamination) of a decision to cross the nuclear divide would not be significantly reduced by changing the design of the nuclear weapon. The benefit of this innovation in U.S. nuclear programs is therefore modest.

The optimal U.S. military strategy would be to seek to widen and prolong the huge gap between U.S. conventional military capabilities and those of any other nation. This would strengthen DOD’s counter-proliferation programs to give the President better *non-nuclear* counters to WMD, and to use transformational technology to narrow, rather than widen, the range of circumstances in which this nation would have to resort to use of nuclear weapons. In this strategy, nuclear weapons will play an enduring but background role as deterrent of last resort.

### **OVERHAULING WMD INTELLIGENCE: THE SPECTER OF POLICYMAKING IN THE DARK**

No counter-proliferation policy tool – neither preemptive destruction, nor disarmament arms control, nor missile defense, nor denial – can be effective if the existence and nature of WMD efforts are unknown or imprecise.

Secretary of Defense Donald Rumsfeld became convinced in the course of his work on ballistic missile proliferation before he took office that adequate intelligence on WMD programs is unlikely to be present in most cases. Given the stakes, he concluded, the United States must assume the worst in formulating its policy responses. This logic, encapsulated in the maxim “absence of evidence [of WMD] is not evidence of absence,” was the main intellectual argument in the Rumsfeld Commission report leading to the deployment of a National Missile Defense. According to this maxim, intelligence regarding the timetable for the development of an intercontinental ballistic missile threat originating in Iran or North Korea was uncertain enough that it was deemed imprudent for the United States merely to be prepared to deploy a missile defense within a few years (the Clinton administration policy), but instead necessary to undertake deployment immediately.

The same logic made a persuasive case for preemptive war in Iraq, the most persuasive case followed the same logic. It was safer to assume Saddam Hussein was trying to fulfill his long-demonstrated quest for WMD than to interpret the scanty intelligence available as evidence of a scanty WMD program.

Obviously one would like to avoid being forced to such worst-case calculations, but WMD activities are inherently difficult to monitor. It is comparatively easy to monitor the size and disposition of armies, the numbers and types of conventional weaponry like tanks and aircraft, and even the operational doctrines and plans of military establishments (since these generally need to be rehearsed to be effective, and exercises and training can be monitored). By their nature, WMD concentrate destructive power in small packages and tight groups. Both the manufacturing of chemical and biological weapons can take place in small-scale facilities. The plutonium route to nuclear weapons requires reactors and reprocessing facilities that are large and relatively conspicuous, but the uranium route can be pursued in facilities that are modest in size and lack tell-tale external features.

A profound question bearing upon all of the 8 D's is therefore whether adequate intelligence is likely to be available to make any of them effective; or, alternatively, whether WMD proliferation is by its nature too difficult to monitor. If the latter is true, the world is doomed to a situation reminiscent of the "missile gap" of the 1950s, where uncertainties outweigh certainties and policy-making is forced into worst-case scenario mode.

The uncertainties of the 1950s missile gap were substantially dispelled by the invention of satellite reconnaissance. The Soviet Union's missile silo construction and flight tests were visible from space. Today, there are some emerging intelligence technologies that will potentially make a substantial contribution to the collection of quality intelligence on WMD. They are "close-in" technologies as opposed to "from-the-outside-looking-in" technologies like satellite photography. Many are forensic in nature. They involve, for example, taking material samples and analyzing them for traces of suspicious chemicals, biological material, or radionuclides. The samples can be taken from the air by aircraft (as with krypton air sampling for evidence of spent nuclear fuel reprocessing) or from the ground (plucking a leaf from a bush, wiping a handkerchief across a countertop) overtly or covertly. From a distance, the spectrum of light transmitted through an effluent plume downwind of a smokestack or backscattered from a laser might reveal something about the composition of the plume and thus the activities underway within the building.

Unattended ground sensor (UGS) with a variety of transducers (chemical, acoustic, seismic, radio-frequency, imaging, etc.) can be emplaced by hand or dropped covertly from unmanned aerial vehicles. The tiny UGS can do enough on-board data processing that only small amounts of data need to be sent back to intelligence agencies, in turn making it difficult for those being spied upon to detect them. Cellular telephone technology permits clusters of UGS to be networked and their data combined, reducing the rate of false alarms. UGS can even be made mobile by attaching them to robots, animals, or birds.

Another lucrative technique is "tagging," involving the covert placement of identifying features, transmitters, or chemical markers on objects destined for WMD facilities, and then monitoring the tag remotely or by close-in sample collection. Finally, there is a revolution underway in close-in signals intelligence, in which cell phones, laptop computers, local area networks, and other information infrastructure of a WMD program are penetrated and exploited. Miniaturization, as with micro-electro-mechanical (MEMS) devices, is making all these close-in techniques easier. Information from these specialized WMD-specific techniques can be combined with the usual

types of intelligence from intercepted communications, defectors, and the occasional spy.

No technology in the offing holds the promise of lifting the veil of WMD activities completely the way satellite photography lifted the veil from the Soviet Union's nuclear missile and bomber programs. Accurate intelligence on WMD would therefore be enhanced by three additional ingredients: one is a matter of international policy, and two are matters of intelligence community management.

The first ingredient is active cooperation by the parties under surveillance. Just as the Soviet Union allowed overflight of its territory by satellites, governments around the world will have to allow greater access to their territory, facilities, and scientists if there is to be any kind of accurate underpinning of counter-proliferation. At a minimum, governments that wish to avoid suspicion (and thus coercion and even preemptive attack) will need to allow the kind of access promised to UN inspectors in Iraq before the 2003 war. Access involves the ability to inspect facilities by surprise, take material samples for forensic analysis, install monitoring equipment, and other physical means. It must be complemented by required data declarations, document searches, and interviews of scientists.

These are tall orders, since they involve compromises with sovereignty and legitimate military secrecy for the nations inspected, but they are the only way North Korea's WMD ambitions will be verifiably eliminated, or Iran's nuclear power activities fully safeguarded. At the same time more openness is required, there must be a shift of the burden of proof from the international community to the party under suspicion. To make an inspection system of carefully managed, if not totally unfettered, access based on active cooperation succeed, it must be the responsibility of the inspected party to dispel concerns, and not the responsibility of the United States or the international community to "prove" that dangerous WMD activities are underway.

Second, since proliferation is essentially a scientific activity, the intelligence community needs to increase both the level of technical training and the size of its workforce. Recognizing that even with effort the government will have difficulty recruiting and retaining top technical talent that has more lucrative prospects in private industry, intelligence agencies need to forge better links to the outside scientific community so that advice and insight are more readily available "on call." Broader ties with the scientific community also aids collection, since a key "open" source of proliferation intelligence comes from monitoring scientific literature, the training and movement of foreign scientists, and the commerce in scientific equipment.

Third, a great spur to quality and motivation in any intelligence effort is a clear link to action and results. Since 9/11, the counter-terrorism intelligence effort has become more "actionable" in intelligence terminology. To simplify somewhat, counter-terrorism intelligence moved from producing papers characterizing terrorist groups to supporting operations to interdict terrorists. Similarly, an overhauled U.S. counter-proliferation program will be more operational and will generate more demand for actionable intelligence – not only from the State Department (as with traditional non-proliferation), but across the board from defense, law enforcement, homeland security, public health, and other agencies. If history is any guide, the intensity and quality of collection and analysis by the intelligence community will increase in response to clearer policy and more forceful action.

Taken together and with urgency, such steps to overhaul our WMD-related intelligence effort can provide accurate intelligence to undergird all of the eight D's.

## **WILL ACTION BE TAKEN IN TIME?**

President Bush was right to state that keeping the worst weapons out of the hands of the worst people is the highest security imperative of the coming era, but apart from the invasion of Iraq, little action has been taken to keep weapons of destruction from spreading to either nation-states or terrorists. Not only do the two nuclear rogues du jour, North Korea and Iran, go unchecked, but the entire policy structure to counter proliferation in the future remains virtually unchanged despite 9/11. Americans now clearly regret that their government did not take steps to overhaul its counter-terrorism capabilities years earlier, steps that seemed painfully obvious after the World Trade Center towers were gone. A comparable overhaul of counter-proliferation is needed now. It will be a tragedy if the overhaul is undertaken only after an incident of mass destruction.

## **ENDNOTES**

- 1 Kerry speech of June 1, 2004, West Palm Beach, FL.
- 2 Reducing the Threats from Weapons of Mass Destruction: Building a Global Coalition Against Catastrophic Terrorism Conference, May 27, 2002, Moscow.
- 3 Carter, et al., "Good Nukes, Bad Nukes," *The New York Times*, December 22, 2003.

CONCLUDING  
OBSERVATIONS

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**ASPEN STRATEGY GROUP**  
**SUMMER SESSION**  
**“THE CHALLENGE OF PROLIFERATION”**

**KURT M. CAMPBELL**  
**SENIOR VICE PRESIDENT, HENRY A. KISSINGER CHAIR, AND**  
**DIRECTOR OF INTERNATIONAL SECURITY PROGRAM,**  
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After an extraordinarily long and bitter campaign season, President George W. Bush was reelected convincingly for a second term on November 2nd, 2004. While the President and his chief allies claimed a mandate on a host of pressing issues – reforming the tax code, restructuring Social Security and continuing the global fight against terror – there is also a reasonable assumption that the U.S. public expects that a second Bush administration will also work harder to reduce the likelihood of a catastrophic nuclear terrorist attack against the American homeland. The challenges are enormous, and by most accounts the U.S. and its global allies are lagging badly when it comes to securing vast stockpiles of dangerous fissile materials.

In a sometimes intemperate national debate replete with stark images of the stakes involved in a perpetual war on terrorism, the specter of a nuclear weapon detonating in an American city was a recurring feature in the campaign rhetoric of both President Bush and Senator John Kerry. President Bush said during the campaign that allowing weapons of mass destruction to fall into the hands of terrorists is “the biggest threat facing this country.” Bush focused much of his rhetoric during the long campaign on the leadership necessary to cope in the wake of such a horrible assault, asking one audience “who are you going to trust” in such a desperate time. Both the President and Vice President Dick Cheney returned again and again to the essential qualities of leadership that would be necessary in the aftermath of domestic nuclear terrorism, should that tragedy befall the nation.

Senator Kerry devoted several speeches to what he termed “the most serious threat facing the nation,” going so far as to lay out a detailed blueprint for how he would handle the ominous threat, including securing existing nuclear weapons materials worldwide; ending production of new fissile material for nuclear weapons; reducing existing stocks of nuclear weapons and materials; ending nuclear weapons programs in hostile states like North Korea and Iran; enhancing international efforts to stop trafficking in nuclear materials; and making preventing nuclear terrorism a top national security priority. President Bush and Vice President Dick Cheney countered that the administration had already made significant strides to decrease the likelihood of a nuclear attack, including a \$1.35 billion budget request for the Department of Energy’s Defense Nuclear Nonproliferation programs, including the effort to secure 600 metric tons of weapons-

useable materials in Russia and ongoing efforts to improve border and maritime security worldwide. However, the overriding threat of nuclear terrorism is one of the few areas of consensus that emerged between President Bush and Senator Kerry during the 2004 campaign.

As President Bush settles in for his second term, with strengthened majorities in the House and the Senate, he and his refashioned national security team have a unique opportunity to deal with the myriad challenges of nuclear proliferation and potential terrorism that lie directly ahead. Indeed, the case for greater action in the general homeland security arena was persuasively made when both outgoing Secretary of Health and Human Services Tommy Thompson and Homeland Security Secretary Tom Ridge drew attention to unfinished business and lurking dangers on the domestic terror front in their farewell remarks.

The Aspen Strategy Group meeting in Aspen, Colorado this past summer was a remarkably diverse gathering with key strategic thinkers and political figures from both sides of the political aisle. We convened to consider the paramount danger to the U.S. associated with the spread of nuclear weapons and technologies to dangerous groups and additional states. While there were many areas of disagreement to be sure, there was an overriding consensus that the United States had not done enough to prevent the spread of dangerous nuclear materials into the hands of individuals and groups who would use them if they had them.

One prominent participant even suggested that our apparent inaction in developing an integrated overall effort to deal with this problem was tantamount to the United States engaging in a “race towards catastrophe.” It was widely agreed that the U.S. needed to wage a “virtual war” on the spread of WMD to match in scope and in intensity the larger campaign against terrorism. The two campaigns have obvious synergies, and the potential intersection of international terrorism with nuclear capabilities raises dire potential consequences. The group spent six days reviewing the current state of the risks associated with catastrophic terrorism and reflecting upon the essential elements associated with a larger coherent strategy that could succeed in reducing the risk of a tragic nuclear attack on American soil.

The principal findings of the summer session included:

***The U.S. needs to wage a war on WMD proliferation to match its war on terrorism.***

As Ash Carter has written, “President George W. Bush has rightly proclaimed that keeping the worst weapons out of the hands of the worst people is Washington’s highest national security priority. Yet so far, the United States has attacked the people much more vigorously than the weapons.” For instance, the United States has now spent hundreds of billions of dollars on operations in Afghanistan and Iraq aimed primarily at dealing with actors that wished to acquire nuclear weapons or, in the case of Iraq, had shown repeated interest in doing so. Over the same period of time, the U.S. has devoted only a few billion dollars, at best, to ensuring that the “worst weapons do not fall into the worst hands,” as President Bush has frequently intoned. This imbalance in approach needs rectification. As former Senator Sam Nunn has noted in his capacity as head of the Nuclear Threat Initiative, acquiring fissile material is the most difficult step for terrorists to take in their efforts to launch a nuclear attack against the U.S., and securing such material at their source is the easiest step for the U.S. and its allies to prevent them from doing so.

***Nuclear and biological weapons should be the primary focus of the war on WMD.***

While the United States and its allies should continue efforts to reduce the chemical weapons threat, especially by working closely with Russia to destroy its large chemical weapons stockpile, efforts in the war on WMD should focus mainly on nuclear and biological weapons. In terms of destructive capability these two weapons far exceed that of chemical weapons. It is also the case that much more is known about how to address the threat of nuclear proliferation and nuclear terrorism; if anything, the Aspen summer session underscored how fundamentally little we know about how to construct workable strategies to counter the potential spread of dangerous biological pathogens, especially given the inherently dual-use nature of biotechnology. The Aspen Strategy Group believed that, while prevention remained a realistic goal in the area of nuclear proliferation, preventing the spread of sensitive biotechnology capabilities was essentially futile, and that efforts to address the bio-threat should be directed primarily at deterring and mitigating the effects of a biological weapons attack. It was recognized that much more work must be done to deal with the complex realities of “consequence management” should biological weapons be used in a decisive manner.

***In the current era, a powder trail runs from WMD proliferation to WMD terrorism.***

The emergence of apocalyptic-oriented terrorist groups such as Al Qaeda, combined with the fact that even a group with modest technical skills could fashion fissile material into a bomb that could instantly kill tens of thousands of people, necessitates that U.S. policy focuses on the possibility that non-state actors will attempt to acquire WMD. Before 9/11, many policy makers believed that terrorists would be loath to carry out an attack against the United States using weapons that could kill thousands, if not tens of thousands, of Americans. With Osama bin Laden having said it is a religious duty to acquire WMD, there should be no doubt amongst policy makers, or in the minds of the leaders of any country, that if bin Laden’s network were to acquire WMD, they would attempt to use them.

***Each of the eight D’s of fighting WMD needs to be overhauled — dissuasion, disarmament, diplomacy, denial, defusing, deterrence, defenses, and destruction.***

Policy makers recognize that fighting a war against WMD requires a broad array of tools. That said, too much of our thinking regarding the fight against WMD is mired in the past. For instance, in the fight for resources, some of the tools such as “destruction” (i.e., the Nunn-Lugar related programs to secure and eliminate Russian nuclear materials) continue to be under-funded compared to other areas such as “defenses,” especially national missile defense. Imbalances such as this require that the U.S. fashion a strategy for how to use the eight D’s in concert to the greatest effect. This will require creative new thinking and approaches along the lines of the Proliferation Security Initiative to seize WMD-related contraband being transported by sea, air, or land. Much more work also needs to be done to help create a greater sense of shared threat in the international community and in key institutions when it comes to the potential spread of dangerous nuclear mate-

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**Much more work also needs to be done to help create a greater sense of shared threat in the international community and in key institutions when it comes to the potential spread of dangerous nuclear materials and know-how.**

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rials and know-how. For instance, the IAEA has not nearly the resources or mandate to successfully confront potential threats of this kind, and national systems at export control in many countries around the world need to be significantly toughened.

***When it comes to WMD, Russia must be more a partner and less a supplicant.***

The Soviet era stockpile of nuclear weapons and materials, as well as the remnants of its vast chemical and biological weapons complexes constitute, in the words of Senator Howard Baker, a veritable “Home Depot” for WMD. This dangerous reality has spurred the U.S. government to focus much of the attention for the past decade on the threat emanating from the vast former Soviet WMD infrastructure. The U.S. has spent billions of dollars over that time to help lock up nuclear materials and to employ otherwise unemployed nuclear technicians, but the patron-client

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**Reliable intelligence, especially “actionable” intelligence, is perhaps the most important ingredient in successfully implementing a robust policy of interdiction and preemption.**

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dynamic of this relationship has created a situation where Russia is viewed by many in the West as a supplicant, and where some Russians view Western threat reduction assistance as an opportunity for the West to constrain and even spy on Russian military capabilities. This unhealthy dynamic needs to change. There are new and ominous tensions in U.S.-Russian relations but threat reduction is one area in which American and Russian interests are largely in line with one another. Our two countries can usefully come to a set of common agreements on the necessary steps required to overcome existing obstacles to the smooth implementation of CTR programs (e.g., disputes over access to sensitive Russian sites and liability protec-

tions for U.S. personnel). A half billion dollars set aside by Congress in the past two years to protect or scrap Russian weapons sits unspent because of these obstacles and what’s more, the U.S.-Russian legal framework for CTR programs expires in the near future and there is little sign of any serious effort on either side to either amend or renew it.

***A variety of limitations to our current approach to nuclear terrorism and nuclear proliferation require redress.***

*Inadequate intelligence*

The U.S. miscalculation that large stockpiles of WMD existed in Iraq highlighted the inadequate intelligence that the U.S. often relies upon when assessing the WMD threat. With this in mind, the U.S. must embark on a sustained effort to bolster not only our technical collection means but also our human assets to deal with the threat of catastrophic terrorism. Unless the U.S. develops WMD intelligence that is more convincing to policy makers and to our key allies, as well as to our respective publics, confidence in future U.S. assertions of a WMD threat will be met with skepticism at home and abroad. Reliable intelligence, especially “actionable” intelligence, is perhaps the most important ingredient in successfully implementing a robust policy of interdiction and preemption, and the sorry showing of U.S. intelligence capabilities in the run-up to the invasion of Iraq does not provide comfort when it comes to other hard choices on the horizon, notably what to do about U.S. policy options in North Korea and Iran.

*No shared sense of danger with allies*

A great deal of work remains to be done to convince our allies – especially those in Europe and some in Asia – that WMD acquisition by non-state or state groups poses a clear and ominous threat not only to the United States but also to America’s friends and allies. It bears repeating that al Qaeda and its associated groups have launched deadly and high profile attacks within Europe as well as in Asia. It also bears repeating that bin Laden has made very clear his interest in acquiring WMD and his belief that it would be justifiable to use such weapons. Our allies should not labor under the false assumption that bin Laden or others of his ilk would only use a weapon of mass destruction against the United States. To create this common threat perception and shared sense of urgency will require patient diplomacy, supported by robust and reliable intelligence sharing.

*Imperfect bureaucratic tools*

The U.S. government is still not well prepared to lead the fight against WMD. U.S. efforts to address the threat are still characterized by a lack of coordination, duplication, misplaced priorities, and inadequately addressed areas of concern. This is partly due to the stove piped nature of the U.S. government and because of the fact that no one individual or institution is ultimately responsible for the formulation and execution of a national strategy to tackle nuclear terrorism. One option considered at Aspen was for the Bush administration to consider seriously proposals to empower and appoint an official who will lead the war against WMD terrorism. This individual — with the proper authorities and institutional mandates — would wake up every morning and think about nothing else other than what can be done to improve, accelerate, develop, and expand efforts to address the threat. This is but one idea for centralizing and integrating U.S. strategy for tackling the threat of nuclear terrorism. Without such an effort to strengthen U.S. government efforts for the challenge, there is a real risk that WMD policy will continue to drift – and the likelihood of a WMD attack on American soil will continue to grow.

**MOUNT TAILORED STRATEGIES TO ADDRESS THE THREAT**

A variety of tailored strategies were discussed at Aspen to specifically address the threat of nuclear terrorism and proliferation. Here below are several suggested policy approaches necessary for waging a successful U.S. “war” against WMD terrorism.

***Eradicate nuclear terrorism at the front end through effective control of fissile materials.***

The most important step in the fight against WMD terrorism is ensuring that all fissile materials are accounted for and controlled. Much headway has been made through U.S. efforts to upgrade the security of sensitive nuclear materials as potentially vulnerable nuclear sites in Russia, but progress has been too slow. Materials protection, control, and accountancy (MPC&A) programs in Russia should be accelerated so that all 600 tons of weapons-useable material will be the subject of comprehensive security upgrades by 2008. However, the threat of “loose nukes” is not confined to Russia. The recent U.S. Global Threat Reduction Initiative – a program to cooperate with Russia and the IAEA to remove highly-enriched uranium fuels from research reactor sites worldwide – should be pursued with urgency. Discreet efforts should be made to assist countries like Pakistan to ensure that nuclear weapons and materials are subject to the highest standards of physical protection.

***More sustained intellectual work is necessary to fully grasp the threat posed by bioterrorism; yet immediate steps are required to improve initial response capabilities.***

It must be stated at the outset that ASG participants generally agreed that the threats and remedies associated with bioterrorism require greater study and understanding and the participants were more comfortable in developing recommendations in the nuclear realm. However, it is undeniable that the ongoing revolution in biotechnology greatly increases the likelihood of the development of new biological weapons and pathogens that can be used by terrorists or developed clandestinely by states. The U.S. should continue to support efforts to reduce the likelihood that additional countries or sub-national groups will acquire an offensive biological weapons capability, but in addition, in the near term, U.S. efforts should focus on creating a greater capacity for responding quickly to a bioterrorist attack or to a natural outbreak of communicable disease. These efforts should include developing stockpiles of necessary vaccines, ensuring that emergency responders are trained to deal with rapidly evolving scenarios, developing war games and planning scenarios to explore the potential manifestations of an attack, and taking the necessary steps to ensure that the U.S. public health system is robust enough to deal with outbreaks, wherever they might occur.

***Test North Korean susceptibility to a diplomatic solution while preparing coercive/mitigating alternatives.***

North Korea's continuing proliferation efforts pose the most pressing challenge to the global nonproliferation regime and risk the prospect of dangerous nuclear materials finding their way into the hands of ruthless terrorists. In addition, an established nuclear North Korea might also trigger a nuclear domino effect throughout Asia, whereby formerly non-nuclear states reconsider their options when it comes to nuclear weapons. The U.S. has engaged Pyongyang in recent years as part of the six party talks but progress in the diplomacy has lagged at the same time that it appears that North Korea's surreptitious steps to build more nuclear weapons have accelerated. A more determined and urgent diplomatic effort is needed to test the (deeply uncertain) proposition that North Korea is willing to part with its nuclear weapons program in exchange for the right combination of security guarantees and economic support. In the event that a rejuvenated diplomatic approach fails, the U.S. and its allies must continue to consider means to coerce North Korea to abandon its nuclear program or even to entertain the threat of use of force against Pyongyang in the event that it persists in building a new arsenal.

***Get in the game with Iran on both bilateral and multilateral tracks.***

The outsourcing to the EU 3 of efforts to defuse the Iranian nuclear crisis has as yet failed to deliver a workable deal that will ensure that Iran does not develop a nuclear arsenal. While there have been some indications of progress and Europe appears almost desperate to head off a crisis, Iran continues to prevaricate about its ultimate nuclear ambitions. The current situation – where the U.S. stands on the side while our European allies negotiate with Iran – only increases the likelihood that Iran will attempt to play the EU 3 against the United States. The United States should take a more active role in negotiations with the Iranians in much closer coordination with our transatlantic partners, while also working with our European allies to craft a package of incentives that have the strongest chance of leading the Iranians to drop their nuclear ambitions. In addition, the U.S. must come to terms with the reality that regime change in Iran – while desirable on many levels – will probably not solve the nuclear problem given the remarkably strong and broad consensus on nuclear acquisition that exists in Iranian society.

***Stay the course with Pakistan.***

The possibility of Pakistan losing control of some portion of its nuclear arsenal is one of the nightmare scenarios facing U.S. policy makers. For this reason, the U.S. must continue to work with the Government of Pakistan to ensure its absolute control over its nuclear arsenal, as well as to ensure that their scientists are not providing support to other state or non-state groups that might wish to acquire WMD. This is undeniably a tall order. In many respects, Pakistan represents one of the most dangerous states on the planet with a latent capability to tip the scales dramatically in the arena of further nuclear proliferation. The U.S. has made clear the stakes associated with a successful democratic transition in Iraq; it should also be said that Pakistan's future is perhaps even more important to American security and the overall stability of South Asia and the larger Middle East.

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**While the U.S. is focused primarily on the threat of nuclear proliferation from non-state actors and rogues, it is important not to neglect the very real prospects for more proliferation among so-called “responsible” states.**

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***Discourage Brazil's fuel cycle ambitions.***

If Brazil proceeds with its plans to operate a uranium enrichment facility, this will complicate efforts to dissuade Iran and possibly others from pursuing enrichment and other fuel cycle capabilities under national control. At a minimum, Brazil should be urged to defer its enrichment plans pending international study of how best to meet global nuclear energy needs without the spread of national fuel cycle capabilities. It should also be urged to adhere to the IAEA's strengthened inspection system, known as the Additional Protocol, at an early date.

***Dissuade potential “in-between” states that may harbor latent nuclear ambitions.***

Over the past few decades, dozens of states have considered, or took steps toward, acquiring a nuclear arsenal, but most have abandoned those aspirations. Yet, there are a number of states that may well consider the possibility of maintaining a kind of nuclear hedge should global security trends take a precipitous downward trend. With this in mind, the U.S. government must remain prepared to dissuade states that might wish to reconsider their nuclear options. Perhaps the most important steps in this regard relate to policy options when it comes to North Korea and Iran. If either is allowed to proceed towards an acknowledged nuclear status, the cascading consequences when it comes to further nuclear proliferation are deeply worrisome. While the U.S. is focused primarily on the threat of nuclear proliferation from non-state actors and rogues, it is important not to neglect the very real prospects for more proliferation among so-called “responsible” states.

***Strike a “grand bargain” with Russia.***

While the term “grand bargain” has certainly been overused when it comes to the U.S. and Russia, the U.S. should nevertheless look to strike such a deal with Russia whereby both states greatly accelerate the nuclear reductions that have been agreed to in the Moscow Treaty. The two countries should agree that weapons removed from the arsenal under the treaty are to be dismantled and the fissile materials securely stored pending early disposition. As Senator Nunn has recommended, the U.S. and Russia should agree to drastically reduce the number of nuclear warheads they maintain

on ready alert status. As Senator Lugar has noted, the window of opportunity to work with Russia to reduce its massive stockpiles of WMD might not stay open indefinitely. Indeed, tensions are growing between Moscow and Washington and it is increasingly difficult to design a bilateral agenda of shared goals and objectives. Consequently, the U.S. should be working with Russia more intensively in the current climate to lock in the potential security gains that are in the offing. In addition to strengthening the Moscow Treaty, the U.S. and Russia should also sit down to fundamentally refashion the Nunn-Lugar set of programs and devise a new template of shared responsibilities between the U.S. and Russia to better corral the still vast stockpiles of WMD-related materials that remain on the territory of the former Soviet Union.

***Accelerate focused R&D efforts to reduce the WMD threat.***

The U.S. also needs to redouble R&D efforts focused on detecting nuclear weapons programs in their early development stage as well as putting more effort into developing capabilities designed to interdict nuclear weapons and materials being transported. The U.S. has employed a first generation system of detection capabilities in recent years but the existing technology is easily defeated and leads to numerous false positives. While these technological efforts aimed at detecting illicit shipments are probably not as efficacious as steps focused on locking down WMD materials at their source, they can form an important piece in the overall WMD threat reduction mosaic. In addition, U.S. R&D efforts during the Cold War, such as the development of satellite reconnaissance capabilities, give reason for hope that new technologies can be developed for this current era that will help to improve U.S. efforts to combat nuclear smuggling and proliferation activities.

**... AGAINST A REINFORCED GLOBAL BACKDROP**

***Foster a set of mechanisms to shore up the NPT.***

A variety of mechanisms should be considered to close the existing loopholes in the NPT. For instance, the U.S. and its allies should work to promote consensus regarding the notion that the spread of closed fuel cycles is dangerous and that this continuing loophole endangers the overall viability of the non-nuclear bargain. In addition, the U.S. needs to work with its allies to ensure that a more rigorous inspections regime – specifically, the Additional Protocol – becomes a mandatory part of a strengthened NPT. In addition, the U.S. needs to make clear to other states that the NPT is a bargain among have-nots as well as a bargain between haves and have-nots. Those states that have decided to forgo the development of a nuclear weapons capability have a vested interest in ensuring that other states that have committed to do so are not violating the terms of the agreement. In addition, those states that are recognized as possessing nuclear weapons under the NPT also have to reassure the other signatories to the treaty that they take the commitment embodied in Article VI of the treaty more seriously. Finally, the U.S. should work to develop an international consensus around measures that would make withdrawal from the NPT more difficult and costly – for example, a Security Council resolution requiring a state withdrawing from the Treaty give up any nuclear facilities acquired while it was a party, or a resolution calling for Council deliberations in the event that any NPT party gives ninety-day notice of its intention to withdraw from the Treaty.

***Strengthen global technology denial.***

The Bush administration's development of the PSI was a notable WMD threat reduction innovation during the first administration. That foundation must now be built upon by bringing in additional countries, strengthening intelligence sharing arrangements, and expanding legal authorities to engage in interdiction operations, including on the high seas. Clearly some states will be reluctant to join because of fear that the United States will use the PSI as a pretext to put pressure on particular regimes (e.g., North Korea). These fears must be allayed so that a broader coalition supporting the PSI can be formed. As mentioned previously, the U.S. must work to ensure that national export control systems are strengthened. In this connection, the U.S. must work to fully shut down the nuclear black market established by Dr. A.Q. Khan and his associates. There are disconcerting signs that parts of this network are still operational. The U.S. must make it clear to states such as Pakistan, Malaysia, and the United Arab Emirates that entities engaged in providing nuclear technology and know-how are a threat to international peace and security.

***Balance the potential military benefits of changes in the U.S. nuclear posture against obstacles they create to achieving the reinforced global backdrop for combating WMD.***

The U.S. should carefully consider that, while low-yield and so-called bunker-busting nuclear weapons have the potential of adding marginally to already robust conventional U.S. military capabilities, such steps also risk undermining U.S. efforts to devalue the salience of nuclear weapons internationally and to decrease the incentives for additional countries to acquire them. This contradiction may very well complicate U.S. national security challenges rather than clarify them. Although most astute observers of nuclear politics dismiss the notion that the nuclear choices of determined proliferators like North Korea or Iran will be influenced by the size or quality of U.S. nuclear forces, U.S. efforts to continue improving its nuclear capabilities may persuade even NPT stalwarts that nuclear weapons will remain a crucial source of influence internationally and that they should therefore begin to hedge their bets and keep their future nuclear options open.

**...WHILE OVERHAULING DEFICIENT U.S. GOVERNMENT CAPABILITIES**

On a variety of fronts, the U.S. government must overhaul deficient WMD analytic and defense capabilities.

***Elevate importance of Department of Homeland Security programs for WMD terrorism.***

As Ash Carter has noted, "WMD-related projects get only a fraction of the new homeland security agencies' \$40 billion budget, even though WMD are the homeland's greatest threat." With this in mind, U.S. policy makers must re-examine our strategy for ensuring that the most consequential threats are receiving the attention that they deserve. This prioritization process needs to be removed as far away from politics as possible. One idea might be to appoint a bipartisan blue-ribbon panel to examine the various threats posed to the United States and for a strategy to be developed which can help inform the process of program development and budgeting to address the WMD threat.

***DOD counter-proliferation programs.***

While overall defense spending has risen markedly in recent years, counter-proliferation funding as part of the DOD budget has not risen at a level comparable to that for long-range strike, joint service initiatives, and efforts to provide intelligence to military commanders and soldiers on the ground. While these conventional force improvements are important, they will not make the U.S. more capable of detecting WMD developments by others, nor will they help to lock down more insecure materials or provide for the destruction of WMD with which other countries are willing to part.

***Intelligence support to counter-proliferation.***

As John Deutch and Arnie Kanter noted during the ASG summer session, U.S. intelligence for addressing the WMD threat is deficient both in terms of overall intelligence assessments of the threat as well as actionable intelligence to deal with the threat. To improve overall assessment, Deutch and Kanter have stated “we must do a better job of “all-source analysis” by accessing and integrating data provided by the various collection disciplines (e.g., human intelligence, signals intelligence, imagery) to create an assessment that gains credibility from mutually reinforcing facts gathered from independent sources.”



The Aspen Strategy Group proceedings on the threat of nuclear proliferation were deeply engrossing, sometimes combative and not always conclusive. Yet the dialogue and discussion helps underscore the notion that this threat is real and growing. Indeed, one Aspen participant was giving odds that a nuclear weapon would be detonated in an American city over the course of the next generation. The multifaceted set of tasks before us that relate to confronting the risks of nuclear terrorism represent an era of potentially rewarding bipartisan activism. As yet, however, much of this potential arena of cooperation remains unfulfilled, and as the above set of policy challenges makes abundantly clear, we have our work cut out for us.



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