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Barletta, Michael

Center for Nonproliferation Studies

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**WMD Threats 2001:
Critical Choices for the Bush
Administration**

Michael Barletta, ed.

Monterey Nonproliferation Strategy Group

THE CENTER FOR NONPROLIFERATION STUDIES

The mission of the Center for Nonproliferation Studies (CNS) is to combat the spread of weapons of mass destruction by training the next generation of nonproliferation specialists and disseminating timely information and analysis. Dr. William C. Potter is the director of CNS, which has a staff of more than 55 full-time personnel and 60 student research assistants, with offices in Monterey, CA; Washington, DC; and Almaty, Kazakhstan. CNS is the largest nongovernmental organization in the United States devoted exclusively to research and training on nonproliferation issues.

For more information on the projects and publications of CNS, contact:

Center for Nonproliferation Studies
Monterey Institute of International Studies
425 Van Buren Street
Monterey, California 93940 USA

Tel: 831.647.4154

Fax: 831.647.3519

E-mail: cns@miis.edu

Internet Web Site: <http://cns.miis.edu>

CNS Publications Staff

Editor-in-Chief

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FOREWORD

by Michael Barletta

Coordinator, Monterey Nonproliferation Strategy Group

The George W. Bush Administration confronts a daunting array of challenges ensuing from the proliferation of weapons of mass destruction (WMD), which pose grave threats to the United States at home and to its allies and friends abroad. Increasingly, national policies and international institutions designed to cope with WMD threats are being outpaced by technical and political changes that undermine the effectiveness of existing measures to reduce WMD risks. Moreover, domestic pressures in key states—notably China, France, India, Russia, and the United States—make it increasingly difficult to reach consensus and generate political will for effective collaboration against WMD proliferation. Fortunately, however, the new administration can rely in part upon the military alliances, diplomatic arrangements, and other political and economic instruments developed by the last ten U.S. presidents, who have labored since 1945 to constrain the spread of dangerous technologies in order to defend the United States and help construct a safer world.

To build upon past efforts and successfully meet present and future WMD challenges, President Bush and his senior foreign policy advisors must make a number of decisions apt to hold fateful consequences. They will face critical choices on managing U.S. foreign relations, thwarting WMD terrorism, and organizing the U.S. government to combat proliferation threats and exploit nonproliferation opportunities. This concise collection offers pragmatic guidance for the Bush team in each of these areas. It includes papers prepared for consideration by the Monterey Nonproliferation Strategy Group in its 15-16 March 2001 meeting at the Center for Strategic and International Studies in Washington, DC, and a thematic review of the group's deliberations. A list of Strategy Group members and other specialists and policymakers who participated in the session concludes this publication.

The Monterey Nonproliferation Strategy Group is an international body of veteran policymakers and prominent analysts who are working to craft innovative but practical measures to remedy WMD proliferation threats. A synopsis of the Strategy Group's efforts and associated publications are available online at <http://cns.miis.edu/research/mnsg/index.htm>.

This publication and other activities of the Monterey Nonproliferation Strategy Group have been made possible in part through the generous support of The Ford Foundation, Jill and Jeff Harris, The John Merck Fund, and the W. Alton Jones Foundation.

ABBREVIATIONS

ABM	anti-ballistic missile
ACDA	U.S. Arms Control and Disarmament Agency
AF	Agreed Framework (between the DPRK and USA)
AMD	allied missile defense
ASATs	anti-satellite weapons
AVLIS	atomic vapor laser isotope separation
BMD	ballistic missile defense
BSE	Bovine Spongiform Encephalopathy
BW	biological weapons
BWC	Biological Weapons Convention
CBW	chemical and biological weapons
CIA	Central Intelligence Agency
CTBT	Comprehensive Test Ban Treaty
CTBTO	Comprehensive Test Ban Treaty Organization
CTR	cooperative threat reduction
CW	chemical weapons
CWC	Chemical Weapons Convention
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DPRK	Democratic People's Republic of Korea
ETRI	Expanded Threat Reduction Initiative
FMCT	fissile-material cutoff treaty
FSU	former Soviet Union
G-8	Group of Eight
GAO	U.S. Government Accounting Agency
GPALS	global protection against limited strikes
HEU	highly enriched uranium
HHS	U.S. Department of Health and Human Services
IAEA	International Atomic Energy Agency
ICBM	intercontinental ballistic missile
IMS	International Monitoring System (for nuclear testing)
INF	Intermediate-range Nuclear Forces
ISTC	International Science and Technology Center
IWG	interagency working group
KEDO	Korean Peninsula Energy Development Organization
km	kilometer

kt	kiloton
LLNL	Lawrence Livermore National Laboratory
LWR	light-water reactor
MEPhI	Moscow Engineering Physics Institute
MGIMO	Moscow State Institute of International Relations
MIT	Massachusetts Institute of Technology
MNSG	Monterey Nonproliferation Strategy Group
MPC&A	materials protection, control, and accounting
MT	metric ton
MTCR	Missile Technology Control Regime
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, and chemical
NBC/M	nuclear, biological, chemical, and ballistic missile
NGO	non-governmental organization
NIS	Newly Independent States
NMD	national missile defense
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSA	U.S. National Security Agency
NSC	U.S. National Security Council
NSG	Nuclear Suppliers Group
NWFZ	nuclear-weapon-free zone
OPCW	Organization for the Prohibition of Chemical Weapons
P-5	Permanent Five (members of U.N. Security Council)
PRC	People's Republic of China
Pu	plutonium
R&D	research and development
ROK	Republic of Korea
SDI	Strategic Defense Initiative
START	Strategic Arms Reduction Treaty
TMD	theater missile defense
UNMOVIC	United Nations Monitoring, Verification, and Inspection Commission (on Iraq)
UNSC	United Nations Security Council
UNSCOM	United Nations Special Commission (on Iraq)
USSR	Union of Soviet Socialist Republics
WA	Wassenaar Agreement
WMD	weapons of mass destruction
WPC&A	weapons protection, control, and accounting
WTO	World Trade Organization

U.S. ALLIES AND FRIENDS: MAINTAINING PRODUCTIVE TIES IN NONPROLIFERATION

by Nobuyasu Abe

Permanent Mission of Japan to the International Organizations in Vienna*

The international nonproliferation regimes appear to be falling apart at the seams. The NPT-centered regime failed to stop India and Pakistan from testing nuclear weapons, and both countries continue weapons development. The inspection regime against WMD in Iraq has been long suspended, with no sign of its resumption. North Korea continues missile development, and suspicion persists about its WMD capabilities. People are starting to question the value of observing nonproliferation norms if we cannot even stop the sale of nuclear reactors to India and Iran, or of missiles to Pakistan and other countries of concern.

This paper outlines what needs to be done by the United States at each of three tiers of the international regimes: multilateral nonproliferation agreements, supplier export controls, and country-specific measures.

MAINTAIN AND STRENGTHEN MULTILATERAL NON- PROLIFERATION REGIMES

- (1) Sustain the viability of the NPT as the cornerstone of nuclear nonproliferation. Its basic bargain is abstinence from nuclear weapons on the part of non-nuclear weapon states, coupled with commitment to nuclear disarmament on the part of nuclear weapon states. There is a considerable dissatisfaction, however, among the non-nuclear weapon states.
- (2) Demonstrate visibly that the U.S.-Russia nuclear weapons reduction process is progressing, either by negotiated agreement (START) or through unilateral steps.

- (3) Initiate negotiations on a Fissile Material Cutoff Treaty.
- (4) Ratify and bring into force the CTBT. In doing so, maintain robust national technical means of verification, because these will continue to provide strong support for the multilateral International Monitoring System (IMS). Some analysts may still argue that the IMS is not dependable, but it should not be expected to bear the entire responsibility for verification; indeed, the CTBT presumes the use of national means. Even without any IMS, the Treaty is worth putting into force.
- (5) Support the IAEA as an important NPT verification entity. Do not ask to apply the new 22% ceiling to the U.S. contribution. Rather, use this ceiling as a bargaining chip to demand that other Member States be more forthcoming in their contributions to the IAEA.
- (6) Urge the remaining NPT holdouts (India, Pakistan, Israel and Cuba) to join the treaty, but avoid providing undue rewards: i.e., legitimizing their nuclear status, or opening the flow of sensitive technology to them.
- (7) Support steady implementation of the Chemical Weapons Convention by the OPCW. Urge holdouts in the Middle East and Asia (especially North Korea) to join the Treaty.
- (8) Work to expedite negotiation of a BWC verification protocol that is not excessively burdensome to bio/pharmaceutical industries, but still as tough as possible to be able to detect such clandestine efforts to acquire BW as those employed by Iraq. While making every effort to conclude negotiations before the 5th Review Conference of the BWC in November 2001, seek to avoid hasty compromise for the sake of concluding negotiations.

* The views presented here are the author's own personal opinions, and do not necessarily reflect those of any governmental or non-governmental organization.

(9) Proceed with extreme caution regarding the Russian-proposed international missile warning mechanism. The notification requirement alone may justify missile development by countries of concern yet have no effect on restraining them. A worldwide agreement to restrict missile development is very hard to foresee. Countries will not accept another NPT to ban missiles that allows those who already have them to continue their possession. Regional arrangements in Middle East, South Asia or on the Korean Peninsula may have a better chance of success.

However strong we try to make them, multilateral instruments remain products of compromise. Avoid becoming complacent with reliance just on multilateral regimes. Try to supplement them with a series of other steps.

STRENGTHEN EXPORT CONTROL REGIMES OF LIKE-MINDED COUNTRIES

The NSG, AG, MTCR, and WA (Wassenaar Agreement) nonproliferation regimes are basically “voluntary” and still have difficulty tightening their common export guidelines, or coping with efforts to undermine their effectiveness.

- (1) Draw up a strategy to handle the “minimalists” such as Russia (and France), and carry it out tenaciously. (By “minimalists” I refer to those members of the NSG, AG, or MTCR who try to interpret these regimes’ guidelines so as to minimize their export control obligations, and who try to resist any efforts to strengthen controls. An economically stricken country like Russia has strong internal pressures to export weapons and technology.) Combine this strategy with measures to help scientists and engineers in sensitive areas, e.g., ISTC, and supporting conversion to civilian industries.
- (2) Consult with willing partners to seek further supplementary measures, e.g., exchanging intelligence, encouraging whistleblowers, and penalizing non-compliance. (These partners may include Britain, Japan, Canada, Australia, and possibly Germany.)

- (3) Give nonproliferation concerns due weight domestically, and avoid creating the impression among partners that the United States may be putting its own commercial interests before solidarity with its allies.

ADDRESSING SPECIFIC COUNTRIES OF CONCERN

In general, negotiate from a position of strength, avoid hasty agreement, provide adequate leverage to negotiators, and then secure a complete verification guarantee. Here I devote particular attention to the Korean Peninsula.

North Korea

Maintain the Agreed Framework and promote completion of KEDO-LWRs while insisting on complete verification, including IAEA Safeguards compliance.

Before renouncing nuclear deterrence against North Korea, remember that the country is strongly suspected to have CBW as well.

Any missile deal has to be comprehensive: it must include renunciation of development, production, deployment and export of any medium- and long-range ballistic missile, including the *Nodong*, and any deal should include thorough verification comparable to that of the INF Treaty.

- (1) Any rewards have to be commensurate with the extent of North Korean cooperation.
- (2) Involve allies (Japan and ROK) in close consultations on any deal, to dispel concern that the United States may go over their heads to strike a deal with North Korea.
- (3) Remember those who remain in concentration camps or are detained against their will before striking any comprehensive deal with North Korea.
- (4) In pursuing a comprehensive settlement of nonproliferation and other security and political issues in the region, the United States and Japan may use a six-nation framework. This would include all of the essential players in the region: the United States, Japan, Russia, China, ROK, and DPRK. Any nonproliferation arrangement through this framework would be Korean Peninsula-

specific, and thus it may be easier to secure the cooperation of Russia and China, who otherwise may resist the introduction or tightening of a new global nonproliferation requirement.

India and Pakistan

Resist the temptation to accept the *fait accompli*. As already noted, refrain from rewarding proliferators.

Iraq

In order to prevent the erosion of the nonproliferation regime, develop “smart” sanctions. In spite of all of the criticism, the best choice may be to hold on to the existing set of sanctions and WMD verification requirements as long as possible, until the UNSC moves to ongoing monitoring and eventually to Iraqi participation in the multilateral nonproliferation regimes.

Iran

Trust and verify. Encourage Iran to sign the IAEA Additional Protocol, and then insist on full verification and compliance with IAEA safeguards, the CWC, and the BWC Protocol.

BACKUP MEASURES TO SUPPORT NONPROLIFERATION REGIMES

However strong the multilateral arrangements, like-minded country groupings, or country-specific measures may be, none of them alone is a panacea for addressing proliferation threats. Avoid a false sense of security. Nonproliferation regimes can slow down proliferation but cannot entirely stop it. Other means have to

be combined with the regimes: readiness to impose sanctions, defense against WMD (i.e., counterproliferation), and ultimately means of deterrence (i.e., retaliation) once WMD are used. These measures can strengthen each other. The solution lies in a right mix of active and passive measures, four of which merit particular attention here.

- (1) Provide enough resources for nonproliferation efforts. Exempt nonproliferation-related international organizations, i.e., the IAEA, OPCW, and CTBTO, from the scale of assessment reduction (down from 25% to 22%), and continue and increase funding for ISTC and other physical protection efforts.
- (2) Initiate a new nonproliferation policy group among willing allies to coordinate efforts and share wisdom and resources, e.g., in designing smart sanctions such as pinpointed financial sanctions (seizing hidden financial assets), and encouraging and rewarding defectors/whistle-blowers.
- (3) Strengthen counterproliferation measures, which may include missile defense. In this regard, pursue missile defense in a way that would improve the security environment and reduce WMD risks, e.g., combine missile defense with mutual WMD reductions and/or reduction/delay in WMD employment doctrines. Missile defense would be beneficial if it can promote reductions of WMD stockpiles and reduce alert status of WMD deployments.
- (4) Retain the nuclear deterrence option until such time as the WMD capabilities of countries of concern are resolved.

TIME FOR CLARIFICATION IN TRANSATLANTIC RELATIONS

by Thérèse Delpech

Atomic Energy Commission, France

Although nonproliferation is perceived in Europe as primarily an American invention, it was adopted by European nations gradually over the last four decades. The nonproliferation fight became a diplomatic objective and a growing security concern for both the United States and its friends and allies in Europe, and respective policies became increasingly intertwined. Hence the current doubt about U.S. willingness to continue playing its traditional leading role in nonproliferation has opened a phase of uncertainty in Europe.

In the transatlantic relationship, there are a number of outstanding politico-military issues, some of which have direct or indirect bearing on nonproliferation. First, the European Defense Policy will make Europe increasingly capable of taking care of itself, allowing (at least in the best scenario) a new division of labor on security issues, but with more European involvement than in the past. Second, the NMD debate will occasion serious consultations between Washington and the European allies. The real weight of European nations on this question is unknown, but thought to be limited. Nevertheless, it will depend greatly on the quality of the European response. Finally, among the three prominent regional security issues—the Balkans, Middle East, and Russia—the latter two at least have a significant nonproliferation dimension.

Therefore, it is now time for clarification on two accounts: U.S. nonproliferation policy, and Europe's share in nonproliferation initiatives.

NONPROLIFERATION

Nonproliferation is critically important for both Europe and the United States. However, three differences shape respective postures in distinctive ways.

General Policy Orientation

European countries are parties to all major nonproliferation treaties, united in their support of multilateral treaties, and concerned about rising skepticism toward treaty-based arms control in the United States. Europeans states are ready to accept tailored agreements in some cases (e.g., to support KEDO). They are also ready to contemplate a number of additional measures, if such steps are meant to supplement treaties, but Europeans perceive multilateral accords to be an essential part of their security.

Geography

Much of the world's proliferation-related activity is taking place in the Middle East, which is vitally important for Europe. The Mediterranean region is one of the areas most closely monitored for proliferation activities. If the situation is not kept under control over the next fifteen to twenty years, Europe will be the first to suffer the negative consequences. However, Europe must consider a wider geographic perspective due to the current routes for sensitive sales, many of which transit from East Asia to the Middle East and Northern Africa (e.g., China's sales to Syria, Iran, Saudi Arabia, and Libya; North Korea's sales to Iran, Syria, United Arab Emirates, and Egypt).

Assessment

Contrary to the United States, which produces proliferation assessments on a regular basis, Europe has no collective analysis on the subject. Reaching an objective and comprehensive European assessment of the nature and magnitude of WMD proliferation and possible related threats would be no easy task. Much activity in this area is by nature clandestine, and Europe has yet to reach the stage where it could provide a strategic intelligence capability that

could balance the influence of U.S. estimates. The human and technical collection capabilities of European nations are highly dissimilar, and there is no regular comparison and refinement of data among respective national agencies. Hence, it is now time to produce a serious European threat assessment.

COUNTERPROLIFERATION

European and U.S. priorities are inverted regarding the role of counterproliferation. The U.S. Counter-Proliferation Initiative launched in December 1993 renewed attention to passive and active defense, but also emphasized counterforce options against hardened or underground targets. Confusion soon emerged in Europe regarding the exact nature of the U.S. program.

Today, there is increasing recognition in Europe that prudent defense planning is needed to address the possibility that Western forces may confront a regional adversary armed with NBC weapons on a future battlefield. This threat could lead Europeans in the coming years to improve significantly their surveillance, extended air defense, and early-warning capabilities.

Nonproliferation has always been a careful balancing act between international consensus building, and the development of defensive options should nonproliferation policy fail. Throughout the 1990s, one finds convincing signs of a gradual shift from the former to the latter in the United States. There has been no such shift, however, in Europe. Although support for counterproliferation has grown in the United States and will be an enduring feature of U.S. strategy, it remains a secondary priority in Europe—if it is a priority at all.

On the U.S. side, it appears that the large number of its military commitments abroad (a significant difference with the European States) contribute to the perceived need for an effective counterproliferation policy.

HOMELAND DEFENSE: A FAMILIAR SONG

We have a transatlantic debate on the subject of homeland defense once every decade: on SDI in the 1980s, GPALS in the 1990s, and

NMD now. This time around, the growing consensus for deployment of missile defenses beyond the current limits of the ABM treaty emerged in the United States at the end of the 1990s, at a time when European nations were occupied with acquiring conventional force projection capabilities. The timing was therefore unfortunate, from the European viewpoint. However, in recent months there has been a noteworthy evolution of debate on the subject in Germany and even in France.

Although significant differences remain, there are possible areas of rapprochement. Europeans do not share the U.S. assessment of the threat (although they have no proper one themselves), nor do they believe it is necessary to deploy national or strategic defenses (although they feel it is increasingly necessary to develop theater missile defenses for troop protection in an NBC environment). As noted above, Europe would benefit greatly from better surveillance and proliferation analysis.

Transatlantic consultations

Although the new U.S. administration leaves no doubt concerning its firm intention to deploy missile defenses, it also insists on consulting the allies before entering serious talks with Russia. Europeans will accept consultations on NMD, and participate actively in them. A linguistic shift indicates some accommodation in this incipient dialogue. To alleviate European concerns, U.S. officials may replace the disliked concept (and acronym) “national missile defense” (NMD) with “allied missile defense” (AMD) to respond to fear of decoupling, or with “ballistic missile defense” (BMD) to blur the difference between NMD and TMD.

Industrial Interests

Participation in industrial development of the U.S. missile defense system is a tempting prospect for some European countries, their previous bitter experiences notwithstanding (i.e., with SDI). The statement by the German Chancellor of 27 February 2001 was clear on German interest, although the exact nature of envisaged collaboration is not certain (i.e.,

whether it would involve participation in the NMD architecture or joint TMD development).

Remaining Questions

Although London, and even Berlin and Paris, are softening their statements on missile defenses, important questions are still pending: How will discussions with Russia evolve? How will the relationship with China evolve? Is U.S. awareness rightly focused on the more pertinent aspects of the proliferation threat, or does the U.S. prioritization risk diverting energy and funds towards remote or speculative menaces?

SPECIFIC CONCERNS

Ballistic Missiles

Missile programs increasingly drive other weapons programs and strategic considerations. They are therefore moving to the forefront of strategic transformation. While missile programs are seen as the greatest force determining deployment of BMD, European initiatives to improve the current MTCR regime (e.g., proposed code of conduct) are looked upon with suspicion by the United States. European participants should clarify the process initiated at the Helsinki MTCR meeting, while taking into account fears expressed, notably by Japan, that such measures could be used to legitimize missile proliferation. The lack of U.S. participation in the February 2001 meeting in Moscow on a Global Control System was seen widely in Europe as unnecessary and unhelpful, even if the meeting did not produce practical results.

Chemical Weapons

The Iraq-Iran war led the United States to give increased impetus to the Geneva negotiations for a global ban on CW, but after the conclusion of negotiations in 1993 and entry into force of the CWC in 1997, implementation decisions have eroded the convention's provisions for verification. There is also dissatisfaction in the OPCW regarding the national declarations of some significant countries, including Russia and Iran.

Biological Weapons

There is growing concern about BW in some European countries, due both to the major clandestine programs unveiled in the USSR and Iraq, and to current scientific and technological advances. But the U.S. emphasis on BW terrorism is considered excessive in Europe. Another transatlantic difference is that while European nations are all in favor of adopting a BWC verification protocol, for industrial reasons the United States has been one of the most difficult partners in the negotiation. With regard to both the CWC and BWC, we have yet to see satisfactory response to the proven cases of breaches in the conventions.

Nuclear Weapons

Whether made unilaterally or otherwise, reductions in the U.S. nuclear arsenal will be welcomed by all European nations. However, alleged plans to contemplate new roles for nuclear weapons* raise serious questions. If this means that the United States seeks to develop more usable nuclear weapons, it would be a major throwback to the Cold War. The U.S. Nuclear Posture Review is therefore anticipated with interest in Europe: a possible quest for new nuclear warheads would also raise doubt about the continuation of the U.S. test moratorium.

CTBT

In Europe, it is widely believed that there was more to the U.S. Senate vote against the CTBT than merely another example of domestic politics intruding on the security agenda. Prospects for ratification are now seen as almost nonexistent. The U.S. posture toward the treaty is perceived in Europe as a symbol of U.S. skepticism toward multilateral approaches and international verification.

* For instance, in the apparently influential report by the National Institute for Public Policy (NIPP), *Rational and Requirements for U.S. Nuclear Forces and Arms Control* (Fairfax, VA: NIPP, January 2001).

REGIONAL ISSUES

Several regional issues may have become pivotal for transatlantic relations. The future of U.S.-Russia arms control agenda remains at the forefront, but Iraq, Iran, North Korea, and South Asian also pose important issues for U.S.-European relations.

Russia

Russia will remain a major concern for Europe, whatever position that Russia may have in the domestic U.S. security agenda. In the past, the most significant achievement of the U.S.-Russia negotiating process was far greater predictability in the behavior of both states. At a time when imbalance prevails between the two nations, predictability remains essential not only for the United States and Russia, but also for the rest of the world. It is widely assumed in Europe that the U.S. Cooperative Threat Reduction programs are useful and need continuous support. However, it is unclear whether the threat reduction and nuclear arms control agendas will converge. On the European side, initiatives towards Russia remain largely insufficient. The “Common Strategy of the European Union on Russia” adopted on 4 June 1999 includes under the heading “Preventive Diplomacy” an important section devoted to “curbing the proliferation of WMD,” and to “supporting nuclear disarmament and chemical destruction.” Europeans could use this strategy to good effect in supporting threat reduction in Russia, but have not provided adequate funding for this purpose.

Iraq

After Colin Powell’s February 2001 trip to the Middle East, there is rising support for a modified approach toward Iraq. Coming ten years after the Persian Gulf War, a revised approach is meant to refocus sanctions and pressure on the Iraqi government and on weapons and significant dual-use items, and to lift sanctions on consumer goods. It could also include compensation for countries in the region (and perhaps even Russia) to get new support for a modified approach. While the objectives are clear—to refocus sanctions and rebuild the coalition, particularly of the P5—articulation of

this policy with U.N. Security Council Resolution 1284 is still unclear. In particular, the modified approach should in no way compromise or otherwise further delay the return of UNMOVIC inspectors to Iraq.

Iran

It may be time to engage Iran, but given the regional environment, the impact of engagement on WMD programs is unclear, regardless of who rules Teheran. These programs are likely to continue, with missile development most probably being only the visible part of them. Russian sales to and cooperation with Iran are viewed with concern in European capitals, as in the United States.

North Korea

Europe has never been on the forefront in coping with North Korea. However, Europeans concur with the main U.S. objectives: to sustain the current freeze on the Korean nuclear program and missile testing. Major shared goals include stopping North Korean missile sales abroad, notably in the Middle East, and preserving the possibility of compliance with IAEA requirements. The question now frequently asked in Europe is whether we are witnessing the end of U.S. patience.

South Asia

Given the available nuclear weapons and ballistic missiles in the region, the first goal of any policy is to lower the likelihood of further conflicts. One significant way to do so would be to freeze the Line of Control and recognize it as an international border.

CONCLUSION

Now that the United States is demonstrating skepticism about multilateral arms control and nonproliferation initiatives, can Europeans take a more significant share in nonproliferation policies? Yes, because there is little alternative to doing so. Due to geography the stakes for Europe in coping with Russian nonproliferation challenges, for instance, are greater and more immediate than for the United States. Possible Russian withdrawal from the INF Treaty or the

possible reconfiguration of nuclear forces as a means to respond to missile defenses would directly affect European security, while more sensitive Russian exports to the Mediterranean region would affect Europe indirectly. Proliferation developments in the south and southeast of Europe are becoming a matter of concern, even if European responsibility in addressing and preventing unwelcome trends still needs to be fully recognized.

But even in the best scenario, Europe will not be able to replace United States in this respect. If U.S. officials do not confirm the continuing contribution of nonproliferation norms

and multilateral arms control, there likely will be serious negative consequences; Washington's support will remain essential for the regimes, whatever Europe's own improvement in the field. This is particularly true with regard to China and Russia, which will only take advantage of less U.S. commitment to further reduce their own commitment to nonproliferation policies and arms control. In both countries, treaties are often viewed either as unnecessary constraints or concessions to the United States, when they are in fact an essential part of P-5 responsibilities.

NORTH KOREAN BALLISTIC MISSILE PROGRAMS: SOVIET AND RUSSIAN LEGACIES?

by Timothy McCarthy

Monterey Institute of International Studies

INTRODUCTION

There is a wonderful line in *The Right Stuff* where the narrator laments that U.S. rockets will never catch up with Soviet rockets because “ours always blow up.” But this judgment was too harsh for the 1950s and 1960s, and it remains so today. History tells us that new rocket and missile development is fraught with difficulties and often-spectacular failures, especially for first- and second-generation programs. Combine these inherently risky technological projects with an additional requirement to serially produce missiles for combat, and you ensure additional opportunities for malfunction or breakdown. The United States, Russia, China, Iraq, and others have all experienced this phenomenon in their missile programs. In fact, and contrary to Tom Wolfe’s narrator, *everyone’s* rockets always blow up.

Everyone’s, it seems, except those from North Korea. This paper proposes an alternative explanation why this may be so. It is based on an in-depth technical analysis forthcoming by the author in collaboration with Robert Schmucker, President of Schmucker Technologie (Munich).^{*} In our effort to explain how North Korea has succeeded in realizing its ballistic missile ambitions, especially in terms of their short development times, successful serial production, and supposed lack of extensive foreign assistance, our research calls into question the conventional assessment of the North Korean missile program. The paper concludes by suggesting implications for U.S. policy with respect to Russia and other missile proliferation issues.

^{*} This paper offers an extremely abbreviated, general presentation of our findings. For further information regarding evidence, analysis, and implications of this ongoing research project, contact the author at tmccarthy@miis.edu.

PUZZLES

The available evidence indicates that the North Korean experience with missile development differs substantially from that of every other country to date. Although hard data concerning North Korean missile activities are difficult to come by in both the classified and unclassified realms, we can ascertain benchmark dates in the developmental history. These dates and assessments available in the public literature (which apparently reflect current classified analysis), suggest the following characteristics of North Korean missile programs:

- (1) North Korea has undertaken at least four, and possibly five, successful development and *production* programs in less than twenty years.
- (2) A very small number of samples—perhaps three or four missiles from Egypt—reportedly served as the basis of Pyongyang’s first missile reverse-engineering program.
- (3) There have been an exceedingly small number of flight tests—probably less than ten—for the entire missile development program.
- (4) There has been an absence of significant problems or failures with both tested and produced missiles. For example, Iranian missiles purchased from North Korea proved to be extremely reliable during the 1988 “War of the Cities.”
- (5) Programs have manifested short development-to-series production timelines; in some cases, production reportedly commenced *prior* to flight-testing.
- (6) There reportedly has been no extensive foreign assistance to the program.

In sum, the North Korean experience appears completely unique in the history of missile development and production, especially

when compared with the histories of other developing country programs. In many respects, Pyongyang's work can be described as successful manufacturing *immediately* after drawing-board activities are completed. Although this goal describes the theoretical intention of every missile project, such ideal results never happen in the real world. While the timing of failures cannot be predicted, they must be expected at some point in the process. Even with the extensive application of management skills, resources, theoretical predictive modeling, and proper quality-control means, the realization of a missile program is still characterized by a large amount of trial-and-error work. This holds true not only for the phases in which a basic, or prototype, missile is established—reverse engineering, improvement, or development—but also for qualification and production line acceptance.

However, a missile program with very limited tests could rapidly attain successful production—if it were based on another, pre-existing system, and if extensive production and other assistance was obtained.

MISSILE PROGRAM ANALYSIS

We examine North Korean missile projects that involve reverse engineering (Scud-B), product improvement (the Scud-C) and indigenous development (Nodong). Although these systems differ in their technical characteristics, each has been successfully “produced” by North Korea. The numbers of systems exported and deployed indicates manufacture from a functioning production line, rather than on the basis of pilot, “artisan-like” production. Moreover, testing and combat use of North Korean-supplied missiles suggests a high degree of reliability from missiles supplied through North Korea.

Most analysts tend to focus on missile development and technology, because they are indispensable to any venture of this kind. While development contains inherent technical risks and failures, series production of missile systems is another, and very different hurdle that is usually overlooked in missile assessments. The objective of series production is the near-flawless manufacture of systems in a reproducible process, and such a missile system must

have a certain degree of reliability and must function according to specifications. This holds true for U.S., Russian, or North Korean missiles. Therefore, proving a missile design is merely the first of several difficult steps on the road to extensively deploying and perhaps exporting the system.

To fully grasp the significance of the performance of North Korean missile programs, it is necessary to understand the challenges involved in indigenous development of new missile systems, and especially of reverse-engineering existing missiles.

REVERSE ENGINEERING

Reverse engineering is often misunderstood relative to its complexity. By definition, it is based solely on the evaluation of existing product samples—usually, as reportedly in the case with North Korea, without further manufacturing information. From these samples, engineers must derive all information needed for development and production so that an identical, reproducible product with respect to geometry, performance, function, and reliability can be manufactured.

Analysts tend to view reverse engineering as an approach that allows one to quickly, and with only minor problems arrive at the final product. However, it must be stressed that:

- (1) A missile consists of thousands of elements; that is, effective reverse engineering must (almost exactly) copy and integrate every single part, sub-assembly, and assembly. In the course of this process, identification, derivation, and definition of required manufacturing technologies represents the critical and often decisive bottleneck, which also relates to the proper materials required for the process. Therefore, it is in the areas of manufacturing technology and material availability that a reverse-engineering effort usually falters.
- (2) Any deviation of one significant element—as opposed to say, the surface finish of a machined part—will affect the overall product. If and when there is any deviation, development work is required; this places tremendous stress on the proper sequenc-

ing for the manufacturing and integration processes.

Therefore, due to limited knowledge of the performance, tolerances, and functions of parts from original samples, reverse engineering requires extensive work and a rather large number of samples to work with. This is especially true in the case of a country that has never before developed and produced a guided missile system.

In such cases, testing at the component and subsystem level (e.g., engine tests) becomes exceedingly important. However, static tests cannot replace flight-testing, as the loads on the missile are completely different and often unpredictable. Flight-testing provides experience not just for development, but also for information on the handling and operation of the overall system. Finally, flight tests qualify generated results, in both the development and production phases. Of course, a country could build a missile such that the engine burns and it lift off; however, a *reproducible* missile requires flight-testing.

Based on the experience of the Soviet Union, Iraq, and other countries, successful reverse engineering of a first- or second-generation missile followed by system production ordinarily has the following characteristics:

- *minimum* required time not less than 7 to 8 years
- significant difficulties due to material availability and manufacturing technology
- at least 30 to 50 samples required
- foreign support indispensable
- extensive testing required
- many failures in the early phase
- duplication of the original difficult to achieve
- final result mostly similar but not identical to the original

However, the North Korean experience with the Scud-B and Scud-C missiles differs in many important respects—particularly in terms of flight-testing—from the pattern evident in other cases of missile development.

INDIGENOUS DEVELOPMENT AND PRODUCTION

The Nodong represents the third generation of missile work in North Korea, and the missile is considered to be an indigenously developed. North Korea apparently began the Nodong program some time in the late 1980s. This missile program is roughly comparable in terms of size, performance, developmental stage, and national resource base to the Soviet R-5, Indian *Prithvi*, and Iraqi *Al-Samoud*. Characteristics of a successful indigenous development and production activity of this type include:

- seven or more years for missile development and production
- extensive testing required for proof and qualification
- failures, especially in the early phases
- number of flight tests typically on the order of tens of missiles
- small number of tests required for a firing table

In each these respects, one can find little similarity between North Korea's "indigenous" missile work and that carried out by Iraq, India, the Soviet Union, or virtually any other country.

WORKING HYPOTHESES

Based on a development and production model consistent with the few known facts about the North Korean missile program, the well-established histories of similar programs, sound technical principles, and other information, we conclude that:

- (1) It is unlikely that R-17/Scud-B missiles shipped in 1987 to Iran from North Korea were of indigenous North Korean origin. It is possible that the missiles were license-produced. Given the time frames involved, however, it is now certainly possible—and perhaps likely—that North Korea can indigenously produce the missiles.
- (2) Similarly, initial Scud-Cs sold to Iran and Syria probably were not of original North Korean design and manufacture. However, North Korea now could probably produce the missiles.

- (3) The Nodong missile is of Soviet design. Given the complexities of this new weapon system, the successful initial flight-tests in North Korea and elsewhere, and the relationship between Russian entities and North Korea, it is likely that some missiles (in whole or in part) or key hardware were shipped to North Korea. The exact shipment route—directly from Russia or through an “intermediary”—remains to be determined. The North Korean Nodong program has almost certainly relied extensively on foreign assistance.

These are preliminary conclusions; clearly, more research needs to be done on these and related issues.

POLICY IMPLICATIONS

Three policy implications of this analysis are particularly noteworthy:

- (1) The North Korean model is exceedingly troubling from a proliferation perspective. With the Nodong, for instance, Pyongyang has taken a (semi) qualified missile, tested it once, and deployed and exported the system in an astoundingly short time. We therefore agree with one of the key conclusions of the Rumsfeld Commission—that countries can develop long-range missiles quickly—although we reach those conclusions somewhat differently than did the public version of the Rumsfeld report. We also strongly agree with the report’s view that foreign supply of ballistic missiles is not an unlikely “wildcard,” but instead a concrete reality.
- (2) North Korea’s current missile negotiating position may be based on an internal assessment that the program has reached a technical plateau, due in whole or in part to the lack of continuing Russian or other assistance to the program.
- (3) Greater attention needs to be paid to “outdated” Russian missile systems. A missile MPC&A initiative might be useful to determine what technologies and equipment remain in warehouses, which might become available to developing missile programs.

U.S.-RUSSIAN RELATIONS: PRACTICAL MEASURES TO RESTORE NUCLEAR NONPROLIFERATION COOPERATION

by William C. Potter

Monterey Institute of International Studies

and Serguei Batsanov

Organization for the Prohibition of Chemical Weapons

BACKGROUND

An unusual aspect of the Cold War was the parallelism, and often close consultation and cooperation, between the United States and Soviet Union on nuclear nonproliferation issues. This cooperation generally persisted across both Republican and Democratic administrations in the 1970s and 1980s and served, in many respects, as the cornerstone of the NPT and related nuclear export control regimes. It also was an important element of stability in an often-turbulent superpower relationship.

Ironically, the collapse of the Soviet Union and the end of the Cold War have accentuated, and in some respects aggravated, strains in the nuclear nonproliferation partnership between Washington and Moscow. These strains are evident in major disputes over Russian nuclear exports to Iran and India, conflicting positions on Iraq and the role of UNMOVIC, the lack of sustained cooperation on important regional security issues in South Asia and the Middle East, fundamental differences over the nearly complete treaty for a nuclear-weapon-free zone (NWFZ) in Central Asia, and domestic political pressures in both countries to emphasize short-term, economic and military considerations to the neglect of longer-term, international security and nonproliferation objectives.

In the United States, the tendency to subordinate nonproliferation objectives to other economic and military aims is reflected in Congressional opposition to the CTBT, pressure to abrogate the 1972 ABM Treaty, and support for rapid enlargement of NATO. It also finds expression more generally in the growing politicization of nonproliferation policymaking and the increasing inclination to view WMD proliferation as a defense planning challenge requiring

military action, rather than primarily as an arms control or foreign policy problem susceptible to multilateral diplomacy.

The tendency to subordinate nonproliferation objectives to economic and political considerations is equally pronounced in Russia. It is evident in efforts to ease sanctions against Iraq, nuclear trade initiatives toward India and Iran, the demise of institutional advocates for nuclear export restraint, and growing doctrinal reliance on nuclear weapons, especially on tactical nuclear arms. Reinforcing these trends is growing Russian suspicion of U.S. strategic objectives and the perceived need to cultivate closer Russian ties with traditional allies, many of whom are U.S. adversaries and potential proliferators.

OPTIONS FOR CORRECTIVE ACTION

Given the increasingly chilly state of U.S.-Russian relations and the potential for major new bumps on the horizon, it is imperative to preserve what remains of U.S.-Russian cooperation for nonproliferation and to explore means to reinvigorate cooperation. There are a number of concrete steps that might usefully be taken in this regard.

Revive Biannual Consultations

During the mid-1970s the United States and the Soviet Union initiated a series of consultations on nuclear nonproliferation matters and often worked closely together in international fora to tighten export restraints and gain greater adherence to the NPT. In the Reagan and Bush administrations these consultations included regular bilateral meetings held approximately every six months involving the U.S. Ambassador for Nonproliferation, other senior U.S. nonproliferation specialists, and their So-

viet counterparts. Unfortunately, these regular, narrowly focused bilaterals have been replaced in recent years by the more diffuse, high-level Gore-Chernomyrdin/Primakov/*et al.* Commission.

One low-cost but important step in reviving U.S.-Russian nonproliferation cooperation is to resurrect biannual nonproliferation bilaterals. It also would be desirable to revive the post of U.S. Ambassador for Nonproliferation, and to have the occupant of that post coordinate U.S. nonproliferation policy. On the Russian side, there is likewise a clear need for greater centralization of nonproliferation policymaking, perhaps in the Security Council, in order to reduce the influence of purely commercial considerations. By themselves, these measures would not mend the unraveling of U.S.-Russian cooperation for nonproliferation, but they may be necessary conditions for concentrating bureaucratic attention on the problems and providing a dedicated forum for addressing the difficulties.

Expand Cooperation to Counter WMD Terrorism

It is in the national security interests of both the United States and Russia to enhance cooperation to counter WMD terrorism. Little concrete progress, however, has been made to strengthen anti-terrorism collaboration, despite various summit proclamations to the contrary. Especially discouraging is the absence of meaningful intelligence sharing regarding confirmed cases of illicit nuclear trafficking. One modest step to enhance cooperation would be to create and maintain under the auspices of the NATO-Russia Permanent Joint Council a joint database on international terrorist incidents involving the acquisition, use, or threat to use weapons of mass destruction.

Consolidate and Reduce HEU/Plutonium

A priority for U.S.-Russian nonproliferation cooperation should be to reduce the quantity of fissile material that must be protected and the number of sites where fissile material is stored. As part of a joint U.S.-Russian program of consolidation and elimination, the United States, in partnership with Russia, should undertake to

negotiate the purchase of all HEU known to reside at facilities in the non-Russian successor states, as well as Yugoslavia. Given the relatively small but nevertheless significant quantities of weapons-usable material at sites in Belarus, Kazakhstan, Ukraine, Uzbekistan, and Yugoslavia, a uranium “buy-up” approach to Soviet-origin material represents a low-cost, high-return nonproliferation strategy, which would reinforce U.S.-Russian cooperation.

Use Education as a Nonproliferation Tool

There is a tremendous gap today between government statements about the danger of WMD proliferation and the absence of funds allocated to train the next generation of nonproliferation specialists. Given this lack of support, it is not surprising that the United States, Russia, and the international community repeatedly fail to anticipate proliferation developments or to devise adequate nonproliferation strategies.

One useful step that could be taken to address this problem would be passage of legislation to create a National Nonproliferation Education Act. Such legislation—perhaps modeled after the National Defense Education Act—could among other things provide fellowships to U.S. and/or selected foreign graduate students for advanced multidisciplinary training in nonproliferation. Alternatively, private foundations might provide funds for such fellowships.

Although Russia faces difficult budgetary constraints, its government similarly would do well to encourage the growth of nonproliferation education opportunities. At a minimum, it would be useful to introduce regular course offerings in the field at its major universities and expand formal coursework on the topic at the Russian Diplomatic Academy and the Moscow State Institute of International Relations (MGIMO).

New information and communication technologies afford opportunities to provide nonproliferation training to a larger audience, including personnel in Russia’s nuclear cities. The Monterey Institute and the Moscow Engineering Physics Institute (MEPhI), for example, are discussing the possibility of offering lectures

and convening conferences on nonproliferation themes using a high-speed communications network. Because of MEPHI's ties with institutions in many of Russia's nuclear cities, expansion of this collaboration could reach audiences in a number of different Russian regions.

Foster Nonproliferation Norms

Related to the task of nonproliferation education is fostering the development of nonproliferation norms and the growth of a nonproliferation culture among citizens and elected officials. NGOs are especially well-positioned to perform this community-building function, which requires a sustained effort over an extended period of time. Dissemination of timely and reliable open-source information on nonproliferation matters is one means to facilitate the emergence of well-informed publics, as well as the development of independent nonproliferation communities. It is also important to nurture the inchoate nonproliferation centers in Russia's nuclear cities, which have the potential to develop into institutional advocates for prudent nonproliferation policy on such issues as strengthened export controls, enhanced safeguards, and treaty compliance.

Implement NPT Commitments

U.S.-Russian cooperation for nonproliferation is most apparent in the context of the NPT Review Process, where the two nuclear weapons states frequently find considerable common ground vis-à-vis the non-nuclear-weapon states. In the interim between the 2000 NPT Review Conference and the 2002 NPT PrepCom, Moscow and Washington should identify and take expeditious action on at least several of the 13 "practical steps" for disarmament and nonproliferation agreed to in the Final Declaration of the 2000 NPT Review Conference. These might include ratification of the CTBT by the United States, completion and implementation of the Trilateral Initiative among the United States, Russia, and the IAEA, further reduction of non-strategic nuclear weapons (or perhaps codification of the 1991/92 parallel, unilateral declarations), and the entry into force of START II, perhaps as part of a larger bargain involving

tradeoffs among offensive and defensive systems. Joint promotion of completion and implementation of the NWFZ in Central Asia also would indicate serious commitment to undertake implementation of their NPT obligations.

Collaborate on Stockpile Stewardship

Siegfried Hecker, former director of Los Alamos National Laboratory, advocates a very different (and admittedly controversial) approach to facilitating U.S.-Russian nonproliferation cooperation. As part of a broader program of U.S.-Russian collaboration in the nuclear sector, Hecker proposes that the United States consider cooperative measures in the realm of stockpile stewardship. These include increasing exchanges regarding weapons safety and security, joint research designed to allow both nations to assure nuclear weapons reliability, and possibly conducting joint subcritical experiments in the spirit of the Joint Verification Experiments of 1988. Although these activities might be regarded as antithetical to the disarmament dimension of the NPT, they merit attention as a possible means to enhance the prospect of U.S. ratification of the CTBT and to promote greater transparency between the Russian and U.S. nuclear weapon complexes.

Multilateralize Nonproliferation Dialogue

In some instances, nonproliferation objectives may be served by supplementing a U.S.-Russian dialogue on cooperation with other bilateral and multilateral discussions. It might be useful, for example, to introduce selected nonproliferation items into the G-8 agenda. Furthermore, establishment of a regular dialogue outside of the NPT process between the New Agenda Coalition and Russia and the United States might help raise the salience of Article VI issues in the nonproliferation bureaucracies in both Washington and Moscow. Finally, more consideration should be given to engaging in a dialogue with Russia on nonproliferation issues within the context of the Founding Act on Mutual Relations, Cooperation, and Security between NATO and the Russian Federation.

CONCLUSION

Given the Cold War origins of U.S.-Soviet/Russian nonproliferation cooperation, one might question the relevance of such collaboration today. Does the United States really need Russian support to achieve its broad nonproliferation objectives, and is it possible for Russia in its present situation to participate as an equal partner in pursuit of mutually acceptable aims? In light of the many other channels of communication and consultation between Russia and the United States, is another channel dedicated to nonproliferation really necessary?

We believe the answer to all three of these questions is definitely “yes.” Combating the spread of nuclear weapons remains in the best interests of both countries. Reinvigorating nonproliferation may be helpful, moreover, in highlighting common ground at a time when there are many divergent interests. In addition, nonproliferation cooperation is a useful means for Russia to balance its bilateral relationship with the United States, and to raise its profile as a significant and constructive player on the international scene.

CHINA'S PROLIFERATION POLICIES AND THE UNITED STATES

by Harry Harding

George Washington University

As the Bush Administration enters office, its policy toward China is shaped by four themes in its foreign policy platform:

- (1) To treat China as a strategic competitor, rather than as either a strategic partner or a strategic adversary.
- (2) To proceed with a national missile defense system (NMD) for the United States, so as to enhance America's security against at least a limited missile attack.
- (3) To establish a firmer commitment to the security of Taiwan, possibly to include the provision of theater missile defense (TMD) to the island.
- (4) To base its foreign policy upon a closer relationship with its allies, both in Asia and elsewhere.

On balance, if these four pledges are redeemed, they will have a significant negative impact on China's proliferation policies, both vertical and horizontal. That is, they will encourage China to build up its own strategic forces so as to counter a U.S. NMD system and any TMD system covering Taiwan. They will also encourage China to transfer military technology to nations unfriendly to the United States, so as to counter a perceived U.S. containment policy and to retaliate for closer U.S. security ties with Taiwan.

However, this general assessment must be qualified in two ways: First, China's proliferation policies are not entirely reactive. They are rooted in Beijing's own independent assessment of its national interests, and sometimes in Chinese firms' own assessment of their commercial interests, as well as in China's perceptions of U.S. capabilities and intentions.

And second, the fourth of these campaign pledges to some extent contradicts the other three. Although they welcome a stronger partnership with the United States, few if any of our

allies in Asia are eager to see a competitive relationship between Washington and Beijing, or greater confrontation between Washington and Pyongyang. This may impose some constraints on U.S. policy toward China, Taiwan, and the deployment of an NMD system. In the same way, China's proliferation policies may be constrained by Beijing's unwillingness to alienate other important partners at a time when its relations with the United States are strained.

VERTICAL PROLIFERATION

China's expansion of its own armed forces is motivated by two related considerations: the desire to wield a military option against Taiwan, and the determination to maintain a nuclear deterrent against the United States.

United States

For the last decade and more, China has been committed to the modernization and expansion of its strategic nuclear forces. This modernization program has at least two purposes: to deter a nuclear attack on China by the United States or any other nuclear power; and to deter the United States from intervening in a crisis in the Taiwan Strait, even with conventional weapons. From the Chinese perspective, a more effective deterrent would require more strategic weapons, with greater accuracy, longer range, and greater survivability. However, Chinese efforts in this regard will be constrained to some degree by its adherence to the Comprehensive Test Ban Treaty.

Unless carefully designed to allay Chinese concerns, a U.S. national missile defense system would require China to make further efforts to achieve that same level of deterrence. China would be expected either to overwhelm the NMD system by building more missiles and deploying various penetration aids; to circumvent the system by developing other forms of

deterrence against the United States; or to disable the system by attacking the satellites and computer systems that lie at its heart. It is, of course, impossible to know whether China would engage in more vertical proliferation in response to a U.S. NMD system than it would otherwise. However, logic suggests that China would require more strategic forces to feel equally confident about its deterrence posture with an U.S. NMD system in place than without it.

Moreover, allaying Chinese concerns will be harder if the United States continues officially to portray China as a strategic competitor rather than as a strategic partner. Having declared the United States to be in a competitive strategic relationship with China, it will be extraordinarily difficult to persuade Beijing that the NMD system is not intended to degrade its deterrent. This problem will be exacerbated by the fact that growing numbers of U.S. security analysts explicitly argue that NMD should be designed with China's nuclear forces in mind, as well as those of the so-called "rogue" states.

If China responds to an U.S. NMD system by increasing its vertical proliferation, there could well be ripple effects throughout Asia. Japan, presently ambivalent about acquiring its own NMD system, would be more likely to seek one. India would likely perceive the need for expanding its own strategic forces. Even more nations would feel less secure as relations between the United States and China deteriorated.

To some degree, these prospective follow-on effects could serve as a constraint on both the United States and China. Allied reaction may cause the United States to go more slowly, or less fully, in the direction of an NMD system. A concern about regional reaction could also limit China's response to such deployments. However, the prospect for a strategic arms race between the United States and China, transforming the security relationship into rivalry, cannot be excluded.

Taiwan

China is also developing the capability to exert military pressure against Taiwan. The principal mechanisms Beijing seeks to develop

include missile attacks (demonstrations, attacks on military targets, attacks on civilian targets), blockade, invasion, and quite possibly information warfare as well.

In the past, China's principal motivation in this regard was to deter Taiwan from a unilateral declaration of independence, or from significant steps in that direction. More recently, however, China seems to be returning to a policy option it had largely set aside after 1979: the use of force to compel unification of Taiwan with the mainland.

Again, China seems to be undertaking these options largely independent of U.S. policy. Its main concern is with the declining support for unification and the rising support for independence among the Taiwanese public, as a result of both demographic change and democratic transition.

However, changes in U.S. policy toward Taiwan could reinforce China's determination to develop these military capabilities. Specifically:

- (1) A less conditional commitment to Taiwan's security, as proposed by some members of the incoming Bush Administration, might lead Taiwan to the conclusion that the United States would support, or at least tolerate, a unilateral declaration of independence by Taipei.
- (2) Provision of a TMD system to Taiwan probably would lead China to try to overwhelm, disable, or circumvent it.
- (3) U.S. declarations that Beijing is a strategic competitor would reinforce suspicions in China that the United States has a strategic interest in preventing unification of Taiwan and the mainland, out of fear that this would strengthen a potential strategic rival.

These considerations could well lead Beijing to develop more military options against Taiwan than otherwise would be the case.

HORIZONTAL PROLIFERATION

China has engaged in the horizontal proliferation of various kinds of nuclear and military technology. According to the latest CIA report

on the subject,* it continues to provide Pakistan with production technology for short- and medium-range missiles, and has cooperated in the past with Pakistan's nuclear weapons program. It has provided civilian nuclear power plants and naval surface-to-surface missiles to Iran, and was sanctioned by the United States for supplying technology related to chemical weapons production to that country. Over time, it has been a major supplier of weapons and military technology to North Korea. Most recently, a Chinese firm has been accused of assisting Iraq strengthen its anti-aircraft defenses. Although not all of these activities violate international regimes, they run counter to U.S. interests with regard to nonproliferation as well as U.S. policies toward the specific countries in question.

China has many independent interests in this kind of horizontal proliferation. First, Chinese firms have an economic interest in the profits to be made from export. (Thus, some Chinese officials have implied that, even if Chinese firms were involved in upgrading Iraq's anti-aircraft, they did so for commercial reasons without the knowledge or approval of the Chinese government.) Moreover, Beijing has an interest in using arms sales and technology transfer as an instrument of its regional strategies. China may, for example, see technology transfer to Iran as part of a strategy for countering the spread of Islamic fundamentalism in Central Asia—a development that could have negative implications for the security of China's northwestern provinces. Similarly, China has seen its assistance to Pakistan's missile and nuclear weapons programs as a way of counterbalancing India's dominant influence on the South Asian subcontinent.

However, a portion of Chinese behavior can be interpreted as a reaction to recent U.S. policy. As early as 1992, after the U.S. sale of F-

16s to Taiwan, Beijing indicated that it would use proliferation practices as retaliation for increased U.S. arms sales to Taipei. And in recent years, and particularly after the NATO intervention in Kosovo, China has complained about what it variously calls U.S. "hegemony" or a U.S. attempt to create and maintain a "unipolar world." Sales of military technology to states unfriendly to the United States is part of China's response, although Beijing has thus far refrained from adopting an overtly antagonistic posture toward Washington. Given this pattern, China could be expected to increase horizontal proliferation activities, in response to increased U.S. arms sales to Taiwan, or in response to U.S. declarations that its strategic relationship with China has become competitive.

Again, China's behavior in this regard will be constrained by international regimes and by international opinion. In general, Beijing does not wish to be seen as blatantly violating international regimes that embody a universal or near-universal international consensus. It will also be more careful about actions that irritate a broad cross-section of international opinion, as distinct from those that would be primarily opposed only by the United States. Thus at this point, for example, China is more likely to increase arms sales and technology transfers to Iran or Pakistan than to North Korea or Iraq.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- (1) China has independent motives for horizontal and vertical proliferation, just as America has independent motives for considering a NMD system for the United States and TMD systems for its allies.
- (2) However, China would be more likely to increase its proliferation activities in the event of U.S. declarations that the United States is engaged in "strategic competition" with China, increased U.S. commitments or arms sales to Taiwan, or U.S. deployment of large-scale NMD systems.

* Director of Central Intelligence, *Unclassified Report to the Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January through 30 June 2000* (Washington, DC: Central Intelligence Agency, 22 February 2001), <http://www.cia.gov/cia/publications/bian/bian_feb_2001.htm>.

- (3) Thus, there is a real danger of an action-reaction cycle, in which China interprets the policies of the new administration as an attempt to block its emergence as a major power, and China's responses reinforce the emerging U.S. perception of a rising China as a threat to U.S. interests. World opinion could be a brake on this process. Few in Asia want to see a further escalation of tensions in U.S.-China relations. In this sense, the Bush Administration's desire to strengthen relations with its allies could conflict with its declarations of a competitive relationship with China.
- China, but insist that cooperation—including on proliferation issues—must be reciprocal.
- (2) On that basis, seek to gain Chinese understanding and acceptance of any U.S. NMD system, and configure that system to permit China (like Russia) an appropriate assured deterrent.
- (3) Seek a modus vivendi in the Taiwan Strait, in which restraint in provision of U.S. arms (including a TMD system) can be exchanged for restraint in Chinese military deployments and for a more flexible Chinese position on the terms of unification.

Recommendations

- (1) Return to the stated objective of building toward a cooperative relationship with

CHINA AND NONPROLIFERATION: THE CHANGING CONTEXT

by Brad Roberts

Institute for Defense Analyses*

CORE PROPOSITION

If we are to fully understand the role of China in the global nonproliferation effort and the impact of U.S.-PRC bilateral relations on the nuclear future, we must expand our terms of reference. Let us consider three levels of analysis—some of which is largely intellectual terra incognita. The opportunities are numerous, but in the short term at least the challenges may well prove more numerous and significant.

NONPROLIFERATION

The first level of analysis is that of nonproliferation as traditionally defined, with a focus on China's role as a source of transfers of weapons and militarily-sensitive technologies related to WMD and missiles. Over the last decade, substantial progress has been made in bringing China's behaviors into compliance with international norms and U.S. preferences. Today, China's behavior could still be better, as it continues to supply some sensitive items to countries of concern. But its behavior could also be worse, whether through transfer of banned items to a larger number of countries, or in larger volumes or of higher sensitivity, or merely through transfer of items of concern to the United States but where no treaty obligation exists (e.g., cruise missiles to Iran).

Opportunity

China's membership in the relevant treaty regimes provides an excellent venue to coordinate with China—and for pressuring it on specific transfers of concern. Its pending membership in the WTO promises also to create mechanisms for strengthening transparency

in its trade practices as well as its capacity to manage especially sensitive trade.

Challenges

- (1) Although committed in principle to nonproliferation, Beijing and Washington have different levels of interest in specific problems, and Beijing often seeks to exploit that difference by linking its proliferation behaviors to U.S. behaviors of concern, especially over Taiwan. This challenge promises to grow more prominent.
- (2) China's view of sovereignty as absolutely sacrosanct directly conflicts with its role as a Security Council guarantor of the effective functioning of the regimes, as in Iraq.
- (3) China views the United States as underperforming its own obligations within the treaty regime, whether as a result of a double-standard as it turns a blind eye to its friends, its unwillingness to walk back from Cold War-vintage nuclear strategies, or the a la carte approach to its CWC obligations, the CTBT, etc.

U.S.-PRC NUCLEAR RELATIONSHIP

The second level of analysis focuses on developments in the U.S.-PRC strategic nuclear relationship and their impact on nuclear futures in Eurasia. For the sake of brevity, let us proceed from the premise that this relationship is somehow separable from the U.S.-Russia-China triangle, a premise that is not entirely valid but is widely held in the U.S. community. The central question is how the U.S. move to deploy defenses will intersect with Chinese modernization (and Russia's re-embrace of nuclear weapons).

As Americans now well know, TMD deployments to Taiwan are of deep concern to Beijing. This is so not primarily for operational

* The views expressed here are the author's personal views and should not be attributed to IDA or any of its sponsors.

reasons, as the PRC can readily overwhelm any defense that Taiwan can afford, but for political ones: TMD will reinforce the evident drift toward independence by Taipei and negate what Beijing views as the stabilizing effect of its missile deployments as a deterrent to independence. In Beijing's view, this will increase significantly the prospects for war over Taiwan—and with it the prospects for armed confrontation with the United States. The fact that Washington holds Beijing to MTCR standards while supplying missile and anti-missile capabilities to Taiwan and other U.S. friends points to possible Chinese renewal of missile exports offensive to Washington as a short-term expedient.

Americans are also now coming to terms with China's concern about NMD. The impact of NMD on China will have two implications relevant to proliferation. The first is the impact on the perceived reliability and effectiveness of China's own deterrent. Beijing is deeply motivated to build up its nuclear force quantitatively and qualitatively so that it can be seen to deliver at least 20 warheads onto U.S. targets, and thus presumably to be in a game of mutual coercion during a Taiwan crisis, rather than one-sided U.S. coercion. (Chinese experts are intimately familiar with past U.S. nuclear threats over Taiwan and other bilateral disputes.) If the United States chooses to construct a defense with the explicit purpose of negating China's deterrent, there is a significant prospect of an offense/defense arms race—or at least a jog in that direction. A competitive U.S./PRC defense/offense modernization process would have significant effects on Asia. In South Asia it would likely accelerate Indian nuclear plans, and in East Asia it would have a chilling effect on U.S. relations with friends and allies. It would also impact Moscow's perceptions of the requirements of nuclear stability around its own periphery, reinforcing perhaps the impulse to regenerate an INF force (which would have repercussions for U.S. allies in Europe and U.S. interests in Eurasia more generally).

The second impact of NMD derives from what the Chinese perceive to be U.S. pursuit of absolute security through BMD. In their view, Washington has its eye firmly on that time a decade or two hence when Russia, China, or

both (or some other power) will emerge as that long-expected "peer competitor." Thus they believe that the United States is pursuing defenses as a way to escape the balance of power, so that it is free to pursue its interests in Eurasia and in fact to promote its own version of the Brezhnev doctrine (i.e., to use force to prevent rollback of democracy). Chinese experts and officials actively debate a much broader proliferation of weapons of mass destruction, and perhaps also defense countermeasures, as a way to promote development of an "anti-U.S. coalition." The center of gravity in this debate shifted significantly with the Belgrade embassy bombing.

Challenges

The challenges on this second level of analysis are almost too numerous to mention. They are both conceptual and political. Conceptually, neither Washington nor Beijing has thought much about the impact of developments in their strategic relationship on the larger nuclear question in Eurasia. In Washington, almost no thought has been given to the nature of the nuclear relationship with China that best serves U.S. interests, and among those who have devoted some thought, opinion is deeply divided. Politically, there appears to be little willingness in either country to explore the stability implications of current policy preferences or alternative trajectories. Both countries appear headed toward harder lines on Taiwan, which brings with it not only a heightened risk of war but also the possibility of war under the nuclear shadow, which potentially could have far-reaching implications for the future of the nonproliferation effort. In both capitals there is also a political price to be paid for trying to understand the interests of the other and to explore approaches that meet common interests. One last challenge is the sharp disparity in interest in this offense/defense dynamic, with a near-obsession in Beijing and near-contempt in Washington.

Opportunity

But there is also a real opportunity: the advent of a new administration in Washington means there is a moment for dialogue. Beijing enters its own period of political transition a

year from now, with the October 2002 Communist Party Congress where nearly 60% of the Politburo will turn over. Those engaged in Track 2 level activities have called repeatedly for a new cycle of strategic dialogue at Track 1, and in Beijing at least there is interest in such an effort, though quite preliminary. If the debate can be won in both capitals, a new dialogue on strategic stability might be possible.

NUCLEAR FUTURE OF NORTHEAST ASIA

The third level of analysis is that of Northeast Asia. The prospect of Korean unification, whether sooner or later, brings with it some fundamental questions bearing on the nuclear future in the subregion. Will a reunified Korea be oriented politically and strategically toward the United States or China, or will it pursue neutrality, or seek a large role of its own? Will it possess nuclear weapons? What regional security order will succeed the present system? Will U.S. forces remain in Korea or in the region more generally?

And will a nuclear Korea lead to a nuclear Japan? There are many signs today of a debate in Japan about its future nuclear status, a debate that is moving to new terms but largely behind closed doors, as it is in significant measure a debate about Washington's credentials as a security guarantor. Some Japanese experts are increasingly direct in their argument that U.S. "mismanagement" of the Korean issue in a way that produces a nuclear-armed Korea, and of the U.S.-PRC BMD issue in a way that produces an increase in nuclear tension in the region, could lead directly to a break in the U.S.-Japan alliance, and to Japanese acquisition of nuclear weapons.

In China there is a rising perception that the U.S. presence is no longer necessary to handle the Japanese nuclear problem. Chinese experts believe published reports that Japan could be capable of deploying a nuclear force in 183 days (!), with some Japanese experts conveying to them the notion that such a force would consist of 100 or so cruise missiles equipped with advanced fission warheads. Many Chinese experts seem not particularly concerned about the advent of a nuclear-based regional security order in Northeast Asia, as they

view such weapons as essentially political in nature. The disparity of views between Chinese and U.S. experts on this point is striking.

Opportunities

- (1) To sustain the various processes vis-à-vis North Korea with an eye toward verifiable cessation of its WMD and missile programs.
- (2) To build on that foundation to bring into being a nuclear-weapon-free-zone in the subregion.
- (3) To broaden and deepen the nascent trilateral and quadrilateral security dialogues at both the Track 1 and Track 2 levels.

Challenges

- (1) Washington's reassertion of the central role of its bilateral alliances in the subregional security order brings with it inevitably a question about how also to promote multi-lateral processes, as well as a question about how to exploit the foundation provided by those alliances for a larger subregional purpose.
- (2) Sensitive nuclear questions are emerging at a time of apparently growing friction in both the U.S.-Japanese and U.S.-ROK political relationships, frictions that may reinforce those who argue internally that the United States cannot be fully relied on in the long term to protect their interests.

CHALLENGES TO A PRODUCTIVE AGENDA

These three levels of analysis suggest a transformation of the role of China and U.S.-PRC relations in achieving nonproliferation aspirations. There are three additional challenges to moving forward productively on this broader agenda.

First, in both countries the debate about the intentions of the other has been largely poisoned by developments over the last few years. In Washington there is a price to be paid for attempting to delineate and understand China's interests. In Beijing the United States-as-hegemon theme is deeply engrained. This

points to the urgency of a strategic dialogue but also the real challenge of sustaining it.

Second, there are many reasons to think that the Bush administration is going to start out with a weak commitment to multilateralism in general, and to arms control in particular. In the East Asian context, the impact of these policy preferences is as yet dimly understood. But a weakening of the multilateral processes there and of the global treaty regimes seem likely to make it far more difficult to address the challenges in the nuclear realm.

Third, both governments seem programmed to mis-respond to unanticipated developments in the policies of the other. Beijing cannot in any circumstance appear weak or to be kowtowing to hardliners in Washington. Washington seems chronically to pay too little attention to a top-down management of U.S. regional security strategy. In both countries pragmatists keep a wary eye on hardliners and have other interests at stake in not antagonizing them.

A closing observation about the risks of sloganeering: U.S. analysts and officials are often bemused by the role of slogans in China's policy debate and public posture. We should be careful in our own right not to reduce complex relationships to oversimplified slogans. Today, the slogan common in U.S. policy circles is that the countries are strategic competitors but economic partners. Taking a long-term perspective, China and the United States are both partners and competitors. Moreover, there may be more potential partnership in the security realm than the economic one. Our common interests in regional security orders that are stable and non-nuclear may bring into being a far deeper pattern of cooperation. But our competing interests in the economic realm may become far more pronounced in the coming decade. So let us look beyond slogans to come to a more nuanced appreciation of the multiple currents of cooperation and confrontation in the bilateral relationship.

NUCLEAR, BIOLOGICAL, AND CHEMICAL WEAPONS TERRORISM: ASSESSING RISKS AND CRAFTING RESPONSES

by John Hamre

Center for Strategic and International Studies

Paraphrasing Dickens, the decade of the 1990s was the best of times and it was the worst of times. The long, dangerous Cold War era came to an end. None of us thought we would live long enough to see a peaceful resolution to the deadly standoff between NATO and the Warsaw Pact. The peaceful collapse of a modern military empire is still an unprecedented event in history. But the end of the Cold War and the collapse of the Soviet bloc also engendered the dangers of our day.

We now live with the terrible residue of the Cold War. The Soviet Union built mountains of chemical, nuclear and biological weapons, and assembled an astounding industrial infrastructure to develop and build these terrible devices. As the Soviet Union collapsed and Russia struggled to pick up the pieces, the old infrastructure decayed. While ongoing production is in doubt, there are persistent reports of continuing development activities in all three areas. And where activities were curtailed, scientists and technicians remain idle, with doubtful prospects for future employment. Some of those scientists have moved on to other countries where their skills can be compensated. The end of the Cold War thus left a dangerous mix of technical knowledge and economic privation.

The Cold War also created a dangerous perception on the part of some countries that they could garner the political value of nuclear weapons on the cheap by developing or acquiring chemical and biological weapons. As a consequence, in the 1990s some 14 or 15 countries pursued and, we believe, retain active chemical and biological weapons programs.

The collapse of the Soviet Union with its vast arsenals of nuclear, chemical and biological weapons stocks, and the spread of NBC programs to other countries raises the fear that such devices inevitably will fall into the hands

of terrorists. Over the past three years, there have been many troubling reports of “special packages” moving through the logistics channels of terrorist organizations. While we have no certain way of knowing the content of these packages, the prospect of NBC terrorism cannot be ignored. In the closing days of 1999, I spent hours in the Situation Room in the White House participating in coordination and planning meetings for what we were certain would be a millennium attack, most probably using a crude chemical device.

Growing technological sophistication around the world, and a widening knowledge of the engineering of pathogens and chemical agents, is creating homegrown terrorists capable of developing crude and inefficient chemical and biological weapons. The Internet now contains recipes for chemical and biological weapons. The chemical attack in the Tokyo subway system demonstrated at minimum that at least one organization felt no moral constraints in using chemical weapons.

The conditions are present for terrible developments in this decade. The collapse of control over existing arsenals, the proliferation of materials and knowledge, and the heightened political cachet of such weapons create a dangerous mix. It should be noted that theory is one thing and practice is another. While sophisticated programs are capable of engineering deadly cocktails of chemical and biological agents, the tasks associated with weaponization generally go beyond the skill of amateurs. As such, we confront two dimensions to the problem. First, how can we enhance control over government-sponsored NBC programs, and limit the spread of these materials and techniques to others? Second, what can we do about crude devices manufactured by sick amateurs?

STRENGTHENING AND BROADENING COOPERATIVE THREAT REDUCTION ACTIVITIES

First, I believe we must strengthen and broaden the Cooperative Threat Reduction program. The success of the CTR program is well known. Less well known are the constraints imposed on the Administration by the Congress. Congress effectively blocked the Administration from implementing the CTR program for anything but strategic nuclear weapons—arguably the most secure weapons in the Russian arsenal. Specifically, the Government was blocked from extending the CTR program to tactical nuclear weapons. The Administration also attempted to use CTR funds to initiate a demonstration demilitarization project for chemical weapons. That project was stymied initially by Russian bureaucratic intransigence, and ultimately by U.S. congressional opposition.

I believe there are two directions that should be taken. First, I believe the CTR program should be directed against biological capabilities in Russia. The chemical stockpiles are dangerous, but do not present the existential threat posed by biological devices and technology. This is a difficult task because Russia continues to mask the biological weapons program that it has undertaken in violation of its arms control commitments. It is hard to help a country curb a program it denies conducting. Nonetheless, using CTR funds to divert the human talent currently devoted to biological weapons is critical, in my judgment.

Second, I believe we should confront our European allies with their responsibility to undertake CTR-like programs aimed initially at controlling and ultimately dismantling tactical nuclear inventories. Our European allies have effectively sat on their hands over the past eight years as the United States has conducted the most successful threat reduction program in history. Rather than piously intoning familiar nonproliferation creeds, our allies should be challenged to get their hands dirty in the serious business of cooperative threat reduction emphasizing tactical nuclear weapons. Last year, the United Kingdom budgeted \$150 million over three years for CTR-like activities. While modest, this is an encouraging first step. It

should be extended to other European countries and greatly expanded.

STIGMATIZING USE OF CHEMICAL AND BIOLOGICAL WEAPONS

Despite the reprehensible nature of these weapons, there is a surprising lack of passion in the traditional arms control communities about confronting them. The loathing of nuclear weapons continues unabated, yet there is not comparable passion about biological and chemical weapons. Indeed, during the past five years, most public discussion of chemical and biological weapons came from the defense preparedness community. When the U.S. Defense Department called for mandatory inoculation of its soldiers against anthrax, the public reaction was one of skepticism. The bulk of public debate questioned technical efficacy or the unintended side effects of the vaccine rather than the threat posed by widespread weaponization of anthrax. The first thing I would commend to the new Bush Administration is to coordinate an aggressive international campaign to stigmatize chemical and biological weapons.

NEW APPROACH TO INTELLIGENCE

I believe the Administration should take a new approach to intelligence collection and assessment on chemical and biological weapons. Ironically, the intelligence enterprise often limits understanding. I recall the episode when the United States struck a Sudan pharmaceutical plant in retaliation for the terrorist strikes on U.S. Embassies in Kenya and Tanzania. In retrospect, the intelligence base for the planned strike was limited. Open-source searches in subsequent days revealed information that was not available to the intelligence community at the time of the mission planning.

As pointed out in the Rumsfeld Commission report, the process of compartmentalization often prevents the sharing of information. A small cadre of analysts and interpreters will try to cover the world, and will produce impressive but limited information on potentially suspect activities. Yet open sources often provide far greater information, more quickly, and with expanded opportunities for corroboration. A more open process to information collection

and sharing (ban the word “intelligence”) is crucial, in my mind, to a richer understanding of this dynamic world. I would encourage the new Administration to create open-source information gathering on WMD proliferation activities as a starting point to a new approach to intelligence.

REVITALIZE INTERNATIONAL EXPORT CONTROLS ON WMD MATERIALS AND TECHNOLOGY

The international export control process has become bogged down in activities that are choking the system and preventing effective control of WMD materials and technology. The United States has an export control system as elaborate as that of any country, yet the bulk of its resources are devoted to licensing and monitoring trivial activities. The growing controversy over ineffective and inefficient export controls entails heightened danger that ill-conceived reform efforts could weaken control over truly important and dangerous materials and know-how.

The Bush Administration should make export control reform a high priority, with a central goal to refocus international control efforts on those technologies and materials needed to produce nuclear, chemical and biological weapons. It is interesting to note that to export a five-ton truck requires months-long clearance of license applications, but there are no licenses at all required to export genetic-sequencing machines.

ENHANCING COLLABORATION BETWEEN INTELLIGENCE AND LAW ENFORCEMENT

The new era of transnational terrorism and transnational communications exposes the contradictions in current government constraints on the intelligence community and on the law enforcement community. I witnessed first hand the difficulties posed in tracking international terrorist activity where elements of the terror network were inside the United States. Intelligence collection had to stop as soon as the electrons entered the United States. Law enforcement lacks the coordination culture and

procedures developed in the U.S. intelligence community.

In the closing days of the Clinton Administration, the President signed a new directive for counterintelligence coordination, CI-21. A comparable program to coordinate law enforcement and intelligence activities was launched in the mid-1990s, but it has been ineffective for a range of reasons. At present, the CI-21 initiative is in suspended animation, awaiting the arrival of a new government that did not participate in its creation. It is unclear if the new Administration will embrace CI-21 or abandon it as just an initiative of the previous administration.

Irrespective of the precise mechanism, in this era of transnational terrorism, the government will require new structures and procedures to reconcile the impediments found in the U.S. form of constitutional control over law enforcement and intelligence to protect privacy, while at the same time permitting timely inter-agency coordination.

NEW RESEARCH ON DETERRENCE

For many years, the use of chemical and biological weapons has been deterred by the fear of unacceptable responses by the victims. The 1990s, however, witnessed sad new developments that bring in question deterrence against CBW use. Iraq’s use of chemical weapons against Iran seems to have created a perverse incentive for Iran to build its own arsenal of chemical and biological weapons. The United States has openly implied that it will use nuclear weapons to retaliate against any country that uses chemical or biological weapons against U.S. troops or interests. Unfortunately, such threats tend to reinforce the view that chemical and biological weapons might be a cheap counter-threat against nuclear intimidation. I personally question the ethics of such threats. Is it acceptable for the United States to threaten retaliation against innocent civilians if their government foolishly uses chemical weapons to attack U.S. military forces engaged in combat? I have my doubts. Obviously, actual circumstances would determine the acceptability of such steps.

I also question how one can deter the use of chemical and biological weapons by organizations that lack the fixed infrastructure that they value more than attacking the United States. For example, how does the threat of nuclear retaliation deter Osama bin Ladin and

his terror network? I believe considerable energy needs to be devoted to deterrence theory, especially for non-state actors. At present we have only folklore and supposition to guide our thinking. More systematic work needs to be undertaken.

BIOWEAPONS AND THE NATIONAL INTEREST

by Judith Miller

New York Times

ASSESSING THE THREAT

The threat of a biological attack is usually either underplayed or exaggerated, in part because its probability is so difficult to assess. In Washington, the debate about the likelihood of such an attack usually reflects one of three schools of thought. First, there is the “not if but when” group, which believes that because human beings are inherently aggressive and because no weapon invented has not been used, it is only a question of time before a state or terrorist group launches a major attack against an American target at home or abroad. Hence, advocates of this view argue, the federal government should spend massively on homeland defense, and launch multifaceted programs aimed at protecting Americans against an inevitable threat.

By contrast, proponents of the second school argue that because a bio-attack is much harder to carry out than is commonly understood, it is unlikely that an aggressor will try to conduct one. Therefore, they reason, the United States should not spend much countering what is at best an improbable threat.

The third school—whose motto is “low probability, but high consequences”—reflects reasoning that I believe the Clinton Administration ultimately adopted. This middle-ground between doomsayers and optimists holds that the United States must take practical, cost-effective steps to protect American military forces and civilians against even the improbable event of a bio-attack, because the damage inflicted could be devastating.

MIXED RESPONSES

Consistent with the “low-probably, high-consequence” perspective, in the latter half of its second term in office the Clinton Administration launched a series of major “homeland defense” initiatives aimed at protecting Americans against bio-threats. Among other meas-

ures, the administration created America’s first national stockpile of vaccines and antibiotics; increased basic research in microbiology and genomics; and expanded the training of so-called “first responders:” the police, firefighters, and other law enforcement and public health officials who would have to cope with an attack. Finally, it intensified efforts to negotiate a protocol to the 1972 Biological Weapons and Toxins Convention (BWC) to give the treaty teeth—that is, an enforcement and verification mechanism aimed at deterring cheaters.

Launched primarily in 1998, the administration’s effort had many strengths but also many weaknesses. In the first year, the stockpile effort, for instance, got roughly half the money that a group of private experts had recommended to the White House as the minimum for a serious program. And while the Department of Health and Human Services (HHS) and the Pentagon both got additional money for germ research, much of the new homeland defense money went to government contractors and/or to create or expand rapid-response teams and other highly dubious missions. The debacle of the National Guard “Civilian Support Teams,” for example, is well documented in a stunning report by the Pentagon Inspector General’s office.* In addition, the administration’s program to vaccinate more than two million uniformed military personnel became a fiasco, due to the inability of the nation’s sole anthrax vaccine plant in Michigan to produce enough vaccine safely and efficiently for the military’s needs.

* Office of the Inspector General, U.S. Department of Defense, *Management of National Guard Weapons of Mass Destruction-Civil Support Teams*, Report No. D-2001-043, (Washington, DC: Department of Defense, 31 January 2001), <<http://www.dodig.osd.mil/audit/reports/fy01/01-043pt1.pdf>>.

COOPERATIVE THREAT REDUCTION

In marked contrast to these unfortunate efforts, the Cooperative Threat Reduction (CTR) programs have produced quiet scientific and diplomatic achievements. These efforts have not only helped prevent former Soviet scientists from going to work for “rogue” states or terrorists, but also provided the United States with far greater understanding of the Soviet Union’s massive germ warfare effort.

So far, the Bush Administration seems to have been slow to acknowledge the threat posed by germ weapons of mass destruction. The dissemination of germs would probably not be deterred by construction of the national missile shield so dear to the new administration’s strategic thinking. The Bush White House apparently would not agree that germs, rather than split atoms, are likely to become the unconventional weapons of choice in the 21st Century. But fearing American retaliation, terrorists or rogue states would probably prefer not to launch a missile with a “return address” against the United States. They would probably prefer to attack U.S. citizens and the U.S. economy surreptitiously through unannounced, unclaimed covert actions involving germs or toxins.

Some Bush Administration officials have also been critical of the CTR program, warning that Russian scientists may be using technology and information gleaned from cooperation with American scientists to bolster what they charge is the Russian military’s continuing effort to develop germ weapons. Clearly there are risks inherent in such scientific exchanges. But a disinterested review of the program’s accomplishments so far suggests that the benefits of the programs substantially outweigh those risks. Since the Soviet Union was far ahead of the United States in several key areas of bio-weaponry, the Pentagon’s CTR program is not a favor to Russia but rather a service to U.S. national interests in stemming the flow of bio-warfare related expertise and technology to undesirable parties, and in deepening U.S. understanding of what Soviet germ weaponeers were able to accomplish.

As far as homeland defense is concerned, the Bush Administration seems unlikely to reinforce the Clinton Administration’s belated ef-

fort to improve the nation’s dilapidated public health care surveillance and treatment networks, a key, but often overlooked part of defending the nation’s military and civilian populations against germ attacks. Another false step was the administration’s early decision to abolish the post its predecessors had created on the National Security Council to monitor the national security impact of health issues and infectious diseases. An outbreak of foot-and-mouth disease or mad cow disease (Bovine Spongiform Encephalopathy-BSE) in the United States—whether naturally occurring or the result of a deliberate attack—would have dramatic economic and psychological consequences for the nation, far beyond the purview of the departments of HHS or Agriculture. Americans would want to know what had happened and hear what the administration was doing to protect Americans, not from a cabinet officer, but from the White House and the president himself.

MAKING THE PRESS PART OF THE SOLUTION

An issue that was largely ignored by the previous administration, and one that I predict is destined to be ignored by the Bush Administration as well, is what if any role the press should play in highlighting the growing threat of germ weapons as a result of technological advances and political developments. Some officials in both administrations have advocated a policy of benign neglect with respect to germ security and the press: in effect, they argue, “no news is good news.” Many officials have justified their resistance to candid discussion of the bio-weapons threat on grounds that it might give terrorists and rogue states ideas that they did not already have, and hence could encourage such attacks. But given our democracy, Americans are unlikely to accept further increases in bio-defense spending, or intrusions into personal health such as mandatory anthrax vaccinations, absent such a debate.

It is irresponsible to leave the education of Americans about the bio-weapons threat to Hollywood and to pulp thriller writers. The time for a frank, dispassionate and public debate about the threat of bio-terrorism is long overdue.

BUREAUCRATIC BALKANIZATION: THE NEED FOR A FUNCTIONING INTERAGENCY PROCESS

by Rose Gottemoeller

Carnegie Endowment for International Peace

In recent years, bureaucratic factors have hampered the effective implementation of U.S. nonproliferation policies in Russia. Corrective action can and should be undertaken by the Bush Administration. This paper briefly reviews existing coordination problems and considers how agencies have adapted to compensate. Noting the evident costs of this imperfect adaptation, the paper outlines how a well-functioning interagency process would boost policy effectiveness. In particular, it emphasizes the importance of the interagency working group on nonproliferation, stressing that it should meet regularly and be chaired by the responsible Senior Director on the National Security Council.

COORDINATION PROBLEMS

U.S. government-sponsored nonproliferation programs in Russia have been operating without an organized interagency process. There are four problems in this regard. First, coordination of programs occurs largely through ad hoc agency-to-agency contacts, often based on good professional relationships among key actors, both at the political and career levels. These relationships provide at best a partially effective “glue” for coordination. Second, established groups dealing with specific programs (such as the NSC-chaired group overseeing the HEU deal) meet infrequently and usually only in response to a pending deadline or crisis. Third, the interagency working group for nonproliferation does meet, although on an irregular basis and also in response to pending deadlines (such as a group leaving for a negotiation) or crises. Finally, discussions and decisions (e.g., minutes of meetings) frequently are not communicated, thus leaving meeting results open to various interpretations.

Agencies implementing the nonproliferation programs have adapted to these problems,

but only imperfectly. The agency-to-agency contacts noted above have sometime evolved into regular weekly meetings, conference calls, or invitations to interagency colleagues to attend program staff meetings. An important example is the DOD-DOE group on MPC&A-WPC&A. At times, and in response to particular requirements, special interagency working groups have been established that have functioned quietly and successfully. The State Department-chaired group implementing the program to develop alternative employment for former BW scientists is a notable example. To create important new initiatives, the interagency process has come together not only to develop the substance but also to sell the programs, first to the Office of Management and Budget, then on Capital Hill (e.g., the FY 1999 Expanded Threat Reduction Initiative-ETRI). All of these “adaptive measures,” however, have a certain ad hoc quality to them.

Moreover, the United States continues to pay a price for this “Balkanization.” First, it has become increasingly difficult to generate coherent support for Presidential policy and national strategy through the instrument of these programs. In 1994, a coherent package of Nunn-Lugar projects helped to create adequate incentives for Ukraine, Kazakhstan, and Belarus to give up their nuclear weapons. Such coherence for a Presidential policy priority would be difficult to achieve today.

Second, there is always the danger of duplication creeping into the cracks between programs, which our foreign partners stand ready to exploit. For example, Russian entities are not above selling the same planning document or engineering study twice.

Third, unless communicated among relevant agencies, methods and procedures developed by one agency for working effectively with our foreign partners do not benefit the other

agencies working on similar programs. These include procedures for efficient contracting, funds transfers, and access to facilities. Again, our partners can exploit inconsistencies among U.S. agencies.

Fourth, unusual program approaches are not held up to scrutiny except on a piecemeal or even accidental basis, since there is not a regular discussion of standards of policy implementation. This is not a matter of corrupt practices, but rather one of ensuring that each agency has considered—and discussed together—the pros and cons of a particular question. For example, should we be training guards at Russian nuclear facilities? Various answers are possible, and merits and liabilities need to be explicitly examined. Regarding this particular question, we should consider carefully *both* that the problem of ill-trained guards is urgent and has resulted in bad incidents at facilities, but also that we would be adding to Russian military capabilities.

Finally, disputes between and among agencies tend to go unresolved. Although bureaucracies usually function with a certain degree of rancor, long-standing disputes with no means or process for resolution can impact programs in dangerous ways, such as inviting “killer” legislation or severe budget cuts.

A FUNCTIONING INTERAGENCY PROCESS

Resolution of these problems requires a functioning interagency process, not a nonproliferation “tsar.” Although the notion of a tsar in the White House to oversee and direct the nonproliferation programs is perennially popular, it is unnecessary. Indeed, a tsar and his organization would risk usurping the increasingly efficient implementation activities of the responsible agencies. Organizational reform is needed, however, to create and sustain a functioning interagency process.

(1) The primary difficulty is not in the management of implementation, but in the management of *policy*—at the first level, in ensuring the President’s priorities are served; at the second level, in ensuring that

the funds for these programs are expended efficiently, effectively, and with a minimum of rancor among agencies; and at the third level, in ensuring that practical policy questions (e.g., training guards) are examined coherently, and with a practical result for policy implementers.

- (2) A functioning interagency process requires, first of all, an interagency working group (IWG) that meets regularly under the chairmanship of the responsible NSC Senior Director. This is the group that should focus on ensuring that the President’s priorities are served.
- (3) The Bush Administration might also adapt and develop some of the successes of the ad hoc system that has evolved over the past six years. For example, the focused working group model, such as that developed for former Soviet BW scientists, might be further developed and extended to other programs. Such groups need not be located in the NSC. Ideally, their chairmanships should be shared out among agencies, and indeed, that is somewhat the case with the ad hoc system that exists today: e.g., State taking the lead on the BW group; Defense leading on the plutonium production reactor shutdown group; DOE heading up the working group on MPC&A cooperation with the Russian Navy. For these threads to be brought together, however, *these groups should report regularly and in a single forum to the IWG chair.*
- (4) There should also be an interagency “surge” capability to confront particular problems (e.g., an unfavorable GAO report) or to develop and sell new initiatives (e.g., the ETRI). For these purposes, the “surge” group should have the ability to rapidly convene press, budget, and legislative assistance from the various agencies.
- (5) Cross-cutting technical implementation issues, such as how to make contracting more efficient, might be handled by an interagency technical issues group. Again, however, such a group should report regularly to the IWG chair.

PRESIDENTIAL PRIORITIES

The Bush Administration has maintained a Senior Director in the NSC to oversee U.S. nonproliferation programs, but has assigned additional responsibilities to the position. Combining “Proliferation Strategy, Counterproliferation, and Homeland Defense” in one portfolio may convey the Bush Administration’s priori-

ties, but also implies diminished emphasis on nonproliferation programs. This may pose a new bureaucratic impediment to effective policy direction and oversight. Moreover, the challenges to effective counterproliferation and homeland defense policies are likely to mount, unless we effectively implement strong nonproliferation programs in Russia.

THE DEUTCH COMMISSION AND BEYOND

by Neil Joeck

Lawrence Livermore National Laboratory

NEAR-TERM PROLIFERATION CHALLENGES AND OPPORTUNITIES

A number of proliferation challenges were identified in *Combating Proliferation of Weapons of Mass Destruction*, the final report of the Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, chaired by John Deutch. These threats continue to undermine not only the international nonproliferation regime, but also international security and stability more broadly, and almost certainly will be high on the list of policy concerns for the new administration.

North Korea

Perhaps the major challenge currently facing both the international regime and global security is that posed by the ongoing North Korean nuclear and missile programs. North Korean missile and technology transfers are highly destabilizing in many areas of the world, but the domestic developments get the most attention. As the details of the Agreed Framework (AF) come increasingly into focus, implementation may become more difficult. A South Africa-like model of full disclosure and full access remains a distant hope, but the IAEA will need similar access and cooperation before it can be concluded that North Korea has relinquished its nuclear weapon ambitions. An important problem will be agreeing on what must be inspected—not only what existed at the time of the AF signing, but all sites that have since been identified. The plutonium that would be generated in the LWRs once they are constructed may not be a major problem, but a broader issue that must be resolved is whether the reactors should even be constructed in the first place. Furthermore, the possible provision of non-nuclear power as a substitute for the nuclear power sacrificed by North Korea in the AF is also subject to contentious dispute.

Iraq

As Iraq seeks to free itself from U.N. Security Council obligations, few analysts would be surprised if Saddam Hussain continues his interest in acquiring nuclear weapons in contravention of Iraq's pledges as a non-nuclear weapon signatory to the NPT. Although it appears that the United States and United Kingdom may be losing the propaganda war over sanctions, it is clear that Hussain has refused to use the funds available to meet Iraq's domestic needs. The suffering in Iraq may be used as "evidence" that the sanctions regime is malicious. In fact, the refusal to spend the funds available underscores Hussain's own indifference to Iraq's domestic well being. Some adjustments may need to be made, however, as recently suggested by U.S. Secretary of State Colin Powell, in order to ensure the return of IAEA inspectors, without which Iraq will certainly defy U.N. resolutions and return wholeheartedly to WMD production and deployment.

Iran

Despite its good standing as an NPT member, significant concern continues to surround Iran's WMD aspirations. Given the evidence unearthed by UNSCOM about Iraq's WMD programs; Pakistan's nuclear tests and claims to be a nuclear weapons state; and the ongoing presence of Russian, Chinese and U.S. military forces along its perimeter; Iran's motivation for acquiring WMD may be readily understood. Iran's security dilemma is therefore the context for its interest in acquiring advanced nuclear equipment—heavy water reactors, AVLIS and centrifuge technology, etc. Iran also is spending hundreds of millions of dollars on a rebuilt nuclear power plant even while it flares natural gas as a waste product of oil drilling. Iran's nuclear trade with Russia reinforces suspicions that Teheran may have an interest in developing nuclear weapons.

WMD Diversion from the FSU

The possibility that excess and poorly protected Russian nuclear material may fall into the hands of terrorists worries many proliferation analysts in the West. However, this concern does not appear to be entirely shared by officials within Russia. A leading candidate for such terrorist behavior might be a rebel from Chechnya who would threaten nuclear use against Russia if it did not cease military action in the province. Yet the Russian government's increasingly relaxed—even defiant—approach to export controls suggests it feels it is immune to the problem. Nevertheless, inadequately protected fissile material, unpaid security guards, and destitute nuclear scientists may combine to allow nuclear material or weapons to leave the country and reach the hands of new proliferators or terrorists. Whether doubling, tripling—or even quintupling—the several hundred million dollars currently being expended by the United States will solve this problem, however, ultimately depends on Russian behavior, not on the funding level *per se*.

Chinese Nonproliferation Policy

The Chinese government has repeatedly reassured U.S. administrations that it takes the NPT injunctions against nuclear transfer seriously. Doubts persist, however, as North Korea and Pakistan continue to develop WMD capabilities, which in some cases appear to exceed their indigenous capabilities. China irately denies that it has broken any laws, while countering that the United States has done too little to punish India for starting the nuclear arms race in South Asia with its May 1998 nuclear tests. A recent CIA report to Congress about worldwide proliferation activities—as reported by the *Washington Times* on 27 February 2001—argued, however, that China was providing missile technology to Pakistan, Iran, North Korea and Libya, and might still be assisting Pakistan's nuclear program.

Terrorist/Third Party Acquisition & Threat

Although the primary concern about terrorist seizure of nuclear materials is connected with the possibility that fissile material may leak out of Russia, the problem could arise else-

where. Recent press reports that Osama Bin Laden tried to acquire uranium reinforce ongoing concerns that WMD smuggling may lead to a nuclear terrorist threat. Furthermore, increased global competition may impoverish some states that would turn to nuclear smuggling to make ends meet. In addition, radical states may also support terrorist action as a surrogate for their own interests, such as Iran's support for Hizbollah. With communications and weapons cheap and available, even radical individuals or movements may seek to attack prominent international symbols.

ORGANIZATIONAL OPTIONS FOR NONPROLIFERATION

The Deutch Report

Efforts under the Clinton Administration to cope with WMD proliferation contributed to the formation of a special commission to evaluate whether the U.S. Government was adequately organized to confront the threat. Beyond the organizational issues, a number of shortcomings were identified in U.S. nonproliferation policy. For example, nonproliferation policies were often initially opposed, and then not implemented by the regional bureaus; anti-proliferation efforts increased policy decentralization and thereby added to policy incoherence; economic sanctions, though sometimes a useful lever, were overemphasized; too many Congressional committees had overlapping responsibilities; and too much time was spent addressing proliferation events that had already occurred rather than developing strategies for future contingencies. The Deutch Commission therefore concluded that “the efforts of the U.S. government to combat proliferation today are neither effective nor command an appropriately high policy priority in the Executive Branch.” The Commission evaluated new measures that might be taken as well as organizational improvements that might be made to improve the situation.

While recognizing that the WMD Commission was expressly tasked with organizational issues, a number of commissioners argued that adding new resources to existing programs and focusing only on organizational structure would not be sufficient to meet the WMD challenge.

One commissioner, Henry Sokolski, later commented: “if our policies are unsound or incomplete, no amount of reorganization is likely to help, and the implementation of bad policies could well make matters worse.” The Commission identified a set of problems— included in the first part of this paper—which would require policy attention and recommended that an Executive Order be issued establishing a new organization in the person of a National Director for Combating Proliferation. The Director—referred to as the “nonproliferation tsar”—would chair a new Combating Proliferation Council, have substantial budgetary and policy authority, report directly to the President and accept a broad set of responsibilities:

- inform the president and the vice-president
- prepare reviews, directives, and decision papers
- organize meetings on proliferation
- report annually to the president
- join proliferation-related meetings, even with heads of state
- lead the interagency process
- act as spokesperson and coordinator
- develop a plan to address WMD proliferation
- construct a coordinated budget
- consult with Congress

Brief History

This encompassing set of tasks recalls the work of prior tsars. In a sense, the first nonproliferation tsar served in President Jimmy Carter’s Administration. As a candidate, Carter was especially concerned about this issue area and appointed Harvard University Professor Joseph Nye to be Deputy Under Secretary of State and the principal point man for what was then largely a prospective problem. The NPT was in place, but after the Indian test in 1974 a set of supplier issues and controls had emerged, which fell under Nye’s supervision. When President Reagan took office, the issue receded—indeed Reagan had opined that proliferation might be “none of our business.”

That sentiment notwithstanding, proliferation issues demanded attention and Ambassa-

dor Richard Kennedy was handed the portfolio in the State Department. Even more a tsar than Nye, Kennedy took his role seriously. He insisted that his position be equivalent to a Deputy Secretary and chaired a series of interagency meetings to which he invited—and expected to attend—Assistant Secretaries from the relevant offices and agencies. His counselor, Lewis Dunn, moved from Kennedy’s office to become Assistant Director of ACDA and was replaced first by Richard Gronet, on rotation from NSA and then by Gary Samore, on rotation from LLNL. For years when the Reagan administration was criticized for doing too little about proliferation, Kennedy willingly acted as a lightning rod, responding to questions from Congress, providing cover for regional bureaus, and taking flak at international forums such as the IAEA.

With the arrival of President Bush in 1989, Kennedy’s office was downsized and the tasking moved to the NSC. At NSC, however, those in charge had less power than Ambassador Kennedy at State because security policy was less of a prime focus. With the end of the Cold War, nonproliferation became much more interesting to a variety of government offices. Iraq’s massive WMD undertaking, exposed as a consequence of the Gulf War, represented for many the defects and shortcomings of prior nonproliferation policy. Thus as the Clinton Administration assumed power in 1993, arguments were made that *counter*-proliferation should either replace or supplement what was seen to be the ineffectual approach of *non*proliferation. Soon there were many chefs in the proliferation kitchen, but the result was a diverse and idiosyncratic policy stew. The defeat of the CTBT in the U.S. Senate and the addition of India and Pakistan as overt nuclear weapon states in May 1998 soon eclipsed the successful permanent extension of the NPT.

What Next?

There is no question that the new administration takes WMD proliferation seriously and wants to see greater communication, coordination, and integration across the bureaucracy. Regardless of how the new administration organizes itself to meet this problem, however, certain principles enunciated in the Deutch

Commission report may provide valuable guidance:

- presidential leadership
- accountability among cabinet officers
- NSC-level responsibility
- alignment of departmental with presidential priorities
- integration across the government

An important element in leadership has already been demonstrated, as President Bush has appointed a strong foreign policy team at NSC, State, and Defense. As noted above, the Deutch Commission argued for a formally established Director with budgetary and policy authority. The well-focused individuals already in place would be unlikely, however, to welcome a new source of authority whose power would include line-item oversight of their budgets. The new administration may therefore emphasize policy, without ignoring important organizational requirements.

The contours and components of the overall policy are yet to be enunciated, but some organizational outlines are coming into focus. National Security Presidential Directive 1 has been issued and organizes the National Security Council. As reported by *Inside Defense* on 2 March 2001, policy coordination committees will address eleven functional areas:

- democracy, human rights, and international operations
- international development and humanitarian assistance
- global environment
- international finance
- transnational economic issues
- counter-terrorism & national preparedness
- defense strategy, force structure, and planning
- arms control
- proliferation, counterproliferation, and homeland defense
- intelligence and counterintelligence

- records and information security

Policy coordination committees will also cover six regions:

- Europe and Eurasia
- Western Hemisphere
- East Asia
- South Asia
- Near East and North Africa
- Africa

WMD proliferation issues clearly will be addressed by Proliferation, Counterproliferation, and Homeland Defense but may also figure to some extent in committees addressing terrorism, defense strategy, arms control, and intelligence. Proliferation is a prominent issue in a number of regions as well—Iraq and Iran in the Near East and North Africa, North Korea in East Asia, and India and Pakistan in South Asia. A difficult problem in any administration is integration—as Stephen Hadley put it, “real integration into a strategy that’s greater than the sum of its parts”—and integration across these committees will be an important challenge.

Integrating proliferation policy clearly will be an important challenge not only within the NSC but also across the administration. In this regard, the tasks proposed by the Deutch Commission for the proliferation czar—itemized on p. 36 above—will almost certainly become important requirements. The president and vice-president will require detailed, fully vetted policy proposals that will form the basis for presidential directives and decision papers. Proposals from State, Defense, Commerce, Energy, and other agencies may have important proliferation consequences. Meetings and inter-agency discussions to evaluate those consequences will have to be guided and coordinated. Some attention will have to be paid to the budgetary implications of, for example, renewed attention to counterproliferation. And Congress will continue to want to be consulted and to provide counsel.

STRATEGIC PLANNING FOR U.S. NONPROLIFERATION INITIATIVES IN RUSSIA

by Leonard Spector

Monterey Institute of International Studies

The United States now implements more than a dozen distinct nonproliferation programs in Russia to reduce the risk of nuclear materials or expertise falling into the hands of terrorist organizations or states of concern. While applauding the goals and accomplishments of these activities, outside observers repeatedly have expressed concern about the lack of coordination among these efforts. For example, the lead recommendation of the recently released report of the Secretary of Energy Advisory Board panel (chaired by Lloyd Cutler and Senator Howard Baker) was for formulation of a “strategic plan” for securing and/or neutralizing all nuclear weapons-usable material located in Russia.*

By using the approach described below, the Bush Administration’s National Security Council and Office of Management and Budget could easily undertake a strategic planning process to improve coordination of U.S. nonproliferation programs in Russia. The process would permit U.S. policy-makers to exploit synergies and facilitate tradeoffs among these U.S. programs, while focusing diplomatic and budgetary resources more efficiently.

PROPOSAL

This paper proposes development of side-by-side, multi-year projections of the expected impacts of all U.S. programs addressing specific Russian nonproliferation challenges—in practice, a set of detailed spreadsheets—coupled with observation of trends and utilization of “what if” analyses.

* Secretary of Energy Advisory Board, *A Report Card on the Department of Energy’s Nonproliferation Programs with Russia*, (Washington, DC: U.S. Department of Energy, 10 January 2001) <<http://www.hr.doe.gov/seab/rusrpt.pdf>>.

Although the approach seems simple and rather self-evident, it has never been employed by U.S. Government agencies or non-governmental organizations working in this arena. Indeed, it is common for U.S. nonproliferation programs in Russia to operate without accounting for impacts of related programs. The point is well illustrated on the website of the Department of Energy Material Protection Control and Accounting (MPC&A) Program. There, in December 2000, the program projected the amount of material it must secure in Russia over the next eleven years, without reflecting the increases in the inventory during this period from Russian fissile material production and weapons dismantlement activities, and without reflecting the impact of U.S. programs to eliminate fissile material. A February 2001 projection provided to the Government Accounting Office of the materials to be secured by the program modified the overall number, but again treated this inventory as static.*

FISSILE MATERIALS IN RUSSIA

The United States conducts three types of programs to address fissile material proliferation risks in Russia. The first type aims to *eliminate such material*. Programs in this group include the Highly Enriched Uranium (HEU) Purchase Agreement; the Material Protection Control and Accounting (MPC&A) Material Consolidation Program; and the Plutonium Disposition Program. The second type of program is designed to *end production of new fissile material* and includes

* U.S. Department of Energy, Office of Defense Nuclear Nonproliferation, “Summary of Recent Accomplishments,” <<http://www.nn.doe.gov/accomplishments.shtml>>; General Accounting Office, *Nuclear Proliferation: Security of Russia’s Nuclear Material Improving; Further Enhancements Needed*, GAO-01-312 (February 2001) <<http://www.gao.gov/>>.

the Plutonium Production Reactor Shut-Down Program and the newly launched Civil Plutonium Moratorium Program. The third category of programs works to *secure fissile material not contained in weapons*, i.e., the MPC&A Program and construction of the Mayak Fissile Material Storage Facility.

The proposed side-by-side annual projection would:

- (1) track annual increases in the overall inventory of Russian fissile material at risk (for illustrative purposes, here presumed to be 10 metric tons (MT) of fissile material annually from new weapon dismantlement for six years, and roughly three MT of new plutonium production for a number of years until production-termination programs are implemented in 2004-2006);
- (2) track annual decreases from that inventory (for example, the 30MT of HEU annually that is sold under the HEU Purchase Agreement and, beginning in 2007, the two MT/year eliminated through the Plutonium Disposition Program); and
- (3) forecast the impact on the *net* inventory of U.S.-sponsored security improvements (an average of 47MT/year secured under the MPC&A program through 2011, and 50MT of plutonium placed in the Mayak Fissile Material Storage facility from 2002-2006).

The illustrative chart on p. 40 depicts these data. The illustration assumes that most of the HEU to be purchased under the HEU Purchase Agreement has already been removed from weapons through the dismantlement process over the past ten years, and is part of the 603MT of fissile material not in nuclear weapons that is currently under the coverage of the MPC&A program. Although based on data requiring additional refinement, this illustrative government-wide analysis shows that the MPC&A program might be able to complete its full security upgrades on all Russian fissile material of concern earlier than the date estimated by the MPC&A program's February 2000 internal, stand-alone analysis, which places this end point in 2011.

The graph also shows a "what if" alternative, illustrating the impact of blending down HEU at a rate of 50MT per year rather than at

the current rate of 30MT per year, until the remaining 390MT to be purchased have been rendered harmless. The 50MT/year option, suggested by Dr. Thomas Neff of MIT, could accelerate the securing of all at-risk material by an additional year, given the above assumptions.

BUDGET/UNIT-COST ANALYSES

A similar year-by-year analysis that tracked program impacts against annual budgets to provide unit-cost data could allow improved judgments regarding resource allocations. Building on the above "what if" case, such a unit-cost approach could, for example, help determine the extent to which the additional costs of rapid blend-down might be offset by the avoided costs to the MPC&A program that might accrue from reduction in the quantity of material to be secured.

Other analyses could show the avoided-cost savings to the MPC&A and Plutonium Disposition Programs that would accrue from early cessation of production of additional plutonium; these savings might more than offset the costs of interim measures to halt new production, such as paying a fee for summertime shut down of the remaining plutonium production reactors.

JOB CREATION ANALYSES

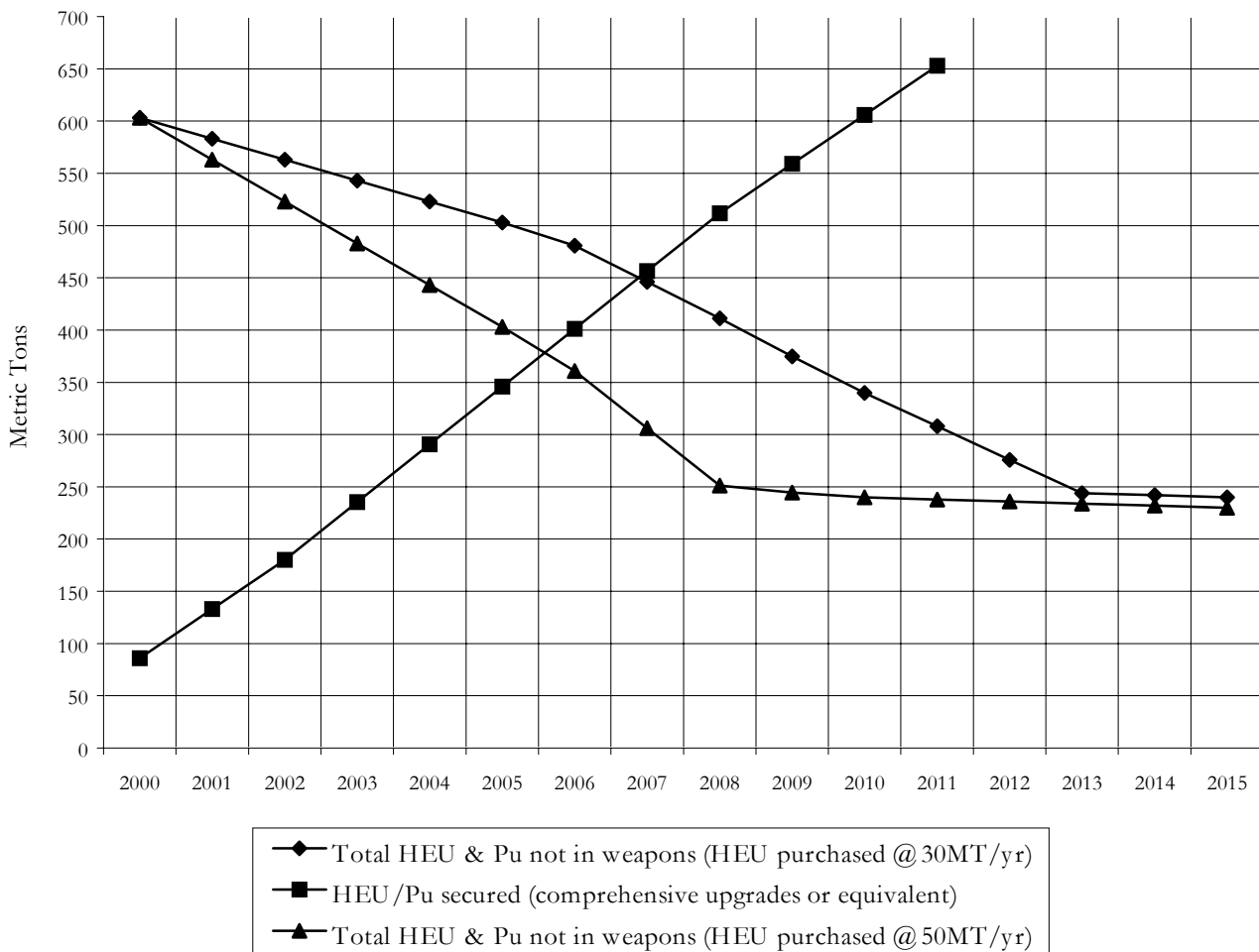
A crosscutting approach would also enhance city-by-city planning for U.S. job-creation programs in Russia. New job requirements based on Ministry of Atomic Energy downsizing plans would be compared not only to job creation efforts under the Nuclear Cities Initiative and Initiatives for Proliferation Program, as is now the case, but also to jobs created through the International Science and Technology Center and *all other U.S. government activities* in the relevant cities, including, for example, the Plutonium Disposition and MPC&A Programs. U.S. programs that may cause job losses, such as the Plutonium Production Reactor Shut-Down Program and the Civil Plutonium Moratorium (which will lead to the closure of certain reactors and reprocessing facilities) would also be tracked to calculate the overall, net impacts of U.S. programs on employment, city by city.

THE PATH FORWARD

Many gaps exist in the analyses sketched above. Comprehensive analyses would require extensive work to collect necessary data and would need to use a range of projections, rather than a single one, for each scenario.

However, the overall approach is sound, and could provide wide-ranging opportunities for systematically assessing and improving U.S. nonproliferation programs in Russia.

ELIMINATING OR SECURING FISSILE MATERIAL IN RUSSIA



CRITICAL CHOICES, FATEFUL CONSEQUENCES

by Michael Barletta*

Monterey Institute of International Studies

CLEAR AND PRESENT DANGERS

Weapons of mass destruction pose clear and present dangers to the security of the United States of America. While nuclear weapons have constituted an existential threat to this country and its population for decades, biological weapons may be a comparable menace today or in the near future. Paradoxically, some of the United States' greatest strengths as a nation—ranging from its proud tradition as an open society, to its impressive scientific and technical ingenuity, to its global military predominance—increase its vulnerability to WMD threats.

A single scenario can illustrate some of the dangerous challenges facing the United States. If the U.S. government or the American people were attacked with smallpox, it is far less likely that this diabolical agent would be delivered by an intercontinental ballistic missile than by an individual walking through an airport. In the event of such an assault, the public health system might not recognize the outbreak before being overwhelmed with casualties. U.S. intelligence and law enforcement agencies may be unable to identify the assailant, or even determine whether the strike was launched by a foreign organization or government, or an

American terrorist group. One conceivable purpose of such an attack could be to provoke U.S. military action against a third party, which would involve deliberate creation of a false train of evidence leading away from the true perpetrators. In such a scenario, one of the most powerful U.S. efforts to deter such an attack—implicitly threatening to retaliate against a CBW attack with nuclear weapons—may play into its adversaries' hands. What should the United States do if Osama bin Laden and his ruthless accomplices in *al Qaeda* use biological weapons against the United States in an effort to provoke a U.S. nuclear attack against an Arab and/or Muslim country? Can U.S. national security be entrusted to the patriotism of Russian biowarfare specialists who enjoyed privileges in Soviet times, but now may face unemployment as well as lucrative offers to sell some of what they know to the likes of bin Laden?

WMD proliferation also threatens U.S. friends and allies abroad, as well as China, Russia, and many other states. Despite this important commonality in national interests, however, recent years have witnessed a sharp decline in international cooperation to meet these threats, most notably demonstrated by ongoing divisions among the permanent members of the U.N. Security Council over UNSCOM's efforts to disarm Iraq of WMD, and tacit international acquiescence to overt nuclear proliferation in South Asia.

Nonproliferation specialists in the United States and allied countries are deeply concerned that in the absence of determined and effective U.S. leadership, dangerous regional situations will deteriorate, global regimes will be undermined, and WMD risks will mount with potentially fateful consequences for U.S. and international security. The choices that the Bush Administration makes in its first year in office will be critical in generating positive or negative developments—and perhaps both—in proliferation affairs.

* This discussion is based in part on the deliberations of the Monterey Nonproliferation Strategy Group in its 15-16 March 2001 meeting, which considered draft versions of papers in this publication. A list of the participants—who engaged in not-for-attribution discussions as individuals rather than as institutional or national representatives—follows. Although the group's discussions encompassed a very wide range of issues and perspectives, this review focuses quite narrowly. In developing this paper, I have sought to draw upon the sense of the members' deliberations, but am alone responsible for their specific expression here.

This review highlights three issues challenging the new administration: WMD legacies in the former Soviet Union, U.S. relations with China, and biological weapons terrorism. It also highlights an approach that the Bush Administration should consider employing to curb WMD threats: mobilizing small ad hoc coalitions of like-minded states to address specific problems, such as that which the Reagan and Bush administrations employed to stem ballistic missile proliferation in the 1980s.

Soviet Legacies

The nuclear and biological weapons that the Soviet Union created to threaten the United States have outlived the political system that produced them. Nuclear warheads and unsecured fissile materials, as well as BW facilities, technologies, agents, and experts in Russia and the former Soviet Union continue to endanger the United States, despite the considerable success of the Nunn-Lugar Cooperative Threat Reduction (CTR) programs launched in 1991 under President Bush. This bipartisan campaign has eliminated, reduced, or secured more materials threatening the United States than any arms control agreement reached to date, and has done so at relatively small cost in comparison with overall U.S. defense expenditures.

Their contributions to U.S. national security notwithstanding, CTR activities undertaken during the Clinton administration were too limited in scope and ambition. As contributors to this collection observe, Soviet biowarfare technologies far outstripped U.S. defensive countermeasures, and neutralizing the capabilities still remaining in Russia is imperative to protect the United States. The Bush Administration should expand CTR programs with Russia to more fully address threats posed by the biological weapon legacies of the massive Soviet BW program. The administration should also consider developing measures for effective accounting and control of ballistic missile-related assets in Russia. Another useful initiative would be a joint U.S.-Russian effort to repatriate to Russia the Soviet-origin fissile material currently abroad, especially that residing in Belarus, Kazakhstan, Ukraine, and Yugoslavia. Furthermore, the executive branch needs a pragmatic results-oriented approach for rationalizing U.S.

nonproliferation activities in Russia, one that can not only foster greater fiscal discipline, but also avoid unintended negative consequences of bureaucratic insularity in programmatic implementation. European contributions to CTR efforts are increasing, and the Bush Administration should make every effort to press U.S. allies to share the financial and programmatic burdens entailed in securing deadly Soviet legacies.

Fissile material management and BW nonproliferation must remain central to U.S.-Russian efforts. However, Russian export of sensitive technologies to Iran is also a critical issue. Without Russian restraint on WMD-relevant trade with Iran—especially in the areas of missile technology, materials, and expertise—the security environment of several subregions will be destabilized. The Clinton Administration was unable to win adequate Russian restraint in this regard. The Bush Administration must do better, because Iran is a critical link in the WMD proliferation chain stretching between South Asia, Central Asia, the Persian Gulf, the Middle East, and the Mediterranean.

Sino-American Relations

Much is at stake in U.S. relations with China. The impact of bilateral relations on China's policies regarding nuclear and missile technology exports, nonproliferation regimes, and the U.N. Security Council make this relationship critical to containing WMD proliferation. U.S.-China relations are directly pivotal for East Asia, but may have indirect but powerful bearing on prospects for nonproliferation in the Middle East, Russia, and South Asia.

For both sides, unfortunately, nonproliferation is routinely subordinate to other concerns. The status of Taiwan is of far greater priority for China, while missile defense in effect trumps other U.S. security priorities bearing on China. Due to current disputes over both issues—complicated by generational change underway among the Chinese political leadership—China and the United States may be headed for a nuclear offense-missile defense competition, or even direct military conflict. Some specialists on China believe that if the United States were to explicitly commit to sup-

porting Taiwan's independence, doing so would entail accepting war with China. Most nonproliferation specialists concur with the unclassified estimates of U.S. intelligence agencies, that although some degree of Chinese nuclear modernization will proceed regardless of U.S. policies, U.S. deployment of NMD probably will spur an order-of-magnitude increase in Chinese strategic nuclear forces. Ultimately, however, the fact that the number of Chinese thermonuclear warheads targeting U.S. cities may increase by scores or hundreds could be the least of U.S. concerns.

The proliferation impact of confrontational U.S.-Chinese security relations may include renewed or expanded Chinese missile exports to the Middle East, and expanded production and deployment of Chinese intermediate-range nuclear-armed ballistic missiles. European analysts fear the latter move might lead Russia to renege on the INF Treaty, which could in turn have an unpredictable impact on Turkey. A U.S.-Chinese nuclear offense-missile defense competition likely would encourage India to step up its nuclear weapon and missile development and deployment programs, which would encourage Pakistan to respond in kind, which would reverberate via Iran to the Persian Gulf and Middle East. Thus the stakes for missile and nuclear nonproliferation in *many* regions could depend indirectly on how the United States and China traverse this difficult passage in bilateral relations. The least recognized but perhaps most directly consequential military-technical variable in this complex equation is whether China develops, deploys, or even exports anti-satellite weapons (ASATs) to counter space-based U.S. NMD assets. If China were to take this countermeasure, it could effectively put U.S. conventional force projection capabilities—which are heavily reliant on satellite-based intelligence and communications—at risk around the globe.*

* In a special session in March 2000, the Monterey Nonproliferation Strategy Group sought to forecast potential consequences of NMD deployment, considering a paper by James Clay Moltz, "The Impact of National Missile Defense on Nonproliferation Regimes," later published in the *Nonproliferation Review* 7(3): 61-74.

However, there remain grounds for optimism that these cascading proliferation scenarios can be averted. The international political and regional security costs to China of proliferation countermoves would be significant, and across-the-board confrontation with the United States would entail painful economic costs and lost opportunities for China. Moreover, although change in the Chinese leadership is stimulating nationalism and may increase military autonomy in defense matters, the incoming generation was trained not in the USSR but in the West, and economists reaching power are apt to be trade-oriented reformers. Common interests in expanding U.S.-China commerce will encourage moderation on both sides of the relationship. On balance, the leadership change in Beijing provides an opportunity for a serious strategic dialogue with Washington.

Thus, the Bush Administration faces stiff challenges but also enjoys considerable discretion in shaping the future of Sino-American relations. In defining policy and engaging China, U.S. officials should work to reach a sober, shared assessment of common security interests with regard to WMD proliferation. Both countries' security will suffer if relations degenerate into a zero-sum, defense-offense contest. Neither country can realistically hope to escape mutual vulnerability to nuclear attack except through the other's forbearance. Uncompromising gambits to do so inevitably will harm the two countries' common interests in averting nuclear proliferation and ballistic missile development by Japan, eventually by a reunified Korea, as elsewhere.

Bioterror

Seventeen years ago, a religious cult in Oregon perpetrated the first large-scale use of a biological agent against a U.S. population, disseminating pathogenic bacteria by contaminating the salad bars of ten restaurants, which sickened at least 751 people. Fortunately, no one died in that attack, and since then it largely has been forgotten. The United States might be equally lucky in a future attack involving biological agents. Alternatively, a future assault that used contagious pathogens might be as lethal as the Spanish Flu pandemic that swept across the United States in 1918, infecting over one-

quarter of the population, and killing at least ten times as many Americans as all of the U.S. servicemen who died fighting in the First World War.

It is hard to identify another issue in U.S. national security affairs and the international context marked by such a glaring gulf between potential magnitude and relative neglect of the threat. In recent years, the United States has undertaken significant steps toward prevention and preparedness for bioterrorism. However, the pace of change in U.S. vulnerabilities and in potential adversaries' access to lethal capabilities is likely outstripping U.S. responses. Mounting anti-Americanism overseas and shocking incidents in U.S. schools suggest that the number of groups and individuals with extreme grievances is apparently on the rise. Many of the disaffected are undoubtedly exposed to dramatic bioterror scenarios by the entertainment industry and mass media, and those with access to the Internet can download technical information useful for conducting deadly BW attacks.

Effectively meeting the bioterror threat will require intellectual as well as institutional efforts, because biological weapons pose several distinct types of threats that differ in their nature, consequence, and likelihood. Apocalyptic mass-casualty scenarios are hopefully the least likely to occur, yet by making response preparations appear insufficient their potential scale apparently has had something of a paralyzing effect on governmental officials and the health services. Narrowly targeted attacks, perhaps employing agents of limited lethality, are presumably more likely. The recent epidemic of hoof-and-mouth disease in Europe underscores the vulnerability of livestock, and demonstrates the economic and social impact of sudden infectious outbreaks. Future episodes might involve deliberate attempts at economic warfare or political disruption, with plant agricultural resources offering a similar target.

The United States relies in large measure on deterrence, defense, and retaliation to thwart BW attacks by state actors. Analogous instrument could be developed to target non-state or terrorist threats. To deter and retaliate against bioterrorism, the Bush Administration could promote international efforts to stigmatize the production, possession, and use of biological

weapons. In addition to making BW a crime against humanity, the United States could promote creation of an international system to reward whistleblowers and protect witnesses who provide information leading to interdiction of criminal BW activities. Furthermore, the administration should emphasize working to improve U.S. detection, identification, and attribution capabilities—i.e., the forensics of BW. Not only can such assets strengthen BW defenses, but they may also deter perpetrators who cannot be sure that their involvement will go undetected.

Many steps that can aid in defending against bioterrorism are also worth undertaking for their contributions to public health and disaster preparedness. These include defensive research on potential agents, stockpiling vaccines, and public education, as well as training at the federal, state, and community levels for consequence and crisis management. In working to stem infectious diseases such as HIV-AIDs as well as defend against bioterrorism, the United States should dedicate substantial resources toward creation of an effective global monitoring system to provide early warning and tracking of infectious diseases.

BEYOND ARMS CONTROL AND MISSILE DEFENSE: COUNTER-PROLIFERATION COALITIONS

Since the Cold War's end, alternative tools have reinforced or supplanted traditional approaches to U.S. national security. Neither military force nor arms control sufficed for some security challenges, including the uniquely ambitious effort to dismantle Iraqi WMD through the international effort implemented by UNSCOM, as well as U.S. and allied CTR programs addressing Soviet WMD legacies. More recently, the Bush Administration has signaled its intent to deploy ballistic missile defenses for the United States and its allies, which would add an additional instrument to the range of U.S. policy options.

Like missile defenses, bilateral arms control agreements and multilateral nonproliferation regimes are inadequate to perform all of the diverse tasks necessary to preserve U.S. national security. But there are some missions of abiding

significance for which these latter instruments are irreplaceable. Perhaps least tangible yet most important, nonproliferation regimes can bolster international nonproliferation norms that serve U.S. national security. The power of norms is often underestimated, due to the misconception that they should be expected to restrain current WMD proliferants like Iran, Iraq, or North Korea, but clearly fail to do so. But if U.S. officials consider only how Iraq exploited loopholes in IAEA safeguards and betrayed its NPT commitment to disguise a covert bomb program, or focus solely on the Soviet Union's massive violations of its BWC commitment, then they will fail to understand where norms matter most: in shaping the behavior of *potential* proliferant states, and in strengthening U.S. leadership.

First, norms buttress nonproliferation among the many states that could but do not apply advanced technological capabilities to produce nuclear weapons, and the *very* many who do not employ national assets to produce biological or chemical weapons. The United States cannot afford complacency with regard to the scores of potential proliferants, states like Japan and South Korea that now reject WMD and rely in part on U.S. security assurances but depend also on multilateral regimes to provide a stable security environment in which they can prudently remain nonproliferants. This contribution will become increasingly important in the future, given the ongoing diffusion of sensitive technologies. Obviously, in preventing WMD threats to the United States and its allies and friends, there is no better outcome than their nonproliferation. Worth recalling in this regard is the Argentine-Egyptian-Iraqi Condor II medium-range ballistic missile project. Once feared as a potent proliferation threat, the elder Bush Administration proved that this covert transnational scheme could be blocked and dismantled through determined pressure, in part in collaboration with the small group of like-minded supplier states that created the MTCR.

Second, shared values and norms provide a common rationale for military coalitions, collective diplomatic pressures, and multilateral re-

gimes to prevent and respond to WMD proliferation. They thus enable the United States to lead globally, by melding military and economic power with shared international purpose in campaigns to counter WMD proliferation. This is particularly important today, as U.S. military and economic predominance arouses resentment among friends as well as overt hostility from adversaries. In the event that President George W. Bush sets out to organize a military coalition against a WMD proliferant, such as that which his father mobilized against Iraq in 1990-1991, nonproliferation norms would aid the United States in garnering international support for decisive action.

But winning international cooperation is also imperative if the United States is to successfully meet many current and emerging WMD threats that cannot be addressed by force. Papers in this collection underscore, however, how difficult it has been to gain effective cooperation on nonproliferation in recent years, especially from Russia and China. One option for the Bush Administration would be to shift focus from inclusive and formal treaty negotiation processes, toward informal coalitions oriented to address distinct WMD proliferation threats. This approach might have the advantages of allowing the United States to lead more effectively and to exclude problem states with weak or conflicting commitment to nonproliferation, and could be more flexible, decisive, and problem-oriented than multilateral treaties and organizations.

The challenge for a focused coalition approach, however, is to avoid undercutting the international normative framework, verification capabilities, and other assets gained through multilateral nonproliferation regimes. As the Bush Administration moves to lead the international community beyond Cold War concepts and approaches, in employing counterproliferation coalitions or other instruments the administration can and should build upon the increasingly shared conviction that WMD proliferation is a menace to U.S. and international security.

MARCH 2001 STRATEGY SESSION PARTICIPANTS

The Monterey Nonproliferation Strategy Group met at the Center for Strategic and International Studies (CSIS) in Washington, DC, on 15-16 March 2000. The preceding text does not necessarily reflect the views of the group as a whole, its individual members, the Monterey Institute, or CSIS, and the affiliations listed below are only for the purpose of identification.

Nobuyasu Abe, Permanent Mission of Japan to the International Organizations in Vienna
Michael Barletta, Monterey Institute of International Studies
Serguei Batsanov, Organization for the Prohibition of Chemical Weapons
Emilio J. Cárdenas, HSBC Argentina Holdings S.A.
Joseph Cirincione, Carnegie Endowment for International Peace
Charles Curtis, Nuclear Threat Initiative
Jay Davis, Defense Threat Reduction Agency
Thérèse Delpech, Atomic Energy Commission, France
Lewis Dunn, Science Applications International Corporation
Robert J. Einhorn, U.S. Department of State
Rolf Ekéus, Stockholm International Peace Research Institute
Nabil Fahmy, Embassy of the Arab Republic of Egypt in Washington, DC
Robert Gallucci, Georgetown University
Rose Gottemoeller, Carnegie Endowment for International Peace
John J. Hamre, Center for Strategic and International Studies
Harry Harding, George Washington University
Laura S. Holgate, Nuclear Threat Initiative
John D. Holum, Atlas Air Incorporated
Neil Joeck, Lawrence Livermore National Laboratory
Rebecca Johnson, Acronym Institute
Andrea Koppel, Cable News Network
Timothy McCarthy, Monterey Institute of International Studies
Judith Miller, *New York Times*
Michael Moodie, Chemical and Biological Arms Control Institute
Sola Ogunbanwo, Delegate of Nigeria to the First Committee, U.N. General Assembly
John Parachini, Monterey Institute of International Studies
George Perkovich, W. Alton Jones Foundation
Brendan Plapp, Office of Congressman Edward Markey
Daniel Poneman, Hogan & Hartson
William C. Potter, Monterey Institute of International Studies
Brad Roberts, Institute for Defense Analyses
Joan Rohlfing, Nuclear Threat Initiative
Scott D. Sagan, Stanford University
Amy Sands, Monterey Institute of International Studies
Lawrence Scheinman, Monterey Institute of International Studies
Mike Shuster, National Public Radio
Leonard Spector, Monterey Institute of International Studies
Jonathan Tucker, Monterey Institute of International Studies
Mitchel Wallerstein, The John D. and Catherine T. MacArthur Foundation
Christine Wing, The Ford Foundation

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For print or multiple copies, please contact:
Kimberly McCloud, Managing Editor
Center for Nonproliferation Studies
Monterey Institute of International Studies
425 Van Buren Street
Monterey, California 93940 USA
E-mail: Kimberly.McCloud@miis.edu
Tel: 831.647.7108
Fax: 831.647.3519