

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

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

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

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

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

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

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

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

THE COUNTER-PROLIFERATION TOOLBOX

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

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

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

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

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

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

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

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

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

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

ERADICATING NUCLEAR TERRORISM

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CONTAINING BIOTERROR

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

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

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

THE ROLE OF ARMS CONTROL

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

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

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

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

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

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

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

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

COUNTER-PROLIFERATION IN PENTAGON TRANSFORMATION AND HOMELAND SECURITY

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

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

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

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

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

PROLIFERATION AND U.S. NUCLEAR WEAPONS POLICY

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

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

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

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

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

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

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

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

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

OVERHAULING WMD INTELLIGENCE: THE SPECTER OF POLICYMAKING IN THE DARK

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

WILL ACTION BE TAKEN IN TIME?

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

ENDNOTES

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