

How to Counter War of Mass Destruction

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Worst people vs. worst weapons

President George W. Bush has rightly proclaimed that keeping the worst weapons out of the hands of the worst people is Washington's highest national security priority. But so far, the United States has attacked the people much more vigorously than the weapons.

The war on terrorism that Washington is fighting and the war on weapons of mass destruction (WMD) that it needs to fight are related but not identical. The attacks of September 11, 2001, stimulated a comprehensive overhaul of US counterterrorism practices and agencies. The United States went on the offensive in Afghanistan and around the world; border and immigration controls were tightened; emergency response was fortified; and a new Dept. of Homeland Security was created.

But counterproliferation policies have not been overhauled. The most significant action taken by the United States to counter WMD since September 11 has been the invasion of Iraq. Although at the time intelligence suggesting a recrudescence of Saddam Hussein's WMD programs appeared to justify the war, it now seems that the intelligence was incorrect. Meanwhile, North Korea has quadrupled its stock of plutonium, a far graver setback to counterproliferation than anything Saddam might have been pursuing. A distracted administration has left the initiative for curbing Iran's evident nuclear ambitions to two groups that failed to support the Iraq invasion: the Europeans and the UN. And it has made no new efforts to prevent non-state actors such as terrorists from getting their hands on WMD.

The term WMD generally applies to nuclear, biological, and chemical weapons; ballistic missiles; and, more recently, "dirty bombs," ordinary explosives containing some radioactive material. But this definition is too broad. Chemical weapons are not much more lethal than conventional explosives and hardly deserve the WMD label. Similarly, long-range ballistic missiles are especially destructive only if they have a nuclear or biological warhead, and so should not be considered a separate category. Dirty bombs cause local contamination and costly cleanup but not true mass destruction; they too should be given lower priority. The primary focus of counterproliferation policy, therefore, should be nuclear and biological weapons.

In February, President Bush laid out his proposal for dealing with the spread of WMD. Some of his ideas are useful, but by and large they present piecemeal extensions of long-standing policies. In contrast, a true overhaul of counterproliferation policy would recognize that, like the defence against terrorism, the defence against WMD must be multi-layered and comprehensive. Such reforms would aim to eliminate the threat of nuclear terrorism entirely by denying fissile materials to non-state actors and would prepare to contain the scale of the most likely forms of bioterrorism to minor outbreaks. It would revamp outdated arms control agreements, expand counterproliferation programs in the Pentagon and the Department of Homeland Security, and improve the way intelligence on WMD is collected and analysed. It would favour 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: those emanating from Iran and North Korea.

Seeing in 8-D

The counterproliferation toolbox contains what the Department of Defence (DOD) began calling the "8 D's" during the Clinton administration: dissuasion, disarmament, diplomacy, denial, defusing, deterrence, defences, and destruction. Because the dynamics driving proliferation in different countries vary, no single tool is appropriate or sufficient for every case. The stakes are so high that doctrines relying on one tool to the exclusion of others are foolhardy. A sensible policy must use them all.

A crucial but under-appreciated element of a successful policy is getting as many countries as possible not to develop WMD in the first place. The United States has dissuaded Germany, Japan, South Korea, Taiwan, and Turkey from going nuclear by forging stable alliances that offer these countries better security than they could achieve through unconventional weapons programs of their own. A peaceful and just world order led by the United States is the reason why only a few of the world's nearly 200 nations are proliferation "rogues." Providing security in exchange for nonproliferation is something the United States has been doing right and should keep doing right.

The benefits of these long-term bargains are also a reason to avoid so-called "coalitions of the willing." Short-term coalitions do not serve U.S. interests as well as stable partnerships. Alliance partners train to operate with U.S. forces for years, so when they go to war they are not only willing, but able to contribute to combined operations. Their militaries routinely exchange threat assessments, making them more likely to share U.S. views on when the use of force is necessary. And because they can rely on the United States for their security, such countries are unlikely to adopt drastic, unilateral defensive measures such as the acquisition of WMD. For all these reasons, in the future, the United States should regard coalitions of the willing as a desperate fallback, not a preferred vehicle for U.S. leadership. Other states have forgone WMD under disarmament agreements such as the Nonproliferation Treaty (NPT). Under these arrangements, countries agree to renounce acquiring weapons if other signatories do so as well. If existing disarmament regimes could be strengthened so as to offer credible protection for the countries that comply with them, they too could continue to play a vital role in counterproliferation.

When dissuasion and disarmament fail, American diplomacy can sometimes keep a nation from heading down the road to acquiring WMD. Recent decades offer many examples of successful counterproliferation diplomacy under a variety of circumstances: Belarus, Kazakhstan, and Ukraine after the collapse of the Soviet Union; Argentina, Brazil, and South Africa in the 1990s; and perhaps Libya this year (although the depth of Muammar al-Qaddafi's conversion remains to be seen). The Bush administration professes to be engaged in such diplomacy now with Iran and North Korea, but it has not yet presented either country with strong incentives to comply. Predictably, in the absence of significant benefits for stopping their programs or significant costs for continuing them, both countries have chosen to proceed.

Of course, some potential proliferators simply cannot be persuaded to turn back, making them candidates for denial of the necessary means. Measures such as the enforcement of stricter 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 remnants of the Soviet Union's WMD arsenal can help block some countries' WMD ambitions.

If proliferation occurs despite all the efforts to prevent it, a new set of tools comes into play. The dangers of accidental or unauthorized use of WMD in times of crisis can be defused by eliminating hair-trigger alert postures and putting special locks on nuclear weapons. Deliberate attack can be deterred by the threat of overwhelming retaliation, at least where rational, self-interested opponents are involved. Defences ranging from chemical suits, inhalation masks, and vaccines to ballistic missile defences, such as those being deployed today in Alaska and California, offer some protection when deterrence fails. Finally, in cases in which the use of WMD appears imminent, the precautionary destruction of weapons-what the Bush administration has popularised as "pre-emption"-can be a necessary last resort.

No single one of these tools holds the key to protection against WMD, nor do they represent alternative and competing "doctrines" for dealing with the problem. In fact, they complement and reinforce each other, and true counterproliferation hawks should be interested in strengthening each of the 8 D's and deploying all of them as necessary.

Eradicating WMD terrorism

The worst potential WMD problem is nuclear terrorism, because it combines the unparalleled destructive power of nuclear weapons with the apocalyptic motivations of terrorists against which deterrence, let alone dissuasion or diplomacy, is likely to be ineffective. Luckily, however, eliminating this danger is a realistic goal. To make a nuclear weapon, terrorists must get fissile materials, either plutonium or enriched uranium. But these materials do not occur in nature, and because they require building and operating uranium enrichment facilities or plutonium production reactors and reprocessing facilities, making them will remain beyond the reach of even large and well-organized terrorist groups for the foreseeable future. Therefore, terrorists must obtain fissile materials from governments, and relatively few governments have made such materials thus far.

If terrorists could somehow get fissile materials, however, there would be little hope of relieving civilization from the prospect that any city, anywhere, could suddenly disappear in a poisonous radioactive cloud. There is no "secret" to the atomic bomb anymore; scientists have little doubt that even a moderately organized terrorist group could fashion a crude bomb if it had the material to do so. Because nuclear devices are small and hard to detect with radiation monitors, moreover, they would be exceedingly difficult to find were terrorists to try smuggling them into the United States. And unlike biological weapons, nuclear weapons have a deadly finality: one cannot get vaccinated against a nuclear fireball or take antibiotics against fallout.

Nuclear terrorism, accordingly, must be stopped at the source, and the formula for doing so is simple and clear. As John Kerry recently put it, "No material. No bomb. No nuclear terrorism." That means taking three steps. First, ensure that all governments that have plutonium and highly enriched uranium lock them up securely so they cannot be sold to, seized by, or diverted to terrorists. Second, ensure that no more bomb materials are made. And third, destroy excess stocks of these materials whenever and wherever possible. These are worthy tasks for U.S. global leadership.

The first step would be to lock up every existing lump of fissile material anywhere in the world and treat it as if it were already a bomb. The United States should take the lead in devising and promulgating universal standards for the safe custody of nuclear materials, applicable to all governments whether they are parties to the NPT or not, and establish appropriate measures for monitoring and enforcement. Every government that has nuclear weapons or reprocesses plutonium as part of its long-term energy policy should be expected to give the

world reasonable assurances that its materials are safe from both seizure by outsiders and diversion by wayward insiders.

The United States should assist all governments to meet those standards through a dramatic expansion of the Nunn-Lugar programs of the Departments of Defence, State, and Energy. The United States missed a major opportunity to transform Nunn-Lugar after the September 11 attacks, while it had the attention and sympathies of the world. But it is not too late.

A reinvigorated Nunn-Lugar program should begin in Russia, where 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 U.S. president, and he should make doing so a top priority. But that will require devoting greater funding to the effort and overcoming congressional restrictions and Russian hypersensitivity.

An expanded Nunn-Lugar effort should also aim to sequester all significant caches of highly enriched uranium used in research reactors worldwide, which sometimes double as "sleeper cells" of nuclear terrorism. It should offer Pakistan the same kind of assistance as Russia and draw up plans for the complete and verifiable elimination of WMD programs in Iraq and Libya now and in Iran and North Korea as soon as circumstances permit.

The second step should be to stop adding to the world's stock of fissile materials, by preventing additional governments, especially those hostile to the United States, from making plutonium or enriching uranium. This will require establishing a clear U.S. strategy-diplomatic at first, but coercive if necessary-for the complete and verifiable elimination of Iran's and North Korea's nuclear programs. The United States should also seek agreement that no more fissile material for weapons purposes will be produced anywhere, including in 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 weapons-grade uranium fuel.

The third and final step would be to reduce, wherever possible, existing stocks of weapons materials. The long-stalled "blending down" of Russian bomb-grade uranium to reactor fuel and the disposition of excess plutonium, for example, should be accelerated.

Bioterrorism presents a completely different challenge. It cannot be eradicated, but it can be contained. Unlike nuclear weapons, biological weapons contain no single critical ingredient that can be sequestered, and the technology to breed pathogens and turn them into weapons is widespread in both the scientific community and in industry. The underlying science of biological weapons is progressing rapidly, multiplying opportunities to manipulate organisms for good or ill. Tomorrow's biological weapons may well feature engineered pathogens not found in nature.

Still, the president could take steps to contain the danger of bioterrorism so any attempt would end in the would-be mass terrorist's utter failure. Since it would take days for victims of a biological attack to sicken, a quick and effective public health response, together with advance stockpiling of medications and selective immunization, would dramatically reduce the impact of a bioattack. A reasonable goal for the president would be to ensure that professionals in the Department of Health and Human Services could certify that the nation is immune to mass destruction by today's common bioagents.

Ancient regimes

Much can also be done to strengthen the multilateral regimes intended to curb the use or production of WMD. 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 even without the agreement. This critique is wrong for two reasons.

First, with regard to proliferation, the world does not divide neatly into good guys and bad guys. There is a substantial "in between" category of countries that could be tempted to acquire WMD but might be coaxed out of it. Belarus, Kazakhstan, and Ukraine chose to forsake the nuclear weapons they inherited from the Soviet Union, for example; Argentina and Brazil mutually agreed to give up their nuclear programs; South Korea and Taiwan preferred U.S. protection over developing their own arsenals; and South Africa, after it changed regimes, lost its sense of external threat and its need to protect itself with WMD. Gaining greater international acceptance by signing the NPT and abandoning their nuclear ambitions was a key factor in all of these countries' decisions.

Second, even if bad guys disregard the NPT, such agreements are useful, albeit indirectly. If it became necessary for Washington to lead action against a rogue, the international consensus embodied by the NPT would help the United States marshal the support of other nations.

Even though the NPT has considerable value in its current form, its provisions can and should be strengthened. One of its vexing weaknesses, which dates to the era when the treaty was negotiated, is the concept of the "peaceful atom," which allows states to produce certain nuclear materials for peaceful ends. The NPT permits all signatories to enrich uranium (in order to make fuel for power reactors) and reprocess plutonium (an inevitable byproduct in "spent" fuel removed from the reactor after it is used up), provided they declare what they are doing and submit to periodic inspections.

This is problematic, however, because under the guise of a peaceful power reactor program a nation can come very close to having a bomb. All the owner of a complete fuel cycle needs to do to make weapons in short order is withdraw from the NPT, kick out inspectors, and turn enriched uranium or plutonium into bombs. Both Iran and North Korea have sought to exploit this situation. In an age of terrorism, the creation of new fissile material, in any guise, poses a lasting danger.

To plug this loophole, the United States should champion a revision of the peaceful atom concept, encouraging nuclear power where it is needed but opposing any new nations from operating enrichment or reprocessing facilities. In return, the nations where such facilities exist would offer reliable fuel services (provision of enriched fuel and disposition of spent fuel) at reasonable prices to all nations that wish to use nuclear reactors for electrical power generation and that forgo their own complete fuel cycle. Other steps to strengthen the NPT could include stiffening inspection and enforcement provisions and making withdrawal from the treaty an automatic trigger for international action.

The Pentagon's role

In the 1990s, the term "counterproliferation" was used in the Pentagon to signify that contending with WMD was an important mission in the post-Cold War world. Nuclear retaliation for use of WMD against U.S. troops was always understood to be an option, but not an attractive one, since it was not clear that all potential opponents could be deterred. If they proved not to be, presidents deserved a better menu of responses. Various programs were thus

created to develop non-nuclear counters to WMD on the battlefield, including 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 defences such as ballistic missile defence.

Over time, these programs were expanded to include the protection of rear areas, such as ports and airfields in the theater of war, against chemical and biological attack. Subsequently, these technologies were recognized as useful to the protection of the U.S. homeland from WMD attack. Thus, by September 11, DOD was recognized as the lead agency in the federal government for developing and fielding technology for countering WMD.

Today, the Pentagon is quite rightly devoting a portion of its growing budget to "transforming" the military to anticipate future threats and develop dramatically new technologies. But the core of the effort remains long-range precision strike, close integration of intelligence information with operations, and closer collaboration among Army, Navy, and Air Force units. These are worthy goals for conventional warfare, but they have not been matched by any comparable counter-WMD effort, with the sole exception of missile defence. Counterproliferation programs at DOD remain small and scattered throughout the department.

Missile defence spending now reaches about \$10 billion per year, but the other counterproliferation programs amount to only a few billion dollars out of the \$420 billion defence budget—far too small a fraction given the importance of the mission. (Likewise, WMD-related projects get only a fraction of the new homeland security agencies' \$40 billion budget, even though WMD are the homeland's greatest threat.)

Another important question for counterproliferation is whether Washington's own nuclear policy influences the spread of WMD elsewhere in the world. On the one hand, it is entirely unlikely that Pyongyang's or Tehran's calculations, let alone al Qaeda's, hinge on whether the United States has 6,000, 3,500, or 2,200 deployed strategic weapons (the numbers permitted under the last three rounds of U.S.-Russian nuclear arms agreements), retains tactical nuclear weapons deployed in Europe, forswears nuclear retaliation for chemical or biological weapons use, or develops new types of nuclear weapons.

On the other hand, it would be easier to counter the WMD ambitions of Iran and North Korea with international support, and defeating al Qaeda absolutely depends on foreign governments' cooperation in intelligence and law enforcement. To the extent that international support for these U.S.-led efforts is influenced by U.S. nuclear policy, therefore, a growing reliance by Washington on nuclear weapons for its security would complicate its efforts to marshal international cooperation against WMD terrorism and overhaul nuclear arms control regimes. Moreover, the decisions of in-between states are probably strongly shaped by their perception of the nuclear "order" that the United States represents and leads, partly by example.

U.S. nuclear weapons are a deterrent against the use of WMD by others, of course, and a means of destroying WMD preemptively. But the United States has another effective tool of deterrence and destruction: its unmatched conventional military power. (Terrorists, for their part, are unlikely to be deterred by any threats of punishment at all.) So Washington should carefully weigh the marginal benefits of new nuclear capabilities for deterrence and destruction against their diplomatic cost to the overall counterproliferation effort.

Washington's recent efforts to explore a new type of earth-penetrating nuclear warhead, ostensibly to destroy deeply buried WMD facilities, for example, are ill advised. The military rationale for this move is weak, since locating such targets would be very difficult in the first

place, the United States already has earth-penetrating nuclear weapons, and the costs of crossing the nuclear threshold would be high.

Instead, DOD should seek to widen the already huge gap between its conventional military capabilities and those of other nations, develop better non-nuclear counters to WMD, and use transformational technology to narrow the range of circumstances in which the United States would resort to nuclear weapons. With such an approach, nuclear weapons would play an enduring but background role as a deterrent of last resort.

Overhauling intelligence

In the course of his work on ballistic missile proliferation in the 1990s, Donald Rumsfeld became convinced that in most cases intelligence on WMD programs is likely to be inadequate. Given the stakes, he concluded, the United States must assume the worst in formulating its counterproliferation policies. This logic, encapsulated in the maxim that the "absence of evidence is not evidence of absence," drove the Rumsfeld Commission report that paved the way for the Bush administration's national missile defence program. Intelligence about when an intercontinental ballistic missile threat might originate in Iran or North Korea was uncertain enough, the thinking ran, that the United States would be imprudent to rely on a missile defence that would not be ready for deployment for a few years (the Clinton administration policy). Rather, it needed one immediately. The need to act urgently against WMD, even on the basis of scanty evidence, lay behind the case for preemptive war in Iraq.

It would obviously be preferable to avoid such worst-case calculations again. But they cannot be dismissed out of hand, since WMD activities are inherently difficult to monitor. It is comparatively easy to keep tabs on the size and disposition of armies, the numbers and types of conventional weaponry such as tanks and aircraft, and even the operational doctrines and plans of military establishments (since these generally need to be rehearsed to be effective). By their nature, in contrast, WMD concentrate destructive power in small packages and tight groups. Chemical and especially biological weapons can be manufactured in small-scale facilities. And although plutonium-based nuclear weapons require large and relatively conspicuous reactors and reprocessing facilities, uranium-based weapons can be produced in modest facilities that lack distinctive external features.

A crucial question, therefore, is whether adequate intelligence is likely to be available to make counterproliferation efforts effective. If the spread of WMD is by nature simply too difficult to monitor, then the world is doomed to a perpetual state of panic. But it bears remembering that the uncertainties of the 1950s, an era with comparable fears of a "missile gap," were largely dispelled by the invention of satellite reconnaissance. Emerging intelligence technologies might help improve the current situation as well.

Cutting-edge forensics, for example, can analyse material samples for traces of suspicious chemicals, biological material, or radionuclides. The samples can be obtained from air-sniffing planes or by plucking a leaf from a bush or wiping a handkerchief across a countertop. From a distance, a laser light shined on the plume of a smokestack might even reveal something about the plume's composition and thus the activities underway within the building. Tiny unattended ground sensors can be placed by hand or dropped covertly from unmanned aerial vehicles into suspicious locales; they can be networked with cell-phone technology and even made mobile by attaching them to robots, animals, or birds.

"Tagging," the covert placement of identifying features, transmitters, or chemical markers on objects destined for WMD facilities, can also help monitor suspect programs. And a revolution is underway in close-in signals intelligence, which may help penetrate and exploit a

WMD program's cell phones, laptop computers, local area networks, and other information infrastructure. Information from these specialized WMD-specific techniques can be combined with the usual types of intelligence from intercepted communications, defectors, and the occasional spy.

Nevertheless, no technology in the offing holds the promise of lifting the veil of WMD activities as completely as satellite photography did for the Soviet Union's nuclear missile and bomber programs. Accurate intelligence on WMD thus needs to be enhanced by three additional ingredients, one a matter of international policy and two matters of intelligence community management.

The first, paradoxically, is active cooperation by the parties under surveillance. Just as the Soviet Union eventually accepted satellite overflight of its territory, so too will potential proliferators have to allow greater access to their territory, facilities, and scientists. At a minimum, governments that wish to avoid suspicion-and thus coercion or even preemptive attack-will need to allow the kind of access promised to UN inspectors in Iraq in the winter of 2002-3, including the right to inspect facilities by surprise, take material samples for forensic analysis, and install monitoring equipment. This must be complemented by data declarations, document searches, and interviews of scientists.

These are tall orders, of course, since they involve compromises of sovereignty and legitimate military secrecy for the nations inspected and rely on these governments' cooperation. But they are the only way North Korea's WMD ambitions will be verifiably eliminated, for example, or Iran's nuclear power activities fully safeguarded. At the same time, moreover, there must be a shift of the burden of proof from the international community to the party under suspicion. For a cooperative inspection system to succeed, it must be the responsibility of the inspected party to dispel-not the responsibility of the United States or the international community to prove-concerns that dangerous WMD activities are underway.

The other two ingredients of better WMD intelligence require changes in Washington. Since proliferation is essentially a scientific activity, the intelligence community needs to increase the size and technical training of its workforce. Because intelligence agencies have difficulty recruiting and retaining top talent with more lucrative prospects in private industry, they need to forge better links with the outside scientific community so that advice and insight are "on call." This availability would have the additional benefit of aiding collection, since an essential "open" source of proliferation intelligence comes from monitoring scientific literature, the training and movement of foreign scientists, and commerce in scientific equipment.

Finally, a closer link between intelligence and action always spurs improvements in both collection and analysis. Since September 11, the counterterrorism intelligence effort has moved from producing papers characterizing terrorist groups to supporting operations to interdict terrorists. By all accounts, the intelligence community has risen to the challenge of producing "actionable" intelligence on terrorists. Similarly, an overhauled U.S. counterproliferation program based on the 8 D's will stimulate the intelligence community to focus on the problem of producing solid intelligence on WMD.

A comprehensive and aggressive effort to improve counterproliferation intelligence can start to make headway, but only if the president decides to make it a top priority. Americans regret that their government did not overhaul its counterterrorism capabilities years before the September 11 attacks, neglecting reforms that seemed tragically obvious after the World Trade Centre was destroyed. Now, U.S. counterproliferation programs need an overhaul. It will be unforgivable if that too has to wait until after another catastrophe.