PREVENTIVE WAR AND ITS ALTERNATIVES: THE LESSONS OF HISTORY

Dan Reiter

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FOREWORD

The 2002 National Security Strategy suggested preventive attacks, diplomacy, deterrence, and other policies as means of curtailing threats presented by the spread of nuclear, biological, and chemical (NBC) weapons to terrorists and rogue states. Dr. Dan Reiter, the author of this External Research Associates Paper, analyzes which mix of these policies might best and most cost-effectively address the NBC threat, with special focus on preventive attacks. The past performances of preventive attacks, diplomacy, deterrence, and other policies as means of curtailing the NBC threat are analyzed.

The author's central findings are that preventive attacks are generally unsuccessful at delaying the spread of NBC weapons; that deterrence, especially nuclear deterrence, is highly successful at preventing the use of NBC weapons by states; and that diplomacy has had moderate and perhaps unappreciated success at curtailing the spread of NBC weapons. The monograph also discusses how funds spent on preventive wars, which are much more expensive than diplomacy or deterrence, might be better spent to combat threats from terrorism and proliferation through such initiatives as fissile material recovery, ballistic missile defense, and port security.

The Strategic Studies Institute is pleased to publish this report as a contribution to the debate of this vital issue.

DOUGLAS C. LOVELACE, JR.
Director
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BIOGRAPHICAL SKETCH OF THE AUTHOR

DAN REITER is a Professor of Political Science at Emory University and has been an Olin post-doctoral fellow in security studies at Harvard University. He has authored or coauthored two books, *Crucible of Beliefs: Learning, Alliances, and World Wars* and *Democracies at War*. He has published more than 20 scholarly articles on a variety of topics, including the causes of war, the democratic peace, NATO expansion, international alliance formation, statistical methodology, nuclear proliferation, air power, public opinion, war outcomes, learning and foreign policy, military strategy, and others. In 2002, he received the Karl Deutsch Award, given annually by the International Studies Association to the scholar under age 40 or within 10 years of receiving the dissertation who has made the most significant contribution to the study of international relations and peace research. Dr. Reiter received his Ph.D. in political science from the University of Michigan in 1994.

SUMMARY

The 2002 National Security Strategy (NSS) describes several policy tools available to curtail threats from nuclear, biological, and chemical (NBC) weapons, including diplomacy, deterrence, preventive attacks against NBC programs, and others. This monograph asks the question: What mix of these policies best addresses the NBC threat posed by rogue leaders and terrorists? This question must be asked because the NBC threat remains, and because financial and other constraints prevent the pursuit of all policy choices simultaneously.

The central findings are that, while some of the NSS recommendations are sound, preventive wars are not attractive policy options for addressing NBC threats. Examination of the historical record reveals that limited strikes on NBC programs are generally ineffective. Larger-scale attacks intended to overthrow a regime are sometimes successful, though their financial, human, military, and geopolitical costs (including counterproductive effects on the war on terrorism) are so substantial that they are unattractive policy choices. The financial costs are especially disturbing, given the hundreds of billions spent on regime change attacks which could more effectively be spent on other counterproliferation and counterterrorism initiatives, including ballistic missile defense, fissile material recovery, and a variety of counterterrorism initiatives such as port security.

Fortunately, the other elements of the NSS do promise to address the NBC threat effectively. Diplomacy generally has been successful at dissuading many states from acquiring NBC weapons, and persuading others to give up such weapons. Deterrence has been extremely successful at preventing the state use of NBC weapons. Some ballistic missile defense systems are showing promise of addressing short- and medium-range missile threats. Finally, evidence suggests that defensive counterterrorism measures work. The monograph recommends pursuing these policies. Regarding preventive attacks, the NBC threat might be reduced more effectively if the United States offered to make no-invasion pledges to countries such as North Korea in exchange for substantial NBC concessions, rather than considering or threatening the actual launch of such attacks.

PREVENTIVE WAR AND ITS ALTERNATIVES: THE LESSONS OF HISTORY

Introduction.

The official document titled *National Security Strategy of the United States of America* (NSS) (September 2002) describes nuclear, biological, and chemical (NBC) weapons in the hands of rogue leaders or terrorist groups as among the gravest threats faced by the United States. It lays out four components of American strategy to confront this threat: deterrence and defense, strengthening diplomatic and multilateral efforts, improving abilities to respond to and reduce the effects of the actual use of NBC weapons, and preventive attacks against emerging NBC programs.[1] The last of these has received the greatest attention, as it marks perhaps the largest departure from past approaches and was the conceptual underpinning of the 2003 Iraq War. Some have speculated on the possibility of future preventive attacks against countries such as North Korea or Iran.

This monograph asks the question: What mix of policies best confronts the threat posed by NBC weapons? This question retains critical policy relevance because the NBC threat has not been eliminated. Some might propose that, given the gravity of the threat, the United States should pursue all policies simultaneously. However, each has costs and benefits, and informed policy decisions require a complete assessment of each to ensure the most effective reduction of the threat at the most acceptable cost. Further, budgetary resources are finite, requiring prior analysis of where resources ought to be allocated to reduce the threat as efficiently as possible consisent with effectiveness.

The monograph also offers comparative assessments of a variety of different counterproliferation and counterterrorism policies, with a focus on the most novel component, preventive attacks. Do preventive attacks work? What are their costs and dangers? Do they make the employment of other policy tools more difficult? Are other policy tools equally or more effective at combatting the threats of NBC proliferation and terrorism?

The central conclusion of this monograph is that preventive attacks are generally ineffective, costly, unnecessary, and potentially even counterproductive tools for use in behalf of nonproliferation and counterterrorism. Other policies, including diplomacy, deterrence, ballistic missile defense, and an array of counterterrorism policies are likely to be more effective at containing the spread and use of NBC and less costly in human lives.

The next three sections of this monograph consider preventive attacks, diplomacy, and deterrence, respectively, focusing on their historical records of success and failure. The section that follows these offers some assessments, with a focus on the financial costs of preventive wars and the potential underfunding that such wars may impose on other counterterrorism and nonproliferation initiatives like ballistic missile defense and the recovery of fissile material. The final section concludes that NBC weapons might be more effectively curtailed by offering no-invasion pledges in exchange for substantial NBC concessions, rather than by launching preventive attacks.

Preventive Action against NBC Weapons Threats.

Generally, preventive action means attacking to forestall a rising threat. Political scientists have long considered the phenomenon of preventive attacks, exploring in particular what factors make preventive attacks more likely.[2] Preventive attacks are sometimes conflated with preemptive attacks, though the former are usually thought of as addressing medium- or long-term threats, whereas the latter are usually thought of as addressing immediate threats.[3] Before the September 11, 2001 (9/11), attacks, the United States generally avoided launching preventive or preemptive attacks. The claim of the NSS is that new threats posed by tyrants, terrorists, and other rogue actors armed with tremendously powerful weapons like nuclear warheads make preventive attacks more essential policy options. The Cold War policy of deterrence cannot be counted on to work against these new enemies, given the possibility that they may be stateless and/or suicidal in outlook. Further, even a single use of such destructive weapons against American territory or interests could be catastrophic, further emphasizing the imperative of eliminating such weapons through force before they can be used.

Have past preventive attacks against NBC programs been successful?[4] Specifically, have such attacks substantially delayed the spread of NBC weapons? Though no two opportunities to launch such attacks are exactly the same, examination of past efforts at least can help improve our estimation of whether future attacks against states like Iran, Syria, North Korea, or a fundamentalist Pakistan might succeed.

The past record of preventive attacks against NBC programs is not encouraging. Specifically, two sets of factors have worked to limit the success of such strikes. First, several attacks have been made against targets which were unlikely to acquire NBC weapons. That is, even though attacks may have been operationally successful in the sense of destroying specific targets, the spread of NBC weapons was not significantly delayed by the attack because, even in the absence of the attack, the target state was not close to acquiring NBC weapons. In short, the costs of preventive attacks were borne without reaping the benefits of reducing NBC threats. A series of attacks was launched against the nuclear program of Nazi Germany during World War II, especially against a heavy water production facility in Norway, though scientific and other errors would likely have prevented Germany from ever coming close to building an actual atomic device during the time available.[5] The 1998 missile attacks launched by the Clinton administration against alleged chemical weapons production facilities in Sudan also likely made little difference, considering that the evidence associating the installation in question with chemical weapons production was quite weak.[6] Further, though the 2003 invasion of Iraq was justified publicly as necessary to eliminate Saddam's emerging NBC weapons program, the dictator had no NBC weapons or weapon production programs at the time of the war.[7] Similarly, the 1993 and 1998 cruise missile strikes against Iraqi targets were aimed at a dormant NBC program.

The fundamental problem underlying these episodes is poor intelligence about the status of a target state's NBC programs. Collecting quality intelligence about other states' NBC programs is extremely difficult, since such states obviously place very high priority on keeping the existence and progress of these programs secret. Indeed, beyond the examples mentioned above, the United

States has an underwhelming track record in assessing the NBC programs of other states, sometimes underestimating and sometimes overestimating a state's progress towards acquiring NBC weapons. Though the Allies had some knowledge of Japan's extensive biological warfare program during World War II, they had no knowledge of the developing Japanese nuclear program.[8] In July 1949, the Central Intelligence Agency (CIA) estimated that the Soviet Union would not be able to construct a nuclear weapon until mid-1951, though the first Soviet nuclear test occurred only some weeks later in August 1949.[9] Some debate existed in the intelligence community in the 1980s over possible evidence of a Soviet biological weapons program, but the end of the Cold War brought the shocking revelation of a massive Soviet biological weapons program, undertaken in violation of the 1972 Biological Weapons Convention.[10] Intelligence on the first Chinese nuclear test was a bit better, although estimates prior to the test fluctuated in their predictions; the day before the test, the CIA estimated a Chinese test within 6 to 8 months.[11] The CIA was surprised by the May 1998 series of Indian nuclear tests; 3 months earlier, the national intelligence officer in charge of warning had accepted the conclusion that Indian nuclear tests were not imminent.[12]

Unfortunately, this intelligence problem will likely not be solved anytime soon. A March 2005 White House-commissioned report on NBC intelligence was extremely critical of American intelligence on Iraqi NBC prior to the 2003 Iraq War, noting the thin body of information about potential preventive strike targets such as Iran and North Korea.[13] Greg Thielmann, former head of the Office of Strategic Proliferation and Military Affairs in the State Department's Office of Intelligence and Research, was quite blunt: "The effectiveness of any first-strike military doctrine depends on reliable intelligence. The U.S. intelligence community's inability to produce accurate information on enemy threats renders such a doctrine feckless and reckless."[14]

Some regard the 1981 Israeli attack on the Iraqi Osiraq nuclear reactor as the best example of a successful attack against an NBC program, because it delayed the Iraqi acquisition of a nuclear weapon, preventing Iraq from fashioning one by the time it invaded Kuwait in 1990. However, according to the existing evidence, we cannot claim that the 1981 attack substantially delayed the Iraqi nuclear weapons

program, because, absent the attack, Iraq would not have been close to building a nuclear weapon.

The key contribution of the Osiraq reactor to the Iraqi weapons program would have been to provide plutonium for an Iraqi weapon, but several factors would have prevented Iraq from diverting plutonium from the French-provided reactor. The reactor itself was a light water reactor, not well-designed for plutonium production. Moreover, the French had planned on supplying Caramel fuel, a composite which contained some low enriched uranium permitting reactor operation but not lending itself well to plutonium production. Most importantly, Iraq was a signatory to the Nuclear Non-Proliferation Treaty (NPT), and its reactor was under inspection by International Atomic Energy Agency (IAEA) officials and French technicians. Illicit plutonium activity would have been easy to detect, and such activity would have caused a shutoff in fuel supply and an end to reactor operation.

Including IAEA officials, many weapons experts and scientists have argued that Osiraq would not have provided Iraq with much, if any, fissile material for a bomb. Perhaps most persuasively, a number of Iraqi scientists who worked inside Saddam's bomb program have made the same point. Former Iraqi physicist Imad Khadduri goes so far as to claim that the reactor "was specifically designed to be unsuitable for the production of plutonium for a bomb," and that the possibility of plutonium production at Osiraq was "delusional." Khadduri goes on to state:

> The tight refueling schedule for such an endeavor, which is required to prevent "poisonous" plutonium 238 from developing, would be impossible to hide from the French scientists, who would have been collaborating with us for years, and the IAEA inspectors. Had we even diabolically thought of kicking both out and running the reactor ourselves for such a purpose, the limited fresh fuel that was allowed for us would have aborted any such attempt at the outset. Neither would the unique design of the reactor core for the "Caramel" fuel allow for fuel designs specific for plutonium production.

Former Iraqi scientist Mahdi Obeidi agreed, pointing out that using the Osiraq reactor for weapons production was "a mismatch between idea and reality," and that there were construction problems at

the reactor at the time of the attack which would have introduced operational problems. Jafar Jafar, head of the Iraqi weapons program in the 1980s, also concurred, pointing out technical difficulties at the time, including inadequate equipment to extract plutonium.[15]

Disturbingly, some evidence suggests that the attack may have actually *accelerated* Iraq's nuclear program by causing Saddam to increase his personal and material commitment to it. After the attack, Saddam released from prison Dr. Jafar, a nuclear scientist earlier suspected of opposition activity, and commissioned him to produce a nuclear weapon quickly. At the same time, Saddam multiplied the human and financial resources assigned to the Iraqi nuclear program by a factor of 15-plus.[16]

Thus far, the discussion has focused on intelligence failures undermining the viability of preventive attacks as an attractive policy choice. A second set of factors operating against the success of preventive attacks is the anticipation of the attack by the target. Ever since the Israeli strike, states with NBC programs have been much more aware of the possibility of being the target of a preventive attack. Some states have taken steps to reduce the vulnerability of their NBC programs by hardening facilities, building duplicate facilities, and keeping the existence and location of facilities secret.

These moves can decrease substantially the chances that air and missile attacks against NBC facilities can succeed. Iraq provides one example. After the 1981 attack, the entire Iraqi program went underground, and Saddam ordered the construction of a whole array of secret installations, consulting with the KGB about how to build secret and survivable facilities. In the 1991 Gulf War, the Coalition launched a massive set of airstrikes against Iraqi NBC facilities, including nearly 1,000 air and missile attacks. These were in a narrow sense successful, in that they generally hit their designated targets. However, the attacks did not substantially degrade Iraqi NBC weapons and programs because the extent and locations of the program's elements were unknown, a direct result of Saddam's decision to disperse the program after the 1981 raid. Official U.S. Government analyses after the raid were quite blunt in their assessment of the attacks' failure. A General Accounting Office report declared:

> The goal of eliminating Iraq's NBC capabilities was not even approximated by the air campaign; very substantial NBC capabilities were left untouched. An intelligence failure to identify NBC targets meant that the air campaign hit only a tiny fraction of the nuclear targets and left intact vast chemical and biological weapons stores.[17]

The Gulf War Air Power Survey also was skeptical that the strikes substantially degraded or delayed Iraqi NBC programs.[18] (However, as we shall note in detail later in this monograph, after 1991 Saddam Hussein ended the Iraqi nuclear program and destroyed its chemical weapons stockpile, for which production was never resumed. Also, the biological weapons program was terminated in 1995.)

Evidence suggests that other nations with illegal nuclear programs also got the message, and dispersed and concealed their programs. As early as 1993, the U.S. Air Force opposed air strikes against the North Korean nuclear program because of concerns that important elements of their program may have been unknown to U.S. intelligence. These reservations persisted some 10 years later when concerns about the North Korean program reappeared.[19] Iran has also likely concealed important elements of its nuclear program. A report emerged in June 2005 that North Korea had sent advisers to Iran to help them build underground bunkers in which to hide components of the latter's nuclear weapons program.[20]

The discussion thus far has focused on limited attacks, namely, air and missile strikes against industrial and scientific targets. A different class of preventive attacks, however, aims to stop an NBC program by overthrowing the regime that sponsors it. If military victory is followed by the installation of a stable and peaceful democratic regime that remains engaged with the international community, then such a regime replacement may indeed provide long-term inoculation against pursuit of NBC weapons. The advantage of this approach is that it avoids the intelligence problem of not knowing the location of all NBC production facilities, and it prevents a destroyed program from being rebuilt by a persistent rogue leader. There are some examples of such regime-change attacks. The 2003 Iraq War that overthrew Saddam Hussein is the clearest one, since the primary declared justification for that war was to prevent Iraq from developing NBC weapons. There have been other wars culminating

in regime change in which removing an NBC threat was either a secondary motivation or a serendipitous benefit. Examples include the defeat and transformation of Germany and Japan during World War II (both had nuclear programs, and Japan had a biological weapons program as well), and the overthrow of the Taliban during the 2001 Afghanistan War (some NBC production materials were discovered in Afghanistan after the Taliban's removal).

But the record on attempts to change regimes and/or install enduring democratic institutions through military action, regardless of motives, is mixed. Successes include Germany, Italy, and Japan after World War II, Grenada in 1983, and Panama in 1989. Some failures are post-World War I Weimar Germany and several Latin American interventions, including those in the Dominican Republic between 1915 and 1924, and in Haiti between 1915 and 1934. The critical question for U.S. foreign policy is whether Afghanistan and Iraq can be transformed into stable, peaceful democracies, but it is certainly too soon to tell.

Although the prospect for success with regime-change attacks is uncertain, the costs are considerable. Unlike air and missile attacks, American casualties are unavoidable. The 2003 Iraq operation, which continues today, serves as a useful comparison since regime-change invasions of such states as Iran and North Korea would not be any easier, and likely far more difficult, than the Iraq operation. As of the week ending January 12, 2006, 2,205 American servicemen and women have been killed in theater since the start of combat operations, and the most reasonable projection is that this number will continue to climb during the continued America presence.[21]

Casualties aside, regime-change operations draw off military assets from other priorities. Special Forces units, CIA paramilitary units, and unmanned *Predator* aircraft were drawn away from Afghanistan in 2002 in preparation for the 2003 Iraq War, which in turn undermined American efforts to eliminate al Qaeda from Afghanistan and capture Osama bin Laden.[22] In May 2005, the Chairman of the Joint Chiefs of Staff wrote in a classified report to Congress that the Iraq War had limited the ability of the American military to fight in other conflicts, because of depleting stockpiles of precision weapons, the stress on reserve units, and other factors.[23]

The Iraq War has also reduced the willingness of young American men and women to volunteer for military service. In the fiscal year ending September 30, 2005, the Army missed its recruiting goals, achieving only 84 percent of the enlistment goal for the Reserve, 80 percent for the National Guard, and 92 percent for the active-duty force.[24] These shortfalls, the worst since 1979, are especially disturbing because they come in the wake of significantly greater recruitment efforts, including offering recruits more money, lowering educational standards, putting more recruiters in the field, increasing the advertising budget, and cutting corners by recruiters (including allegations of helping enlistees cheat on aptitude and drug tests, and helping them fake educational credentials) in order to meet individual quotas.[25] Typical of such measures, in October 2005 the percentage of recruits allowed into the Army who score low on the military aptitude tests (Category IV recruits) was doubled from 2 to 4 percent, and the quota for enlistees who lack high school diplomas was increased.[26] Department of Defense (DoD) studies reveal that such low-scoring recruits are more likely to experience discipline problems, and less likely to reenlist.[27] Applications to the Army, Naval, and Air Force academies were also down 9, 20, and 23 percent, respectively, for the classes entering in the summer of 2005.[28] Moreover, the Pentagon in June 2005 unequivocally ruled out a draft, due to performance concerns with conscripts.[29]

These shortfalls are related directly to the war in Iraq. A 2004 Army survey revealed that the source of the problem was physical fear of service there: "In the past, barriers [to enlistment] were about inconvenience or preference for another life choice. Now they have switched to something quite different: fear of death or injury."[30] Parents, a key factor affecting the decisions of young men and women to enlist, are also becoming disenchanted. One DoD survey noted that the percentage of parents who would recommend military service to their children declined from 42 percent in August 2003 to 25 percent in November 2004.[31]

Projecting trends is difficult; some saw bright spots in an upturn in recruitment in the summer of 2005 after it seemed to bottom out in the preceding winter and spring.[32] Others, however, remain concerned about recruitment in the short and medium term. Major

General Michael D. Rochelle, the officer in charge of Army recruiting, declared in May 2005 that 2006 would likely be even more difficult for recruiting, perhaps the worst recruiting year since the initiation of the All-Volunteer force in 1973. Some speculate that this "death spiral" of recruiting may take years to overcome.[33] The implications for combat readiness are direct and negative. In General Rochelle's words, "It means positions in combat units cannot be filled in a timely manner."[34] Indeed, the recruiting shortfall of the late 1990s led the Army to rank one out of five of its combat divisions at the lowest level of combat readiness.[35] These shortfalls also threaten the Army's goal of expansion from 315,000 combat troops to 355,000 combat troops over the next several years.[36]

Regime-change operations are also quite expensive; Congress appropriated $207.5 billion for the Iraq War from 2003 to 2005, with more yet to come.[37] Given that American willingness and ability to spend on measures to combat terrorism and NBC weapons proliferation are not unlimited, we must ask how those funds can be spent most effectively towards accomplishing these goals. We shall return to this issue in subsequent sections.

A final concern about the costs of preventive actions is their potential to stimulate the very thing they were designed to prevent—terrorism. Preventive wars might increase terrorism in four ways: first, the substantial use of force may increase global anti-Americanism, which in turn may increase the motivation of some individuals to join terrorist groups. This has certainly been the case with the 2003 Iraq War; one British Muslim leader in July 2005 claimed the Iraq War served as a "successful recruitment sergeant" for al Qaeda.[38] The CIA reported in 2004 that Hezbollah "would likely react to an attack against it, Syria, or Iran with attacks against U.S. and Israeli targets worldwide."[39] Second, the deployment of U.S. troops abroad may create targets of opportunity for terrorists. The militaries of democracies are tempting targets for terrorists, because democracies are perceived to be highly sensitive to casualties. One study found that most of the 188 instances of suicide terrorism from 1980 to 2001 were launched against targets associated with democratic nations, particularly their militaries, in attempts to eject what were perceived as armies of occupation.[40] Currently, U.S. troops deployed in Iraq and

Afghanistan have served as magnets for international terrorists who see themselves as attempting to oust invading forces. Obviously the lower levels of security in those countries mean that American troops deployed there are more vulnerable than they would be on military bases on American soil. Third, if preventive attacks open the door to insurgency wars, thus providing ready targets for terrorist reprisals, then the preventive attacks in effect generate training opportunities for terrorist organizations. A 2005 CIA report concluded that terrorists recruited by Abu Musab al-Zarqawi are enjoying superior training and preparation in comparison to what was received by individuals serving under Osama bin Laden in Afghanistan. Both this report and a Canadian Intelligence Security Service report anticipate that terrorists training and fighting in Iraq will likely employ their newly developed skills elsewhere.[41] Fourth, even if a military operation does culminate in regime change, the target state may be gripped by chaos and disorder, making it possible for terrorists and rogue elements to seize materials useful for producing NBC weapons. This was the case in Iraq when, from April to May 2003, materials for the construction of NBC weapons and ballistic missiles were looted from dozens of sites around the country.[42]

Diplomacy.

A second major approach to controlling the growth of NBC weapons-based terrorism is diplomacy. This is a mixed bag of actions by national and international entities such as Nuclear Non-Proliferation Treaty (NPT) members, Nuclear Suppliers Group, Missile Technology Control Regime, IAEA, and the United Nations, employing the full gamut of economic, political, and foreign policy tools. Recently, the Bush administration has joined with other nations to enact the Proliferation Security Initiative, which relies on international law and agreements to intercept possible NBC weapons shipments on the high seas and in ports.[43] The United States has long been a supporter of using diplomacy to control the spread of NBC weapons.

A promising diplomatic approach contains several components. Most central is providing incentives for states to avoid acquiring NBC weapons or to give them up if they have them. These incentives can

be positive, such as access to peaceful nuclear technology for states shunning these weapons, or negative, such as economic sanctions for states acquiring weapons. The incentives can be material, such as trade deprivation which attends the imposition of economic sanctions, or nonmaterial, such as conferral of pariah status for violating international norms. Beyond providing incentives, diplomacy also includes the actions of international organizations such as the IAEA to monitor state compliance with nonproliferation commitments. Formal nonproliferation rules and standards give states specific behavioral goals which, when achieved, acknowledge to the world community that they have met international expectations. In the realm of NBC weapons, this enforcement mechanism can be especially important as there are widespread possibilities for the military use of civilian technologies. Specific guidelines allow nations to know exactly what must be done to meet international expectations. The existence of monitoring machinery increases the incentives of states to comply. They know they are more likely to get "credit" (and receive carrots rather than sticks) for obeying nonproliferation norms if an authoritative third party certifies that they have indeed complied with international nonproliferation expectations and standards.

Nonproliferation diplomacy has enjoyed many successes, as well as a small number of disturbing failures. The principal structure of nonproliferation diplomacy is the NPT, signed in 1968. In one view, the NPT has been quite successful; when signed, only five countries had conducted nuclear tests (the United States, Britain, France, China, and the Soviet Union), and over the past 37 years, only two additional states (India and Pakistan) have conducted nuclear tests. Even if one includes the other states which are likely nuclear as of 2005 (Israel and North Korea) and had secret nuclear arsenals in the past (South Africa), the resulting number is still quite small. This is a notable accomplishment, given the expectation in the 1960s that nuclear proliferation was likely to be rapid. In 1963, President Kennedy estimated that by 1970 there would be 10 nuclear powers, growing to 15 to 25 in the 1970s.[44] The Johnson administration came to a similar conclusion in 1965.[45]

Nonproliferation diplomacy has prevented some states from going nuclear and encouraged other states to renounce their nuclear programs. By one count, 21 states (excluding Libya) have

voluntarily abandoned nuclear aspirations or weapons since 1945, many because of the influence of the international community.[46] International pressure pushed South Africa in the early 1990s to reveal and abandon its nuclear program and to join the NPT. Brazil and Argentina abandoned their nuclear programs, joining the NPT in the 1990s. Kazakhstan, Belarus, and Ukraine were all born nuclear when the Soviet Union broke apart in the 1990s, and all three voluntarily abandoned their nuclear arsenals and joined the NPT in response to international incentives. Libya also voluntarily abandoned its NBC programs in 2004, largely in response to international pressure.

Nonproliferation diplomacy has also slowed and reversed the spread of chemical weapons. Numerous nations have signed the 1993 Chemical Weapons Convention (CWC), which requires the disclosure and destruction of chemical weapons. This treaty has helped encourage states to stop constructing new chemical weapons and destroy their old ones. For example, when Albania, a signatory of the CWC, discovered a secret Communist-era cache of chemical weapons, it quickly revealed the discovery and moved immediately to arrange for the weapons' destruction, assisted by $20 million in U.S. aid.[47]

With regard to Iraq, Iran, North Korea, and Pakistan, the effects of nonproliferation diplomacy are more complicated. In each case, nonproliferation diplomacy can be viewed as having had some success and some failure, and should be evaluated in a more nuanced fashion. Importantly, even when diplomacy was not successful, military action itself either failed or would not have proven to be an attractive alternative.

For Iraq, the experience of nonproliferation diplomacy can be broken down into three periods, pre-1981, 1981-91, and post-1991. In the pre-1981 period, Iraq sought to acquire a nuclear weapon, but was closely monitored by the international community. As discussed earlier, France provided a nuclear reactor and reactor fuel which did not lend themselves well to producing fissile materials. Furthermore, the IAEA knew about the Osiraq reactor and monitored it closely. The reactor never became operational, but the critical question is this: Had the Israelis not destroyed it, would the IAEA have been able to monitor the reactor sufficiently to prevent Iraq from producing fissile materials?

Many observers have concluded that the IAEA could have prevented Iraq from using Osiraq to build a nuclear weapon. The likelihood of detection of illegal weapons activity would have been high, both because the production of plutonium would have required a substantial amount of unusual activity and because the presence of hundreds of foreign technicians and inspectors would have been detected by camera surveillance and other means of observation. Had illegal weapons activity been discovered, the reactor would have been shut down, as Iraq depended on the import of reactor fuel from France, which would have ended the export of the fuel under such circumstances. In fact, an American physicist who visited the destroyed reactor in 1983 concluded that weapons activity would likely not have eluded the notice of the international community.[48]

During the 1981-91 period, nonproliferation diplomacy failed in the sense that, although Iraq remained a member of the NPT, it pursued a secret nuclear program unknown to the IAEA. How close Iraq was to producing a nuclear weapon when the Gulf War commenced is disputed, with estimates of the extra time needed ranging from 6 months to several years. Interestingly, nonproliferation diplomacy failed in large part because of the 1981 preventive attack, since Iraq was able to pretend that the attack destroyed its nuclear program while continuing to pursue nuclear weapons in secret. One former Iraqi nuclear scientist remarked, "Israel made a mistake. They destroyed the Osiraq reactor and this relieved Saddam of any problems with the Non-Proliferation Treaty."[49]

During the post-1991 period, Iraq was subject to a series of intensive inspection regimes backed by economic sanctions. The 2004 Duelfer Report concluded that after 1991 Iraq ended its nuclear program, unilaterally destroyed its chemical weapons stockpiles, and did not resume production. Iraq's biological weapons program ended in 1995. These moves were motivated in large part by the desire to get economic sanctions lifted. The report does declare that Saddam hoped to restart Iraq's NBC programs once sanctions were lifted, which leaves open the question of whether there would have been some sort of post-sanctions NBC inspections regime which might have slowed or stopped Saddam's pursuit of NBC weapons. In sum, however, the sanctions/inspection regime of the 1990s succeeded in removing NBC weapons and their production facilities from Iraq.[50]

A second key case and potential failure for NBC diplomacy is North Korea. North Korea signed the NPT in 1985, but did not sign the mandatory inspection agreement until 1992. Immediately after it did so, IAEA inspectors discovered gaps between the projected amount of plutonium produced in its reactor and the actual amount produced. North Korea rejected a more intrusive inspection the following year, at which point the IAEA declared it to be noncompliant with its NPT obligations. The United States considered launching military strikes against North Korea, but in 1994 diplomacy produced the Agreed Framework, in which North Korea agreed, among other things, to adhere to its NPT obligations and readmit IAEA inspectors, in exchange for energy and economic assistance.[51] Military action was considered at the time, though dismissed. Planners were concerned that attacks would not be successful operationally, both because of the possibility of North Korean concealment of facilities, and because North Korea's preference for burying facilities deep underground in narrow valleys limited the effectiveness of even the most advanced bunker-buster in America's arsenal, the GBU-28.[52]

An additional concern was the possibility that even a limited airstrike on North Korean nuclear facilities might escalate to a general and very costly war. One North Korean defector, Cho Myung Chul, had attended high-level North Korean military meetings, and reported a lesson the North Koreans drew from the 1991 Gulf War, namely, that Iraq was not sufficiently aggressive, especially regarding its nonuse of NBC weapons. Cho estimated the chances of a limited attack on nuclear facilities escalating to general war to be about 80 percent.[53] Others, including former Commander-in-Chief of Joint Republic of Korea-U.S. Combined Forces Command General Gary Luck, also feared that a limited attack could escalate to a general war.[54] Such a war could, according to a 1995 estimate, yield up to 100,000 American dead and $100 billion in financial costs.[55] If North Korea were to use some of its several nuclear weapons in a military conflict, these numbers would, of course, be much higher.[56]

Signs emerged in the late 1990s that North Korea was not abiding by the terms of the Agreed Framework. In the spring of 1997, a high-level North Korean defector claimed that North Korea already possessed nuclear weapons. In early 1998, North Korea again refused

to permit IAEA inspectors full access to relevant facilities. In August of that year, American satellite reconnaissance revealed construction near Yongbyon, which experts speculated may have been a nuclear reactor or reprocessing plant.[57] The following March, North Korea permitted American officials to inspect the construction site, revealing only a network of empty tunnels. The Clinton administration declared there was no evidence that North Korea was violating the terms of the Agreed Framework, although this statement met with much criticism.[58]

In a 2002 meeting, the North Koreans seemed to concede that they had maintained a secret uranium enrichment facility, which would be in violation of the Agreed Framework. Soon after, in November, the United States, South Korea, and Japan declared that they were "suspending" oil shipments as laid out in the Agreed Framework, which was followed by the North Korean announcement that they were renewing work on three controversial reactors. Soon after, North Korea removed IAEA seals and surveillance cameras and ejected IAEA inspectors. In January 2003, North Korea formally withdrew from the NPT. Since then, talks between North Korea, the United States, and other nations have followed a start-and-stop pattern, with little progress. Overall, judging the success of the Agreed Framework is difficult. The North Koreans cheated, but some argue that the Agreed Framework provided benefits nonetheless. With the Framework, according to this argument, the North Koreans as of 2002 had only one or two nuclear weapons instead of the 100 or so they might have had without the agreement.[59]

A third case is Iran, also a member of the NPT. Iran has had a peaceful nuclear program for years, with no declaratory weapons capacity. In August 2002, however, an Iranian opposition group announced the existence of two secret government facilities to produce fissile materials, one at Natanz to enrich uranium and one at Arak to produce plutonium; these claims were later confirmed by U.S. intelligence. The IAEA inspected the Natanz facility in February 2003, finding extensive equipment for uranium enrichment, as well as evidence that some enrichment had already taken place. The Iranians also declared that they had another uranium enrichment facility using laser isotope separation, and that they were building a

facility at Isfahan to convert yellowcake (uranium ore) into uranium hexafluoride, the latter being the substance which can be enriched into fissile material. These activities placed Iran in violation of its NPT commitments. Since then, the United States, and more particularly England, France, and Germany, have been in negotiations with Iran over its nuclear program. As of this writing, Iran has refused to renounce its claim to the right to enrich uranium for "research" purposes.[60] As in the case of North Korea, there has been reluctance to pursue military action, both because of concerns that at least some nuclear facilities may be concealed, and because of the possible Iranian reaction to even a limited attack, which may include such steps as increasing its worldwide support of terror and bolstering its resolve to pursue nuclear weapons.[61]

A fourth case is Pakistan. Though Pakistan never signed the NPT, the United States unilaterally employed diplomatic tools, including economic sanctions, in an attempt to dissuade Pakistan from developing a nuclear program. These efforts were successful to the extent that Pakistan refrained from conducting a nuclear test for decades after the 1974 Indian nuclear test. However, Pakistan conducted its first nuclear test in 1998, and there have been recent revelations that Pakistani scientists had been supplying nuclear knowledge and materials to other nuclear aspirant states for years.[62] America's long-standing military, diplomatic, and economic relationship with Pakistan, especially its close cooperation since 2001 in prosecuting the global war on terrorism, has foreclosed consideration of military action against its nuclear facilities.

What does the past record of nonproliferation diplomacy reveal? At the least, nonproliferation diplomacy is successful much of the time, and its economic, human, and diplomatic costs are low. Even apparent failures, such as North Korea, Iraq, and Pakistan, contain successful elements. The 2002 NSS appropriately embraces continuing and expanding current diplomatic efforts.

Should preventive attacks be employed when diplomacy fails? This is the central recommendation of most preventive war advocates; when the United States cannot be confident that diplomacy and inspections are sufficient to prevent a state from acquiring NBC weapons, preventive attacks to destroy production

facilities or overthrow the government should be options. However, preventive attacks are usually not attractive second choices in the face of diplomatic failure. Most critically, the principal factor likely to block successful inspections, the existence of secret facilities, will probably also undermine a limited military strike's chances for success. Indeed, preventive military action did not work or would not have worked for diplomacy's three greatest failures, post-1981 Iraq, North Korea, and Iran, because of the concealment of facilities. Further, the temporary failure of diplomacy does not mean that diplomacy is permanently ineffective. In some cases, the diplomatic option has lured defiant states such as South Africa, Brazil, and Argentina back into the international fold, and even the temporary failure now to prevent states from acquiring weapons does not foreclose the potential for future success. Moreover, the failure of diplomacy does not necessarily entail the actual use of NBC weapons by states or terrorists. Deterrence can help prevent the former, and counterterrorist measures can help prevent the latter. Finally, whether or not it succeeds operationally, the military option means accepting potentially high diplomatic, economic, and human costs.

Deterrence.

Deterrence is the policy of threatening military action in response to some proscribed behavior. Although deterrence—especially nuclear deterrence—was the center of American defense policy during the Cold War, the NSS is critical of the suggestion that Cold War policies of deterrence can be extended to deal with NBC threats in the 21st century. It argues that deterrence is less likely to work against leaders willing to sacrifice their nations in pursuit of aggressive goals, that rogue state leaders might use NBC weapons to undermine the credibility of American retaliatory threats, and that deterrence threats will not work against terrorists, who may accept or even welcome their own deaths.

These criticisms have some merit insofar as deterrence is unlikely to work well in preventing state or terrorist acquisition of NBC weapons or the terrorist use of NBC weapons. However, deterrence is an extremely effective tool in preventing the use of NBC weapons

by states, one of the key threats addressed by the NSS. Since 1945, nuclear-armed defenders have a perfect record of deterring the use of NBC weapons against themselves by other state actors. The United States has intimidated a long string of anti-American, nuclear-armed dictators, including Soviet leaders from Stalin to Gorbachev, Chinese leaders from Mao to Hu Jintao, and North Korea's Kim Jong Il, regarding use of NBC weapons against the United States or its allies. The few uses by states of NBC weapons have been against *non-nuclear* actors, including the Egyptian use of chemical weapons in 1965 during the Yemeni Civil War and Iraqi use of chemical weapons against Iranian targets and Iraqi Kurdish villages during the 1980s.

Notably, deterrence does not prevent all aggression. Nuclear theorists have described the "stability-instability paradox," in which nuclear weapons provide stability and peace at highly intense levels of violence (the use of NBC weapons), but less stability at lower levels of violence because the use of nuclear weapons is not credible against lesser threats.[63] During the Cold War, the American nuclear deterrent did not prevent lower levels of Communist aggression, including intervention in the Third World (e.g., the Cuban intervention in Angola) and within the Communist bloc itself (e.g., the Soviet invasions of Hungary and Czechoslovakia). Furthermore, there are a few instances of nuclear-armed states being attacked with conventional weapons, including the 1969 Sino-Soviet border dispute, the 1982 Falklands invasion by Argentina, and Iraq's 1991 Scud missile attacks on Israel. However, the NSS is not concerned with conventional attacks; American conventional forces are sufficient in quality and quantity to address virtually any conceivable conventional threat, and such threats do not have the catastrophic potential attending NBC use. Our strategy is concerned rather with NBC attacks, and within this area deterrence is extremely effective.

Even with regard to the argument that post-Cold War leaders of rogue states are less deterrable than Cold War adversaries (because rogue state leaders seem more willing to sacrifice their nations then the latter), there may be less difference between these two groups of leaders than is often thought. Just as some now view rogue leaders

as being casualty-insensitive, during the Cold War many had the same view of Communist leaders, though the latter were deterred successfully. Western defense analysts often worried during the Cold War that Soviet leaders would be willing to engage in aggression at the risk of sacrificing millions of their own citizens. After all, in this view, the loss of 25 million Soviet citizens and soldiers during World War II might have made them more willing to accept mass casualties.[64] There were similar fears of Cold War China, driven partly by public statements by Mao Tse-Tung about the acceptability of nuclear war.[65] However, despite these concerns about Communist casualty insensitivity, the United States successfully deterred both the Soviet Union and China from using NBC weapons during the Cold War. Nuclear deterrence helped keep many of the major Cold War crises, including the 1948 Berlin crisis, the 1958-61 Berlin crises, the 1962 Cuban missile crisis, and the 1973 Yom Kippur War, from escalating to war between the superpowers with the concomitant use of NBC or even conventional weapons. The Soviet Union also never attacked any American allies; their only overt acts of aggression, against Hungary in 1956, Czechoslovakia in 1968, and Afghanistan in 1979, were against Soviet allies to prop up or reinstall friendly governments.

Similarly, the United States has for 50 years successfully deterred China from aggression involving an array of American interests in crises ranging from the post-revolution Taiwan invasion scare of 1950 through the Quemoy/Matsu island crises of 1955 and 1958, to the Taiwan Straits missile tests of 1996.[66] Arguably perhaps, the only failure of American nuclear deterrence of China concerns the Chinese decision to intervene in the Korean War in late 1950. However, this event should not lessen our confidence in 21st century nuclear deterrence. The United States had made only vague deterrent threats in 1950, leading Mao to expect that America would not use nuclear weapons in response to the Chinese intervention. Clearer and more credible deterrent threats of nuclear escalation might have worked better then, and would likely work better in the future.

Cold War episodes aside, substantial evidence suggests that rogue states have been deterred since the end of the Cold War. Iraq's August 1990 invasion of Kuwait was probably not a failure of deterrence, because mixed signals sent by American Ambassador

April Glaspie just prior to the invasion did not clearly convey an American intention to intervene. During the war, Iraq did not use chemical or biological weapons against either Coalition forces or Israeli cities (Iraq did attack the latter with conventionally-armed SCUD missiles). Alhough there is little first-hand evidence about Iraqi decisionmaking at this time, many have argued that the threat of Israeli nuclear retaliation deterred Iraq from launching biological or chemical weapons against Israel.[67] American conventional and nuclear forces also prevented Iraq from engaging in any international aggression between 1991 and 2003. In particular, American threats and military deployments forced Iraq to back down during the Kuwait invasion scare of 1994.[68]

Some have argued that Saddam was not deterrable, and that his foreign policy actions from the 1970s forward describe a risk-acceptant leader who frequently ignored information about the likely consequences of his actions and continuously made bad choices.[69] However, the risky, deterrence-defying actions these observers point to fall into one of two categories. Some actions, such as attacking Iraqi Kurds in 1974, invading Iran in 1980, invading Kuwait in 1990, refusing to withdraw from Kuwait in 1991, setting fire to Kuwaiti oil fields, and dispatching hit squads to the United States were actions that did not involve the use of NBC weapons and hence, while outrageous, are actions outside the purview of the NBC threat that is the focus of the NSS. The second category involves the planned use of NBC weapons against Israel or Coalition troops in 1991 in the event of a nuclear attack or a march on Baghdad. These hypothetical possibilities amount to a stronger critique of regime-change invasions than of deterrence failures, because they indicate that a government with its back against the wall and literally nothing to lose may lash out and launch NBC weapons against the United States or its allies. However, if this is the only credible scenario in which deterrence might fail and enemy NBC use becomes a possibility, then the best way to avoid NBC use is to forgo regime change attacks which might put an incumbent regime in this position. Advocates of regime change attacks might argue that the key is to strike before such weapons have been developed, but the intrinsically poor nature of NBC intelligence undermines our confidence that a target state has not yet acquired NBC weapons. Certainly, in 1991 the air and missile

strikes failed to destroy completely Iraq's biological and chemical weapons, and Iraq would have had the capability then to use these weapons against Coalition troops had they marched on Baghdad.

Iraq aside, neither North Korea, Syria, Cuba, Libya, nor Iran has attacked its neighbors since 1990. This absence of aggression can likely be attributed to one of two possible explanations. The first is that these states at least occasionally considered aggression, as Iraq probably did in 1994, but they were deterred from action. This would then be evidence in favor of our relying on deterrence. The second is that these states did not even contemplate interstate aggression over this period. This second explanation suggests that it would be inappropriate to view the past 15 years as evidence of deterrence success, but it would also suggest that fears of the essentially aggressive nature of rogue leaders are likely exaggerated, as are fears that their acquisition of NBC weapons poses fundamental dangers to international order.

In sum, the National Security Strategy's critique of the efficacy of deterrence is off the mark. Deterrence worked during the Cold War, even against anti-American, NBC-armed, tyrannical, casualty-insensitive regimes, and the absence of rogue state aggression after the Cold War is attributable either to successful deterrence or to heretofore underestimated rogue state conservatism in foreign policy. Deterrence since 1945 did not necessarily prevent states from supporting terrorism, cheating on international agreements, or even occasionally launching limited conventional attacks. However, the historical record does demonstrate that deterrence (especially nuclear deterrence) can accomplish the fundamental goal of preventing state-to-state use of NBC weapons, one of the fundamental problems that preventive strikes are intended to solve. Deterrence provides the critical backstop behind diplomacy when negotiations, the IAEA, and sanctions occasionally fail to prevent a state from acquiring NBC weapons.

Choices and Tradeoffs.

The NSS presents an array of different tools to confront the NBC threat. What choices should be made? There is no reason to abandon deterrence. It has essentially no geopolitical and only negligible

financial costs. There is also no reason to abandon nonproliferation diplomacy. Despite the critiques of the NPT, it is essentially cost-free for the United States to pursue these efforts.

Preventive strikes, however, are more controversial and may impose higher costs. Limited strikes in some circumstances may be relatively cheap in terms of American lives or dollars, though, as noted earlier, attacks against North Korea or Iran may have unacceptably high costs. Costs aside, the record of success for limited strikes is quite poor, and future attacks would likely be even more difficult since potential target states now disperse and conceal their facilities in reaction to past attacks.

Some have speculated that just the threat of preventive strikes can make states more compliant with nonproliferation diplomacy. This claim is difficult to square with the rapid progress of the Iranian and North Korean nuclear programs since the threatening declarations of the U.S. strategy in 2002. These (and perhaps other) states got the clear message from our declaratory strategy that they were possible targets of American attack if they *pursued* the acquisition of NBC weapons, but that if they actually acquired them, they would *not* be attacked. In fact, some have now suggested that preventive action against NBC programs might erode the global anti-nuclear norm. The disturbing implication is that the NSS may have undercut diplomatic nonproliferation efforts.[70]

President Bush in his 2004 State of the Union Address claimed that the threat of preventive action was critical in pushing Libya to abandon its NBC programs in late 2003.[71] At this juncture, we do not have sufficient evidence to verify or disprove this claim. However, a number of informed observers, including former Assistant Secretary of State Martin Indyk and former National Security Council member Flynt Everett, believe that international political and economic isolation, specifically the imposition of a series of U.S. sanctions starting in 1979 and UN sanctions in 1992, and not the threat of preventive strikes, were the leading factors in pushing Libya's disarmament. Notably, Libya's reversal did not begin after the NSS declarations or the invasion of Iraq, but rather years earlier after the imposition of sanctions. During the 1990s UN sanctions pressured Libya into turning over suspected terrorists to international authorities and

reducing markedly its support for international terrorism; and in 1999 Libya offered to abandon its chemical weapons program in exchange for the elimination of sanctions.[72] Beyond sanctions, the Libyan decision in late 2003 to disarm may have also been driven by the October 2003 seizure of centrifuges used for uranium enrichment from a ship en route to Libya, under authority of the Proliferation Security Initiative.[73] Advocates of the threat of preventive strikes also must explain why previous military pressure, notably the 1986 air and naval strikes which killed some 93 Libyans including Qaddafi's daughter, had failed to dissuade Libya from either pursuing NBC weapons or supporting terrorist groups.

Thus far, three central components of the 2002 NSS have been discussed, including preventive attacks, diplomacy, and deterrence. What of other means of reducing the NBC threats, including, but not limited to, two other elements of NSS strategy—defense against and preparation to mitigate the effects of NBC attacks against America? Importantly, preventive attacks, especially major attacks intended to overthrow governments, may consume resources which might otherwise be allocated to these essential approaches. Preventive attacks are tremendously expensive, costing hundreds of billions of dollars over just the medium term. The unfortunate reality is that the United States does not have an infinite amount of money to spend. So we must ask the questions: What financial tradeoffs does this amount of spending force us to contemplate? Are those tradeoffs acceptable?

To combat proliferation and terrorism, these resources will be spent more efficiently on priorities other than preventive wars such as the 2003 Iraq War. Currently an array of counterproliferation and counterterrorism priorities exist which are or will be underfunded or unfunded. First, ballistic missile defense (BMD), which includes an array of programs including Ground-Based Midcourse Defense, the Aegis sea-based system, and the Patriot Advanced Capability-3, may face threats to its funding in the future. A March 2005 Government Accountability Office Report found that:

> in the future, MDA [the Missile Defense Agency] will likely face increased funding risks. . . . DoD's acquisition [BMD] programs are likely to be competing for a decreasing share of the total federal budget and MDA's

> programs are competing against hundreds of other DoD programs. . . . Furthermore, procurement and sustainment will demand increased funding as more missile defense components are fielded over time.[74]

BMD may become an increasingly important part of American nonproliferation policy since ballistic missiles present a current national security threat to American interests. Most notably, North Korea and Iran have the capability to attack American allies with ballistic missiles, and, according to the 2001 National Intelligence Estimate, the North Korean *Taepo Dong-2* missile may have at least the theoretical capability to attack anywhere in the North America homeland with ballistic missiles.[75] North Korea has the capability to arm its ballistic missiles with nuclear warheads, according to the April 2005 testimony of the chief of the Defense Intelligence Agency.[76] BMD can provide at least some protection from ballistic missiles. The PAC-3 has demonstrated its effectiveness in both testing and combat conditions, and the Aegis system has had some successes in testing.[77] In short, BMD is an increasingly viable solution to a real threat which will probably present increasingly difficult fiscal demands.

A second priority is securing NBC weapons and related (especially fissile) materials from states willing to dispose of or eliminate them, especially former Soviet states. The 1991 Cooperative Threat Reduction (CTR) Act provides a framework for these initiatives, and has thus far been quite successful, decommissioning more than 6,500 nuclear warheads. Securing these materials is a highly effective means of reducing the risk of nuclear terrorism. The most difficult part of fashioning a nuclear weapon is acquiring the necessary fissile material, and both types of material which can be used at the heart of a nuclear weapon (uranium 235 and plutonium) are in finite supply around the world, and very difficult and expensive to amass.[78] A variety of grant-giving programs have been successful at preventing former Soviet NBC program functionaries from going to work for rogue states' weapons programs.[79] However, the Bush administration has approved only a small increase in spending under the Cooperative Threat Reduction Act from 2005 to 2006, to a little over a billion dollars.[80]

More funds could well be devoted to strengthening these vital efforts. A 2001 Department of Energy report estimated that $30

billion would be needed to secure nuclear materials and know-how in Russia alone, and some estimate that under the current schedule it will take an additional 13 years to secure loose NBC materials in the entire former Soviet Union.[81] An extensive 2004 Harvard report on the threat of nuclear terrorism and policy solutions such as CTR measures concluded that "whether one looks at budgets or at the more critical resource of sustained high-level leadership to overcome the obstacles, it continues to be the case that there is a substantial gap between the scope and urgency of the threat as President Bush himself has described it, and the response of the U.S. government."[82] Expansion of programs aimed at preventing NBC scientists from working for rogue states also is needed.[83]

A third priority is increasing the security of potential targets. Reports indicate that Al Qaeda has been trying to use commercial vessels to attack U.S. ports since at least 1997.[84] A nuclear weapon could arrive in a shipping container, and either be unloaded onto U.S. soil or be detonated before unloading in a port. The Coast Guard estimates that needed improvements in ship and port security will cost in excess of $7.2 billion over the next decade. This contrasts with the relatively meager federal allocation of $46 million spent in 2004, and even the $150 million increase in federal port security grants in 2005.[85] Another area demanding greater attention is emergency preparedness to respond to a possible NBC attack. A 2003 study recommended spending an additional $98 billion over 5 years beyond what had been committed to emergency preparedness at that point.[86] More generally, there is a long list of priority needs for improved security against possible terrorist attack. For example, chemical plants and nuclear power plants require more resources for security and closer attention. Consider, too, that less than a quarter of all U.S. border crossings have sufficient radiation devices to check all entering goods.[87]

Some evidence exists that such defensive measures do work. The terrorist group that attacked a Moscow theater in 2002 had originally targeted the Kurchatov Institute, home of enough enriched uranium to make thousands of nuclear weapons. The high security at Kurchatov, however, induced the terrorists to attack the theater instead, their second-choice target.[88] One systematic study found that installing metal detectors at airports reduced skyjackings, and

that fortifying embassies was similarly effective in reducing attacks. In both cases, however, these defensive measures led to increased terrorism against other types of targets.[89] Defensive measures do not offer a panacea to the problem of terrorism, but increasing security at high-priority targets like nuclear power plants can dissuade terrorists from NBC attacks and move them instead towards other acts which, though deadly, lack the catastrophic potential of attacks performed with nuclear, biological, or chemical agents.

Conclusions.

The 2002 NSS sets forth a number of components of American strategy to address the threats posed by NBC weapons. This monograph has explored what mix of components should be employed to meet these threats. The central conclusion is that, although deterrence, diplomacy, defense, and various counterterrorism options are worth retaining, preventive attacks against NBC programs are generally undesirable. Limited strikes against NBC programs are lower in cost, but are quite unlikely to enjoy success in the medium, long, or even short term because of poor intelligence and enemy measures to decrease the vulnerability of his NBC facilities. Such attacks may also provoke aggressive responses. Larger attacks aimed at changing the regime of an NBC-armed rogue state have a better (though still limited) chance of reducing NBC threats, although they pose tremendous costs, most notably in the form of generating U.S. casualties (thus undermining the viability of a volunteer military), siphoning off military resources from more promising alternatives, and stimulating anti-Americanism, which may in turn increase terrorism.

American resources are better spent on other policy tools which are less costly, less dangerous, and have better chances of success. The American government should continue to support diplomatic efforts to contain the NBC threat through means such as the Nuclear Non-Proliferation Treaty, the Missile Technology Control Regime, the Chemical Weapons Convention, and the Proliferation Security Initiative. Deterrence should continue to be relied upon as a proven means of preventing the use of NBC weapons by states which acquire them. Substantial resources should be spent on other programs

which promise to help contain the threats of NBC terrorism and proliferation, such as recovering fissile materials and improving port security.

Should preventive attacks against NBC programs ever be launched? It is difficult to imagine circumstances in which such attacks would serve the national interest. Concealment makes limited attacks in the future even less likely to succeed, and such attacks against countries such as North Korea and Iran would likely cripple any chance diplomacy might have, increase the target state's motivation to acquire NBC weapons, and perhaps cause the target state to retaliate by supporting terrorism or launching interstate aggression.

Regime change attacks also are unlikely to be attractive. The costs of even successful attacks on countries like Iran and North Korea would be gigantic, while democratization and stabilization would not promise to be any easier than in Afghanistan or Iraq. Indeed, the United States might make more headway in addressing the NBC threat if it considered using as a negotiations bargaining chip a pledge not to invade in exchange for critical concessions. In 1962, President Kennedy promised to remove obsolete missiles in Turkey and not to invade Cuba in exchange for a Soviet commitment not to deploy nuclear missiles in Cuba. The result best served American national security interests by removing a direct NBC threat to the American homeland in exchange for leaving Fidel Castro, a foreign leader who ultimately posed only minor security threats to American interests during the Cold War, in power. Today, North Korea's greatest fear is an invasion by the United States. An American decision to move beyond the current technical state of war and commit not to invade North Korea is one of the very few bargaining chips which might move the North Koreans to make real progress towards verifiable disarmament. Such a promise could be worded specifically so that it does not mean American abandonment of commitments to defend allies like South Korea, does not amount to a commitment not to retaliate or even invade in retaliation in the face of due provocation, and does not abrogate America's right to attack first if threatened by an NBC attack by North Korea. A similar promise might also achieve progress in ongoing negotiations with Iran over its weapons program.

Some might object that the United States needs to maintain maximum flexibility in action, both to allow for the possibility of invasion and to use the prospect of invasion as a club in inducing the other side to make concessions. However, in practice, such flexibility offers few benefits. As we have stressed, such regime change attacks are prohibitively costly, unnecessary, and counterproductive; and the United States loses very little in giving up an essentially bad policy option. The threat of attack also seems to add little in the way of bargaining leverage because potential targets have responded, not by making concessions, but rather by making their production facilities less vulnerable and by steeling their resolve to acquire such weapons as quickly as possible. Ultimately, the United States is likely to make more progress towards its fundamental goal of reducing the NBC threat by offering to forgo preventive attacks rather than threatening to launch them.

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