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STUDIES

US Nuclear Forces: Meeting the Challenge of a Proliferated World

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This report seeks to provide the basis for an informed and constructive debate over the role of nuclear weapons in the overall US defense posture. To this end, the principal focus is on identifying the existing and emerging security environment as it pertains to nuclear weapons. The report also offers some recommendations on how the United States might best respond to the challenges posed by nuclear proliferation, and, hopefully, create a more secure global environment.

During the early days of the Cold War, an enormous amount of thought was given to the role of nuclear weapons in the overall US defense posture. The reason for this is simple: nuclear weapons were so destructive that they fundamentally altered the competitive environment. Indeed, for several decades substantial intellectual effort was devoted to understanding the US-Soviet nuclear competition, which was a defining feature of the Cold War security environment. With the Cold War's end, nuclear weapons proliferation has become an increasingly important issue; yet there has been comparatively little analysis of the kind that characterized the early Cold War period. Moreover, the main intellectual response to this growing danger to US security has been a renewed call for the eventual abolition of nuclear weapons. However, just as the nation's national security leaders at the dawn of the nuclear era had to contemplate a less-than-ideal outcome of their efforts (i.e., a Soviet Union armed with large numbers of nuclear weapons, including thermonuclear weapons), so too must current senior national security planners take into account a world in which they fail to achieve their policy objectives.

Efforts to Stem Proliferation

The United States tested its first thermonuclear weapon in 1952, and the Soviet Union followed suit in November 1955. Great Britain tested its first hydrogen bomb in 1958, while France tested its first atomic device in 1960, followed by China in 1964. Although the United States and the Soviet Union were bitter rivals, they did agree that the further spread of nuclear weapons should be avoided. With that in mind, both supported the 1968 Treaty on the Non-Proliferation of Nuclear Weapons, often referred to as the Non-Proliferation Treaty, or NPT. Since the NPT entered into force, the rate of proliferation has slowed. Yet by the end of the Cold War, India had exploded a "peaceful" nuclear weapon. And although it had not tested a bomb, Israel was widely believed to have a substantial nuclear stockpile numbering one to two hundred weapons, including both fission and fusion bombs. Still, the more widely proliferated world that worried President Kennedy had not materialized. In short, the NPT had by all appearances proven to be remarkably effective in limiting nuclear proliferation during the Cold War. However, with the dramatic shift in the geopolitical environment following the Cold War, the nonproliferation regime began to show significant cracks, to the point where today some question its relevance.

According to some analysts, the end of the Cold War ushered in a "Second Nuclear Age" characterized by the further spread of nuclear weapons to nations in Asia and fears that non-state actors might acquire these weapons as well. A key US post-Cold War counter-proliferation objective centered on keeping North Korea from acquiring nuclear weapons. Talks failed to prevent Pyongyang from conducting an underground nuclear explosion in October 2006, making it the eighth confirmed nuclear-armed state. North Korea is now believed to have extracted and processed enough weapons-grade plutonium to build between six and eight nuclear fission bombs. Iran's efforts to develop a nuclear capability and perhaps nuclear weapons have also proceeded apace. Despite Tehran's repeated assurances that its nuclear program is entirely for peaceful purposes, the facts argue strongly that this may not be the case.

A Second Nuclear Regime

To sum up, since 1998 the world has witnessed the progressive nuclearization of Asia as India, Pakistan and North Korea have joined China, Israel and Russia as members of the continent's nuclear-armed club, while Iran continues its worrisome nuclear activities. To make matters worse, several nuclear states — North Korea and Pakistan in particular — are relatively unstable. Adding to the complexity of the situation, both of these nuclear powers (as well as Iran and Syria) have links to terrorist groups that are well aware of the potentially devastating effects of nuclear weapons and other weapons of mass destruction, and are actively seeking to acquire them.

Four of the five declared nuclear powers during the First Nuclear Regime, which extended from 1945 to roughly the end of the Cold War, were part of the Western world. The Second Nuclear Regime, which succeeded it, finds proliferation moving from a world dominated by advanced industrial powers centered in Europe and America to Third World Asian states (i.e., India, Pakistan, North Korea), with more Asian states (i.e., Iran, Algeria, Egypt, Saudi Arabia and Syria) poised to follow. Thus in coming to grips with an n-player competition, it will be essential to develop an understanding of the way in which the leaders of very different cultures (e.g. Hindu, Muslim) view nuclear weapons. To date the United States has not devoted anything approaching the level of intellectual effort to this matter that it did to understanding Soviet views on nuclear forces during the Cold War. Such an effort is necessary if US strategy with respect to nuclear forces is to shape the actions of other nuclear powers, to include deterring their use. Furthermore, in a multipolar nuclear world there is the prospect that defenses fielded to address the threat may affect the calculations of other rivals in undesirable ways. These second-order effects are likely to be far more pervasive, and more significant, than was the case during the First Nuclear Regime.

The US military's fielding of what is viewed by some expert observers as a nonnuclear strategic strike capability has blurred the distinction between nuclear and non-nuclear weapons. The special status that nuclear weapons have traditionally held may be further compromised with the development of cyber weapons, which are capable of disabling, quickly and (arguably) reliably, certain kinds of strategic targets. Yet while these weapons complicate thinking about strategic strike operations and the role of nuclear weapons, neither of them can, individually or in combination, displace nuclear weapons' capacity to create destruction and loss of life on a massive scale with a single, highly deliverable package. In a world where technology is displacing so much of what came before, including weapons of war, nuclear weapons will continue to cast a long shadow over humankind for the indefinite future.

It may be that deterrence, the cornerstone of US nuclear strategy during the First Nuclear Regime, will retain its importance in a more proliferated world. On the other hand, deterrence is based, to a significant extent, on the premise that it is possible to identify the source of an attack, a condition that may be increasingly difficult to meet. Deterrence also assumes an understanding of a rival's sense of costs and benefits, and what he fears. This assumption may not prove out in the case of newly armed nuclear powers. It may be that some of the new nuclear-armed states do not calculate costs and benefits in a manner similar to that of the United States. They may be driven by other factors as well — domestic instability, historical rivalries, poverty, etc. — any of which could make their views on the utility of nuclear weapons significantly, and perhaps markedly, different from those of US policy makers. In short, deterrence could play a much reduced role in a proliferated world, while the prospect of nuclear use, defenses against nuclear attack, war termination strategies, and post-war considerations assume greater importance in defense strategy and planning.

The Second Nuclear Regime emerged thanks in no small measure to the existence of a market for nuclear weapons technology. Early in the First Nuclear Regime, technology was acquired, to a great extent, by theft, typically through the efforts of spies, or by willing transfer. While it appears that neither weapons-grade fissile material nor nuclear weapons themselves have been transferred from one country to another, there are concerns that such a direct market for nuclear weapons could be established, especially given the character of the North Korean regime and Iran's apparent drive to become a nuclear-capable (if not nuclear-armed) state. Potentially of even greater concern is the prospect that Saudi Arabia may seek nuclear weapons should Iran become a nuclear power. Given their country's central role as an exporter of oil to the global economy, should the Saudis choose to purchase a nuclear arsenal it may be difficult for the United States, or other countries, to impose economic sanctions against it, let alone attempt to reverse the act through the use of force. Should such a situation obtain, it could pave the way for an open, and greatly expanded, nuclear arms market, to include the transfer of nuclear weapons themselves.

The Logic of Zero?

While “ban the bomb” movements are almost as old as nuclear weapons themselves, the current movement toward eliminating all nuclear weapons has attracted support across the political spectrum. By far the most influential presentation of this view has been advanced by Henry Kissinger, Sam Nunn, William Perry and George Shultz, highly regarded senior statesmen from both political parties. The “Four Horsemen of the Apocalypse,” as they have been called, argue that the world is at a “nuclear tipping point” in which “nuclear weapons [are] more widely available, [and] deterrence decreasingly effective and increasingly hazardous.” It is easy to understand why the “logic of zero” nuclear weapons, as some refer to it, is so compelling. But is it possible to fashion a world without nuclear weapons? Simply stated, nuclear weapons confer a strong security guarantee. Inducing states either to forego their acquisition or to give them up requires providing states with an alternative guarantee of equal or greater value than the guarantee provided by a nuclear arsenal. This is especially true in the case of states with inferior conventional militaries. Those advocating a shift to a world without nuclear weapons would have to address two key questions: where would such a guarantee come from, and why would it be credible?

It may be that the only practical way to bring about global nuclear disarmament and realize the benefits in terms of reduced military expenditures and enhanced prospects for world peace is to establish some form of global government or global hegemonic power. However, establishing a global government seems unlikely, especially under the current circumstances. Further, it is not clear that, assuming one could be created, such a global government would reflect the liberal, democratic values that many nuclear abolitionists hold dear.

Some nuclear abolitionists argue that the United States can safely reduce its deployed nuclear warhead levels — currently projected at between 1,700 and 2,200 — to 1,000 or fewer, especially if the Russians were to do the same. Regarding overall numbers, however, there is at least one important asymmetry that must be addressed. It involves the substantial number of states that are sheltered under the US nuclear umbrella — the states to which Washington has given a guarantee that the United States will respond decisively against any enemy state that employs nuclear weapons against them; the United States must be prepared to defend both itself and over a dozen other countries from nuclear attack.

Many advocates of a nuclear-free world argue that in order to strengthen the NPT, the United States should forego developing any new nuclear weapons. At first blush, this seems to make eminent sense. But opponents of forswearing the development of new nuclear weapons offer three reasons: first, weapons design teams have very specialized skills that risk being lost if they are not put to use; second, the United States may, at some point, need to develop a new generation of nuclear weapons to address security challenges for which there may be no other alternative; and third, the existing stockpile of nuclear weapons is becoming less reliable as it ages, necessitating a replacement of old weapons with newer, reliable ones known as reliable replacement warheads, or RRWs. The reliability of these aging weapons could be confirmed with testing. However, the United States has observed a test moratorium since 1992, and opponents of the RRW (as well as the Four Horsemen) are calling for the United States to ratify the Comprehensive Test Ban Treaty (CTBT), which would permanently ban all nuclear weapons testing.

What are we to make of all this? It appears the United States has two overriding objectives when it comes to the issue of nuclear weapons: maintaining an effective nuclear arsenal, and limiting (and ultimately reducing) the number of nuclear weapons to the point of elimination. These objectives may be incompatible. Simply put, the United States must either accept long-term risk in its ability to “maintain a safe, secure and effective [nuclear] arsenal” or the risk associated with testing that might obviate the need for further nuclear weapons production, but also enable substantial reductions in the US nuclear stockpile.

Given these formidable barriers, even those who continue to advocate for a nuclear-free world might see the virtue in developing a “Plan B” policy should their ambitious objectives fail to materialize. Indeed, based on the analysis to this point, it seems the future we will inhabit will be a significantly more proliferated world than that which exists today. Prudent planning requires that this future — unpleasant to contemplate though it may be — and its implications for US nuclear forces be examined as well, rather than be shunted aside through willful ignorance on our part.

A Proliferated Middle East?

While there is continued debate over Iran's *intentions*, Tehran is, at a minimum, almost certainly engaged in a large-scale effort to acquire the *capability* to build nuclear weapons. Persistent (albeit fitful) efforts by the international community to dissuade Iran from its apparent objective have yet to succeed. Tehran has successfully moved a considerable way along the path toward acquiring nuclear weapons. Given the potential cascade of nuclear proliferation that may follow any overt declaration of a nuclear capability, Iran may judge that its interests are best served by establishing a "latent" or "virtual" nuclear capability along the lines of what Israel has done. Should this come to pass, or if Iran overtly develops a nuclear arsenal, it might encourage Tehran to pursue more aggressively its various forms of ambiguous aggression throughout the Middle East and beyond. If Iran tests a nuclear weapon, the situation for Israel could change dramatically in a manner somewhat similar to that of the United States when the Soviet Union tested its first atomic weapon in August 1949. In a strictly military sense Israel would likely be better positioned to derail the Iranian nuclear program before it reached the weaponization phase. Yet an argument can also be made that the political case for preventive action may be stronger once Iran had openly demonstrated its duplicity in the face of genuine efforts by the international community to assist Tehran in its "peaceful" development of nuclear energy. Should Israel forego military action against Iran, a bipolar regional nuclear competition could ensue, at least in the near term while other regional powers decide whether or not to enter the nuclear arena.

How might crisis stability be preserved under these conditions? Let us assume that crisis stability means preserving a secure second-strike capability so as to reduce the incentive of any state to initiate nuclear weapons use. Given this assumption, a Middle East characterized by a multipolar nuclear competition comprising asymmetric and immature capabilities may be a place of great crisis instability. Given relatively limited resources, the newly minted nuclear powers will have some tough choices to make about how they size and shape their forces, and how they control and protect them. It may be simpler for a newly armed nuclear power to build more nuclear weapons and delivery systems, and to hide a portion of them in locations that would be difficult to detect, in the hope that this would ensure the survival of a sufficient number of weapons to retaliate in the event of an attack. Should this condition obtain, a single compromise of positional data could produce a major shift in the nuclear balance and perhaps even invite an attack.

Unlike during the Cold War era, when the United States and Soviet Union dominated the nuclear competition, might external powers be able to exert a significant influence on a regional nuclear competition? Generally discarded halfway through the Cold War — especially by the United States — defenses may play an important role in preserving deterrence and terminating a conflict. In a crisis, the United States could, in theory, threaten to intercept the ballistic missiles of any state attempting a first strike. It may also be possible to intercept nuclear-capable aircraft and cruise missiles. In attempting to terminate a conflict, the United States could declare that its forces will intercept any ballistic missiles or nuclear-capable aircraft or cruise missiles launched by any power after a declared cease-fire goes into effect.

New Thinking Needed

If nothing else, this report seeks to raise awareness of the need for a fundamental rethinking of the underlying strategic logic developed during the Cold War with regard to nuclear weapons. The conditions that informed that logic have, in many respects, passed into history along with the Cold War itself. The number of nuclear-armed states has grown significantly, and more may be on the way. With US and Russian nuclear force reductions, the world may well be shifting from a bipolar nuclear world to a multipolar nuclear world, complete with regional arms races. With the fielding of long-range guided weapons in large numbers and the creation of cyber weapons following the rise of information-based economies, nuclear weapons are not the only means for inflicting prompt and devastating destruction on a broad scale. An increase in the number of nuclear-armed states, some of them unstable, raises the prospect that nuclear weapons may fall into the hands of nonstate entities bent on causing catastrophic destruction. New forms of deterrence may be needed to prevent such attacks, if deterrence is possible at all. Finally, more nuclear powers means an increased risk of ambiguous nuclear aggression, presenting yet another problem that received little attention during the Cold War.

Where does that leave us? We would do well to take a lesson from our Cold War-era predecessors, a succession of administrations who took a realistic view of what arms control might accomplish, while at the same time devoting great intellectual effort — especially in the early years of the nuclear age — to developing strategies for addressing the challenges of the world they lived in. The recommendations that follow are modest. Their purpose is to keep the United States' nuclear options open until such a review is completed and a well-crafted strategy is in place.

> Building and expanding global counterproliferation partnerships, strengthening NPT compliance and enforcement regimes, and improving human intelligence dedicated to counter-proliferation should be accorded high priority.

> The United States can also assist friendly governments of new nuclear-armed states in improving their controls over their nuclear weapons, fissionable materials, and weapons production infrastructure.

> Capabilities that enhance the United States' ability to detect, intercept and secure both weapons-grade fissile material (and even nuclear weapons themselves) could prove invaluable in enforcing existing control agreements; intercepting nonstate entities armed with so-called dirty bombs or nuclear weapons, and recovering "loose nukes" that arise in the event a nuclear-armed state descends into chaos.

> The United States must explore the full range of defenses against nuclear attack, to include attacks by traditional means (e.g., ballistic missiles, aircraft, and cruise missiles) and nontraditional means (e.g., covert insertion).

> Should deterrence fail and a limited attack occur, the United States must be able to mitigate the consequences of a limited nuclear attack on itself or its allies in such a manner as to maintain freedom of action to preserve collective interests at home and abroad.

> Some modest reductions in nuclear force levels below the 1,700 minimum called for in the Strategic Offensive Reductions Treaty may be warranted. However, the greater the reductions, the lower the barrier becomes for other prospective rivals to join the United States and Russia as major nuclear powers. Given these considerations, 1,500 warheads seems an absolute floor for the time being.

> The United States must have the capability to respond promptly and devastatingly to aggression through both nuclear and nonnuclear means (e.g., guided weapons and cyber strikes), to include the ability to effect regime change in minor nuclear powers. To this end, the United States should enhance its capabilities for conducting highly distributed, highly integrated power-projection operations from standoff ranges (i.e., absent the use of fixed forward bases) under conditions of radioactive contamination, or against an enemy who retains the ability to threaten nuclear attack.

This report concludes that while the United States should continue to accord high priority to arresting nuclear proliferation and reversing it where possible, it must craft strategies for the world it will likely inhabit for the indefinite future: a world of eight or more nuclear-armed states — some of which are unstable, have ties to radical nonstate groups, or both — with the prospect of more to follow.