

CHAPTER 1

The Nuclear Tipping Point: Prospects for a World of Many Nuclear Weapons States

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In 1946 the English poet W. H. Auden penned *The Age of Anxiety*, in which he lamented the hopelessness and universal disorder in the world. Auden was responding to the wholesale carnage and bleak aftermath of the Second World War, as well as to the recent introduction of an entirely new weapon of mass destruction. For Auden and others living in the shadow of the atomic bomb, the future was uncertain, fearful, and dangerous.

Today, more than five decades after the dawn of the nuclear age, we once again find ourselves living in an age of anxiety. And again, a major reason is the potential unbridled spread of nuclear weapons. But now the risk is not that one or two countries might test a nuclear device every decade or so, thereby giving the international community time to accommodate and integrate new nuclear powers into the existing order. Rather, the danger is that *many* countries might view nuclear weapons as useful, even essential, instruments to maintain security in a Hobbesian world where life is “poor, nasty, brutish, and short.”

In this environment, any number of events could spark countries into a headlong dash to acquire independent nuclear arsenals. For example, a single new entrant to the nuclear club could catalyze similar responses by others in the region, with the Middle East and Northeast Asia the most likely candidates. Actual use of chemical and biological weapons could

also prompt countries to seek nuclear weapons as a deterrent. Perhaps most disturbingly, even a vague, generalized sense that proliferation was inevitable and self-restraint futile—that “everyone is doing it”—could persuade countries that non-nuclear virtue was a “mug’s game” that they cling to at their peril. Under these and other easily imaginable circumstances, previous pledges of nuclear abstention would be quietly or openly abandoned, as countries engaged in the nuclear equivalent of *saave qui peut*.

Or it may be that countries would not sprint to cross the nuclear finish line but rather hedge their bets by working quietly and methodically to acquire the technology and materials necessary to build nuclear bombs on short notice once a political decision was made. Today, many of the building blocks for a nuclear arsenal—the scientific and engineering expertise, precision machine tools, computer software, and nuclear design information—are more readily available than ever before. And what is unavailable on the open market can be purchased on the black market due to the flourishing illicit trade in nuclear technology and materials between and among rogue (or what used to be termed pariah) states. A hedging strategy would allow a state to gradually increase its nuclear competence and shrink the period of its greatest strategic vulnerability: the time between a decision to acquire nuclear weapons and the actual possession of a usable nuclear arsenal. States that adopt this approach could remain poised on this non-nuclear precipice for months or even years, awaiting a political decision to tip them over the edge.

In other words, in ways both fast and slow, we may very soon be approaching a nuclear “tipping point,” where many countries may decide to acquire nuclear arsenals on short notice, thereby triggering a proliferation epidemic.¹ Should current proliferation trends continue, within the next decade there may be more declared nuclear weapons states, more undeclared nuclear weapons states, and more states developing nuclear weapons than ever before. President John F. Kennedy’s nightmare vision of a world with fifteen, twenty, or even twenty-five nuclear powers may yet occur. As Director of the CIA George Tenet testified before the Senate Select Intelligence Committee on February 11, 2003, “The desire for nuclear weapons is on the upsurge. Additional countries may decide to seek nuclear weapons as it becomes clear their neighbors and regional rivals are already doing so. The ‘domino theory’ of the twenty-first century may well be nuclear.”² Should this occur, few would take comfort in the assurances of some academic theorists that “more may be better.”

How did we arrive at this point? The spread of nuclear weapons has moved to its own rhythm, with long periods of nonproliferation success punctuated from time to time by resounding failure. The history of nuclear proliferation offers some guidance, with its failed policies, cautionary tales, good intentions gone awry, and, to be sure, useful lessons and periodic success stories.

The early years of the nuclear age quickly set the tone for much of what was to follow. The bone-chilling prospect of a hundred Hiroshimas prompted policymakers to give serious thought to dispersing America's population to the countryside and even building cities underground. The world-renowned British philosopher and pacifist Bertrand Russell was so alarmed by the nuclear peril that he recommended in 1946 that the United States launch an atomic attack against the Soviet Union if Moscow refused to help form a world government.

Initially, hopes ran high that atomic energy could be placed under international control. "Let us not deceive ourselves," Bernard Baruch, the U.S. representative to the United Nations Atomic Energy Commission, declared in June 1946. "We must elect either world peace or world destruction." But the possibility of success at the United Nations retreated before growing Soviet-American tensions. Stalemate soon gave way to failure and stilled talk in the U.S. scientific community about "one world or none."

The future spread of civilian nuclear power and the dissemination of scientific and technical skills raised concern over the potentially apocalyptic consequences of many states armed with nuclear weapons. As German physicist Werner Heisenberg warned in February 1947, the development of atomic bombs was "no longer a problem of science in any country, but a problem of engineering."

The Soviet Union tested a nuclear device in 1949. The following year, tens of millions of people signed the Stockholm Appeal, a petition demanding that atomic bombs be outlawed as "weapons of terror and the mass destruction of whole populations." Great Britain became the third member of the nuclear club in October 1952. By this time, the United States had mastered a new level of destructiveness, testing a ten-megaton "superbomb" that gouged out a crater three miles wide and half a mile deep. Less than a year later, the Soviet Union exploded its own crude H-bomb. Complementing these hydrogen weapons at the other end of the spectrum was the development of atomic artillery shells, demolition mines, and short-range missiles for tactical use on the battlefield. As the arms race heated up in earnest, the hands on the "doomsday clock" from

the *Bulletin of the Atomic Scientists* were moved to a mere two minutes to midnight.

Radioactive fallout from atmospheric nuclear testing in the mid-1950s multiplied fears around the world. American H-bomb tests in the Pacific accidentally doused the crew of a Japanese fishing trawler, the *Lucky Dragon*, that chanced to be in the area; one of its crewmembers subsequently died of radiation sickness. Forty million Japanese signed petitions calling for the abolition of nuclear weapons. Popular culture reflected and reinforced global fears, with novels like *On the Beach*, which described the extinction of the human race by radioactive contamination, and films like *The Day the Earth Stood Still*, about the dangers of a spiraling arms race, and *The Seventh Seal*, Ingmar Bergman's nuclear allegory about mass death.

France became the fourth member of the nuclear club in February 1960 with its test in the Sahara. Later that year, the British scientist C. P. Snow, extrapolating from the rate of nuclear proliferation, predicted that "within, at the most, ten years, some of these bombs are going off. . . . That is the certainty." As if confirming these fears, China tested its first nuclear device the following year. By this time, every country that was technically competent to build nuclear arms, save Canada, had done so, validating policy studies that predicted that all countries with appreciable military strength would develop tactical or strategic nuclear arsenals, or both.

With French help, Israel developed a nuclear capability by the end of the 1960s. Indian leaders concluded in 1964 that China's nuclear blast had left them no option but to permit research on "peaceful" nuclear explosives. On May 18, 1974, the Indians got their bomb, with Prime Minister Indira Gandhi receiving news of the successful test with the code words "the Buddha smiles." From China and India, the chain reaction led to Pakistan. Prime Minister Zulfikar Ali Bhutto had already vowed that his country would acquire nuclear weapons if India did, even if his people had "to eat grass or leaves, even go hungry" to free up the necessary resources. New Delhi's nuclear test energized Islamabad's quest for an "Islamic bomb." South Africa around this time decided that it, too, needed nuclear arms to prevent the overthrow of its apartheid regime by the "total onslaught" of black Africa. The mid-decade oil crisis and the resulting insecurity over oil supplies prompted a renewed interest in nuclear power, leading some observers to worry that research reactors and civilian power programs could be used for building nuclear bombs. The dimensions of this threat were considerable; by the end of the 1970s,

civilian nuclear programs existed in over forty-five non-nuclear weapons states. Making matters worse, in 1979 an American journal published the blueprints for the H-bomb, rationalizing that only through greater understanding of this technology could the arms race be brought to a halt.

By the start of the 1980s, the world appeared well on its way to fulfilling Kennedy's nightmare vision. Nuclear terrorism captured the public's imagination with the best-selling international spy thriller *The Fifth Horseman*, in which Libya's Muammar Gadhafi tries to force the United States to support a Palestinian state by threatening to blow up New York City. "The world is moving inexorably toward the use of nuclear weapons," wrote a commentator during the early 1980s, expressing a widely held view.³ Visions of "nuclear winter," a new nightmare scenario of how the world would slowly die in the aftermath of a nuclear war, terrified the public.

And then, suddenly, it was over. The cold war ended not with the expected bang but a whimper—or at least a long, exhausted exhalation. The ideological competition between fascism, communism, and democracy was over. History had ended with an undisputed champion. President George H. W. Bush triumphantly declared a "new world order." U.S. officials talked about a "peace dividend," where funds from defense would be redirected to social and educational programs. The United States and Russia negotiated sweeping arms control agreements that would significantly reduce their nuclear stockpiles. Global nuclear anxieties abated.

But the good news in superpower relations did not translate into enhanced regional stability. During the first part of the 1990s, efforts to control the spread of nuclear weapons received a series of body blows. In spring 1990, India and Pakistan once again squared off over the neuralgic issue of Kashmir. Amid strikes, bombings, and assassinations by Muslim separatists and religious fundamentalists in Kashmir, the Indian prime minister accused his Pakistani counterpart of fomenting tensions in the region. Words quickly led to military maneuvers along the Indian-Pakistani border. In May, U.S. intelligence concluded that Pakistan had assembled nuclear bombs. Only urgent American intervention defused the crisis.

Other countries also tried to develop nuclear weapons during this time; some may have succeeded. From the allied victory in the 1991 Persian Gulf War came the sobering discovery that Saddam Hussein's Iraq was well advanced on a secret project to build an atomic bomb. That the International Atomic Energy Agency (IAEA) and U.S. intelligence services

had either missed entirely or vastly underestimated the sophistication of Baghdad's covert nuclear ambitions reassured no one that they would be able to detect other nuclear aspirants in the future.

And even if nuclear aspirants could be detected, could they be stopped? An answer, of sorts, was provided in late 1992 when the IAEA uncovered, with the help of U.S. satellite imagery, another case of nuclear deceit. North Korea had misrepresented its nuclear activities, secretly separating plutonium from spent fuel, and then prevented international inspections that might have disclosed the scope of its nuclear weapons program. As the crisis on the Korean peninsula heated up, the United States defused the threat by striking a nuclear deal with North Korea in October 1994. The nonproliferation price was high: a multilateral consortium would deliver \$5 billion of energy to the North, and Pyongyang would be allowed to delay comprehensive IAEA inspections for as long as a decade, perhaps longer. Critics contended this unhappy precedent rewarded nuclear cheaters; it would encourage other countries to build nuclear weapons as bargaining chips to evade sanctions and resist outside pressures.

Other nuclear anxieties contributed to this new and less certain international environment. In 1993 the director of the CIA, R. James Woolsey, warned that although the Soviet bear was slain, "now we must live in a jungle filled with a bewildering variety of poisonous snakes."⁴ It was feared that the sprawling nuclear archipelago of the former Soviet Union, involving laboratories, facilities, and bomb-grade material, would become a fertile breeding ground for new nuclear snakes. Poverty and unemployment among the 1 million former Soviet physicists, chemists, metallurgists, engineers, and technicians raised concern over a brain drain of nuclear expertise. Worse, lax internal security in the former Soviet Union prompted fears that "loose nukes" could find their way to the black market for sale to aspiring nuclear powers and terrorist groups.

It appeared the post-cold war world had ushered in less order and more chaos than previously imagined. The phrase "ethnic cleansing" entered the lexicon with the wholesale slaughter in central Africa and the former Yugoslavia. The AIDS pandemic claimed millions of lives. Environmental degradation, transborder crime, refugee problems, and narcotics trafficking all seemed to grow. Samuel P. Huntington's *The Clash of Civilizations* and Robert D. Kaplan's *The Coming Anarchy* painted dark visions of a future world mired in endless conflict and widespread misery.

Yet from another vantage point, the situation did not appear so hopeless or even desperate, at least with respect to the spread of nuclear

weapons. By the mid-1990s, there were important nonproliferation successes. The strategic nuclear weapons inherited by Ukraine, Kazakhstan, and Belarus after the demise of the Soviet Union had all been returned to Russia. There they were secured in part by a unique U.S. program, referred to as “Nunn-Lugar” after its two Senate sponsors, which sought to reduce the nuclear threat through cooperative efforts with Russia. Civilian governments in Argentina and Brazil officially renounced their nuclear weapons ambitions and jointly accepted comprehensive IAEA safeguards. South Africa confessed it had built during the 1980s a small nuclear arsenal of six nuclear bombs—but not before it had unilaterally dismantled them; soon thereafter it formalized its non-nuclear stance by joining the Non-Proliferation Treaty (NPT). Iraq’s clandestine nuclear program had been thwarted; it was forced to submit to intrusive and rigorous inspections. North Korea’s declared nuclear program was frozen and under international supervision; Pyongyang even pledged to go beyond its NPT obligations by agreeing to eventually dismantle its reprocessing and other facilities. France and China formally joined the NPT. Nuclear supplier states tightened controls on exports of nuclear materials, equipment, and technology. In 1995 the NPT was extended indefinitely. A comprehensive test ban treaty, a long-standing symbol of nonproliferation efforts, was concluded. Nuclear weapons-free zones were established in Southeast Asia and Africa, to join those already in place in Latin America and the South Pacific. By mid-decade the proliferation problem appeared to be under control.

In comparison to the first five decades of the nuclear age, the proliferation battle now assumed a different, more optimistic perspective. To be sure, there had been some casualties: five states had nuclear arsenals, and another three—Israel, India, and Pakistan—were suspected of having covert weapons programs, with “bombs in the basement.” But this litany was nowhere near the nightmare levels feared by President Kennedy. No one had tested a nuclear device since 1974. A significant number of nuclear dogs had not barked. By the mid-1990s, an influential report by the Carnegie Endowment for International Peace could confidently state that “the rate of nuclear proliferation was slowing, the geographic scope of proliferation was shrinking.” And the collapse of the Soviet Union suggested a powerful nonproliferation lesson: the acquisition of tens of thousands of these weapons could not ensure a regime’s prosperity, influence, or even existence.

Yet relief was short lived. In May 1998, India conducted five nuclear

tests in the Rajasthan desert. Pakistan quickly followed suit with five nuclear tests to equal what Delhi had done a few weeks earlier, plus a sixth test to match India's 1974 peaceful nuclear explosion. Although both countries had long been suspected of having "recessed" nuclear arsenals, these nuclear tests now infused their long-standing rivalry with new dangers. Questions were raised about each country's ability to establish secure command and control over its nuclear arsenal; their proximity, hostility, domestic instability, and almost daily violence along the Line of Control in Kashmir would, it was claimed, lead to misunderstanding and perhaps fatal miscalculation. These fears were almost realized in spring 1999 over yet another conflict along the border with Jammu and Kashmir; Pakistan's president Nawaz Sharif withdrew his troops from the Kargil region only after intense U.S. pressure. In October 2002, North Korea admitted it was pursuing nuclear weapons through a covert uranium enrichment program, in violation of the 1994 Agreed Framework, its IAEA and NPT obligations, and a 1991 bilateral denuclearization accord with South Korea. And in early 2003, Iran publicly confessed to secretly building a gas centrifuge facility that had the potential to enrich uranium for nuclear bombs. The nuclear nonproliferation regime seemed powerless to stop these developments.

Wishing to diversify their lethal portfolios, countries also pursued chemical and biological weapons and ballistic missiles. Leading suspects here included Iran, Iraq, North Korea, Syria, Libya, and Sudan. By January 2001, according to the Office of the Secretary of Defense, "In virtually every corner of the globe, the United States and its allies face a growing threat from the proliferation and possible use of nuclear, biological and chemical (NBC) weapons and their delivery systems."⁵

Moreover, the likelihood that terrorist groups might acquire or develop weapons of mass destruction increased in the first decade after the end of the cold war. The extreme religious sect Aum Shinrikyu tried unsuccessfully to enrich uranium and spread anthrax spores from city rooftops in Japan; in 1995 it succeeded in killing a dozen Japanese commuters and contaminating over 300 miles of the Tokyo subway system by releasing sarin gas during the morning rush hour. Fears that Osama bin Laden's al Qaeda organization was developing chemical weapons prompted the Clinton administration to launch a cruise missile attack in August 1998 against a pharmaceutical plant in Sudan. Al Qaeda videotapes showing chemical weapons experiments on dogs confirmed these fears. And during the 1990s there were periodic media reports of terrorists trying to smuggle

fissile material from the former Soviet Union; some of these episodes were independently corroborated.

The deteriorating international environment during the 1990s was further reflected by increasing doubts about the central theoretical underpinning of the cold war and the reintroduction of two previously discredited security concepts. Deterrence—the idea that the United States could prevent a nuclear attack by the credible threat to retaliate with a devastating nuclear second strike—was widely credited with preserving the cold war’s nuclear peace. Yet during the decade, deterrence gradually fell from favor. Instead, support for national missile defense moved from the far-right margins of the American political spectrum to the center, where it was embraced on a bipartisan basis. (Indeed, public opinion polls confirmed that a majority of Americans believed a missile defense system was already in place.) Washington’s dedicated—and expensive—pursuit of national missile defense was an implicit acknowledgement that deterrence, while useful against the Soviet Union during the cold war, no longer worked against the full spectrum of threats now confronting the United States, especially those from rogue states and terrorists. This logic culminated in the announcement on December 2001 that Washington would formally withdraw from the 1972 Anti-Ballistic Missile Treaty in order to pursue missile defenses unconstrained by international legal agreements.

Almost a decade earlier, the Pentagon had unveiled its counterproliferation initiative. Although it encompassed support for diplomacy, arms control, and export controls, counterproliferation policy appeared to emphasize the launching of preemptive strikes against adversaries harboring, or suspected of harboring, weapons of mass destruction. In the wake of September 11, 2001, and a much greater appreciation of America’s vulnerability, the Bush administration raised high the counterproliferation banner. “I will not wait on events while dangers gather,” President Bush warned in his January 2002 State of the Union Address. “I will not stand by as peril draws closer and closer. The United States of America will not permit the world’s most dangerous regimes to threaten us with the world’s most destructive weapons.” Critics, especially among America’s European allies, viewed this muscular response as a unilateral impulse that overemphasized a military solution to the proliferation problem, violated international law, undermined the nonproliferation regime, and could lead to more, not less, nuclear weapons states. They complained that the United States was establishing a Star Chamber with

itself as “judge, jury, and executioner.” The Bush administration unapologetically dismissed these arguments, instead publicly elevating and enshrining preemption as a military option. “The greater the threat, the greater is the risk of inaction,” stated the United States National Security Strategy, released in September 2002, “and the more compelling the case for taking anticipatory action to defend ourselves.”

Critics also alleged that some of the very steps the United States adopted to address the terrorist threat and restore order to an unruly world could unwittingly spur nuclear proliferation. The Bush administration’s emphasis on military preemption, interest in both low- and high-yield nuclear weapons to destroy underground bunkers housing weapons of mass destruction (WMD), and preparations to shrink the time needed to resume underground nuclear testing have all raised the status of nuclear weapons and lowered the threshold for their use, or so the argument runs. In addition, one of the unintended “demonstration” effects of the U.S. war against Iraq was that chemical and biological weapons proved insufficient to deter America; only nuclear weapons, it appeared, could do this job. The aggregate result of these actions was that other countries would now find these weapons more desirable.

Despite these policy differences, there is something approaching consensus among the authors of this volume and our colleagues both in and out of government that we now stand on the verge of a new nuclear age, one that may be characterized by more nuclear weapons states and a much greater chance that these weapons will be used. How could this dark future come to pass? Under what circumstances could some of the main supporters of the nonproliferation regime rethink their original non-nuclear bargain? What could cause them, individually or collectively, to “tip”?

Powerful reasons have always existed for states to obtain nuclear weapons. These reasons have included the desire to intimidate and coerce rivals, the search for enhanced security against regional or international rivals, the status and prestige associated with mastering nuclear technology, and domestic politics and bureaucratic self-aggrandizement.⁶ These incentives, singly and in combination, were responsible for the proliferation that occurred during the cold war. They persist today.

At the same time, numerous disincentives to acquiring nuclear arsenals over the past fifty years prevented more countries from joining the nuclear club. These include financial cost, technical difficulty, domestic opposition, damage to important bilateral relationships or collective

security alliances, and global nonproliferation norms. These disincentives persist today as well.

Yet there is widespread concern that the calculus of incentives and disincentives has shifted during the past decade, with incentives increasing and disincentives declining. New threats have arisen while the nuclear taboo has weakened. And it is not just a single factor in this new strategic landscape that gives pause. Rather, it is the accumulation of multiple factors and their interplay and mutual reinforcement that account for many of these new dangers. For instance, there have always been terrorist groups, but never before has there been the simultaneous concentration of terrorist groups, diffusion of bomb design information, and poorly secured or unaccounted for nuclear material from the former Soviet Union.

In the following chapter, Kurt M. Campbell outlines transnational influences on nuclear policy, including local, regional, and international economic, political, military, and even cultural factors. As a complement to this sweeping overview, Robert J. Einhorn then sets out a methodological framework for understanding why certain countries may have originally decided to renounce nuclear weapons acquisition. He also lists country-specific factors that have arisen since the original renunciations that may lead decisionmakers to reconsider their non-nuclear bargain.

Many of our colleagues have written excellent studies on the relatively small number of countries that possess nuclear weapons or on the current “suspects” that already are pursuing a nuclear arsenal. Much work, both theoretical and historical, has already been performed in these areas, producing a rich and diverse literature of case studies, technical reports, and personal memoirs. Foreign policy experts both inside and outside of government have devoted, and continue to devote, much time and attention to particular countries and discrete threats. It is not our intent here to duplicate these efforts.

Instead, this volume examines a different collection of countries: those states that are currently members in good standing of the nonproliferation regime. Many have long possessed the technical, scientific, and engineering competence to build nuclear bombs but resisted the temptation. These countries struck a formal non-nuclear bargain, publicly swearing off the development of nuclear arms. Over the years, some of them have been among the most ardent supporters of the NPT and global denuclearization efforts.⁷ Countries that fall into this category include Japan, South Korea, Taiwan, Saudi Arabia, Egypt, Syria, Turkey, and Germany.

The countries chosen for case study in part two have been selected because they serve as a barometer of the health of the international non-proliferation regime and as an early warning system measuring the pressure for independent nuclear arsenals. Should any one of them decide to publicly abandon its NPT and IAEA commitments or, as is more likely, quietly hedge its bets to reduce the time needed to acquire nuclear weapons, it would have a destabilizing impact on regional and global security. Needless to say, the defection of any one of these countries from the non-nuclear to the nuclear ranks would also deal a severe, perhaps even fatal, blow to over five decades of U.S. and international efforts to halt the spread of nuclear weapons.

To be sure, other countries could have been included in this study, such as Argentina, Brazil, South Africa, Indonesia, Australia, and Algeria. They have not been selected because of space and time constraints and because we believe that the eight countries chosen encompass a sufficiently broad range of technical capabilities and political motivations to illustrate the major themes of this volume.

Authors with specific expertise and long experience with our eight countries, as academic researchers or as foreign policy practitioners for the U.S. government, or both, have been chosen to explore their potential nuclear aspirations and detail the circumstances under which they might reconsider their non-nuclear bargain.

All three of our East Asian countries are influenced by at least two common variables: their relationships with the United States and North Korea's nuclear weapons program. Kurt M. Campbell and Tsuyoshi Sunohara illuminate Japan's attitude on nuclear issues and the durability of the U.S. security guarantee; they also reveal Tokyo's recent thinking about the possibility of a nuclear-armed Japan. Jonathan D. Pollack and I examine the case of South Korea, which had attempted to acquire a nuclear arsenal. Under a variety of scenarios, we imagine the factors that could propel Seoul to revisit its previous decision. Taiwan also invested heavily in its own nuclear weapons program in the 1970s before the United States intervened. Derek J. Mitchell looks at Taipei's earlier motivations and then explains what new factors, including the burgeoning independence movement on the island and a growing military threat from the mainland, might cause Taiwan to once again attempt to go nuclear.

In the greater Middle East, four diverse countries—each differing in scientific and technical competence, domestic political systems, and security

relationships—pose a potential threat to acquire nuclear weapons. Saudi Arabia's interest in nuclear weapons is unveiled by Thomas W. Lippman, whose detective work provides new information and insights into Riyadh's flirtation with Pakistan and the "proliferation by purchase" path it might contemplate. Egypt is the political, cultural, and economic leader of the Arab world, as well as the neighbor of a suspected nuclear weapons state—Israel. Thus it might naturally be expected to gravitate to nuclear status; but so far, it has firmly resisted that impulse, according to Robert J. Einhorn. Syria faces an even more acute security challenge than Egypt, especially after Operation Iraqi Freedom and removal of its fellow Ba'athist regime from Baghdad. Ellen Laipson seeks to understand Damascus's worldview and how a nuclear arsenal might improve its parlous national security. And Turkey faces a rapidly evolving strategic environment at the crossroads of Europe and the Middle East. Leon Fuerth discusses the importance of Turkey's continued relationship with NATO and the United States and reveals troubling scenarios that could push Turkey toward nuclear reconsideration.

In our one study of a European power, Jenifer Mackby and Walter B. Slocombe analyze the case of Germany, the original "nth" nuclear power that generated so much proliferation concern in the 1950s and 1960s. Noting that Berlin today is the least likely candidate among our group to acquire nuclear weapons, Mackby and Slocombe highlight the importance of alliances and how an alternative conception of security can be manufactured over time.

Building on the analytical framework in part one and the findings in part two, part three is a concluding chapter that explores the implications for international nonproliferation efforts and U.S. policy. What do our case studies reveal about the health of the nonproliferation regime, such as the IAEA and NPT? Can the integrity of these mechanisms be restored and reinigorated? Or are wholly new institutions and arrangements needed to cope with the new strategic environment of the twenty-first century?

Important elements in this new landscape include biological and chemical weapons and ballistic missiles. How will the promiscuous spread of these weapons affect a country's decision to go nuclear? Do they degrade a country's security so that it might seek refuge by acquiring nuclear weapons? Or do they channel feelings of insecurity into the desire to acquire a similar biological and chemical deterrent that, along with ballistic missiles, may be technically easier to develop or purchase than a nuclear weapons capability?

Are changes needed on the demand side, by offering additional security guarantees and resolving regional disputes? If so, the recent example of secret Anglo-American diplomacy that led to Libya's renouncing publicly its WMD programs, specifically including its nascent nuclear weapons program, might serve as a model for other would-be proliferators. Or are changes needed on the supply side, by tightening up export controls and seeking greater support for the Proliferation Security Initiative? In this case, Saddam Hussein's regime could serve as the poster child for what happens when a country seeks WMD. Or will the motivations lie elsewhere, for example, with local and domestic factors less susceptible to outside influences?

Perhaps the most important factor in the nuclear calculations of the countries examined here is the fate of North Korea's and Iran's nuclear ambitions, which pose the most imminent challenge to the nonproliferation regime. Will diplomacy prevail, both in the six-party talks involving Pyongyang and in the dialogue that the "European Union 3" is conducting with Tehran? If not, will sterner measures such as UN Security Council sanctions be invoked? Or, under yet unforeseen circumstances, will military force be used? Or will these countries be allowed to pursue their nuclear ambitions, much like India and Pakistan did after their nuclear tests in 1998?

Amidst all this uncertainty, the role of the United States looms large over this nuclear future. Washington's leadership of the nonproliferation regime and its efforts to prevent the spread of nuclear weapons will be critical for success. This has been true since the dawn of the nuclear age and is unlikely to change anytime soon. Yet the challenges are many and formidable, the stakes are enormous, and success is far from assured. Failure will shape the contours of the international system for decades to come and undermine the security of countries around the world. If the United States cannot summon the wisdom, determination, and patience to prevent a nuclear tipping point, then we may once again face another age of anxiety, or worse.

Notes

1. There is a substantial literature on tipping points. See, for example, Thomas C. Schelling, *Micromotives and Macrobehavior* (W. W. Norton, 1978); Mark Granovetter, "Threshold Models of Collective Behavior," *American Journal of Sociology*, vol. 83, no. 6 (1978), pp. 1420-43; and Mark Granovetter and R.

Soong, "Threshold Models of Diffusion and Collective Behavior," *Journal of Mathematical Sociology*, vol. 9, no. 3 (1983), pp. 165–79. More recently, this concept has been popularized in Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Difference* (Little, Brown, 2000).

2. Senate Select Intelligence Committee, *Current and Projected National Security Threats to the United States: Hearing before the Committee on Intelligence*, S. Hrg. 108-161, 108 Cong. 1 sess., February 11, 2003.

3. Bernard Lown, "Does Humankind Have a Future?" Address to the 1st International Physicians for the Prevention of Nuclear War World Congress, Airline House, Va., March 20, 1981, available at www.ippnw.org/NeverWhisper.html.

4. Statement before U.S. Senate confirmation hearing, February 2, 1993. As reported in Douglas Jehl, "CIA Nominee Wary of Budget Cuts," *New York Times*, February 3, 1993, p. A18.

5. Office of the Secretary of Defense, *Proliferation: Threat and Response*, January 2001, p. 1, located at www.ciaonet.org/cbr/cbr00/video/cbr_ctd/cbr_ctd_11a.pdf (March 2004).

6. Many studies have examined countries' motivations for acquiring nuclear weapons. For an excellent recent discussion, see Scott D. Sagan, "Rethinking the Causes of Nuclear Proliferation: Three Models in Search of a Bomb," in Victor A. Utgoff, ed., *The Coming Crisis: Nuclear Proliferation, U.S. Interests and World Order* (MIT Press, 2000), pp. 17–50.

7. Article 6 of the NPT stipulates, "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."