Nuclear Proliferation

Is a new nuclear arms race beginning?

By Roland Flamini

Introduction

Since the United States dropped atomic bombs on Hiroshima and Nagasaki some 60 years ago, the threat of nuclear war has been a dominant and troubling factor in world politics. For more than half the 20th century, the U.S. and the Soviet Union faced each other with vast nuclear arsenals, but the end of the Cold War brought hope that nuclear weapons finally had become irrelevant. Instead, concern has grown as new members have turned to nuclear weapons for their security in an increasingly dangerous world, including feuding Pakistan and India; meanwhile Iran and North Korea threaten to build their own nuclear weapons. Perhaps the biggest emerging danger is not from nation-states at all but from suicidal terrorists carrying nuclear weapons in backpacks. New preventive technologies and tighter regulations provide hope. But many proliferation experts say it's a race against time.

Overview

Who is making bombs today in the world?” asks the slight, bearded man with the neat haircut. “Whom should one be afraid of? Who is destabilizing the world? They have even once used their nuclear weapons. Less than a month has passed from the anniversary of Hiroshima and Nagasaki. They should be ashamed of themselves for talking about trust. . . . It is they who must give answers, not us.”

The speaker is Mahmoud Ahmadinejad, the Holocaust-denying president of Iran, which claims to be developing nuclear power only for peaceful purposes but has been accused of trying to build a nuclear arsenal. Deftly, the former political agitator is turning the tables on the United States, his primary accuser. If “they” can have bombs, he seems to say, why can't we? 1

Although nuclear power in war has been unleashed only twice, against the two benighted Japanese cities in 1945, there have been several close calls, notably the 1962 Cuban Missile Crisis, which brought the Soviet Union and the United States to the brink of nuclear war.

The 1968 Nuclear Non-Proliferation Treaty (NPT) was intended to dissuade other countries from acquiring nuclear weapons, with the promise that the five nuclear-weapon states — the United States, the Soviet Union, China, France and Great Britain — would themselves disarm and share peaceful nuclear technology with those who didn't have it. The NPT prohibited non-nuclear-weapon states from developing nuclear weapons, and enjoined the nuclear states — the “haves” — to reduce and eventually eliminate their stockpiles.
President Mahmoud Ahmadinejad of Iran has agitated the world by threatening to wipe Israel off the map, while maintaining that Iran’s nuclear program is only for peaceful energy purposes. (Getty Images/ Salah Malkawi)

Instead, despite some reductions, the original five still have a combined arsenal powerful enough to destroy the world several times over. And, there are players in the shadows who do not share the trepidation and sense of awe toward nuclear weapons common to most established nation-states.

“If a nuclear bomb went off in Moscow or New York City or Jerusalem, any number of groups would claim they have another,” said Sam Nunn, co-chairman and CEO of the Nuclear Threat Initiative and former chairman of the Senate Armed Services Committee.

Even if the weapon were crude, he said, fear and panic would be epidemic. “The psychological damage would be incalculable. It would be a slow, step-by-step process to regain confidence. And the question will be, Why didn’t we take steps to prevent this? We will have a whole list of things we wish we’d done.”

In the euphoria that followed the collapse of the Soviet Union and the end of the Cold War, intentions were good. Swords were turned into plowshares with the joint U.S.-Russian “Megatons to Megawatts” project of converting highly enriched uranium from Russian warheads into fuel for commercial American nuclear reactors; more than 10,000 weapons were thus repurposed between 1993 and 2005.

But the world celebrated too soon. All nuclear weapons have not been destroyed or rendered obsolete, as was hoped. The “bomb” has spread, and to some dangerously unstable places.

India and Pakistan, who were not parties to the NPT, have developed weapons, mostly to deter each other. With the apparently full consent of the government in Islamabad, Pakistani nuclear scientist A. Q. Khan sold black market nuclear plans and materials to Libya, Iran and North Korea.

Israel, also not part of the treaty, is assumed to have an arsenal, and North Korea, the only signatory to have resigned from the treaty, exploded a nuclear device underground last October. Iran now seems likely to follow suit, and the threat from terrorists with nuclear weapons heightens the danger to critical levels unseen since the Cuban crisis.

Moreover, tons of poorly guarded nuclear material stockpiled in the old Soviet Union make the prospect of mischief or error with stolen nuclear material as daunting as a big nuclear bomb.

In February 2007 North Korea agreed to halt its weapons program in exchange for shipments of fuel oil, but the word of Pyongyang has been notoriously untrustworthy.

Former West German Chancellor Helmut Schmidt presciently described the nuclear future after the breakup of the Soviet Union in 1991. “In a couple of decades you’ll have to reckon with the fact that the knowledge of how to [build nuclear weapons] will have spread widely enough for terrorists to create nuclear weapons in their garages,” he said. “Does the fact that I or my allies possess nuclear weapons deter that terrorist or, say, a little terrorist state? I have quite some experience with terrorists. No, it will not deter them.”
Indeed, in this first decade of the 21st century, the psychology of nuclear deterrence seems profoundly changed. “The international community seems almost to be sleepwalking down a path where states, after long living without nuclear arms, now feel compelled to reverse their logic, as if they felt that possession of weapons of mass destruction offers the best protection against being attacked,” said U.N. Secretary-General Kofi Annan shortly before leaving his post last January.

At the end of the Cold War, the United States and the Soviet Union had 60,000 nuclear weapons. Today, according to the Carnegie Endowment for International Peace, they have less than half that number. The United States has about 10,300 nuclear weapons, Russia some 16,000, France and China 350 each and the United Kingdom 200. Of the three nations who have weapons but have not signed the NPT, India has 90, Pakistan 80 and Israel perhaps 100.

On the credit side, several nations have given up their nuclear capabilities in recent years. South Africa destroyed already developed weapons. Belarus, Kazakhstan and Ukraine, with U.S. financial support, returned arsenals inherited from the old Soviet Union back to Russia. And Libya, Brazil, Sweden, Taiwan and Argentina halted ongoing programs.

Past confrontations between nuclear-powered nations have been both tense and strangely reassuring. During the Cold War, the Soviet Union and United States were locked in the nuclear stalemate known as mutual assured destruction (MAD).

But new regional tensions have flared, particularly in the Middle East and Asia. The rise of Islamic fundamentalism has deepened internal unrest in fragile nations and spawned a jihadist movement capable of striking terror anywhere, even inside the United States. In Asia, an emerging China and Kim Jong-Il’s unpredictable North Korea have added to the unease.

Add to that mix President George W. Bush’s self-appointed mission to convert the world to Western-style democracy, and it is small wonder nervous countries began looking more to nuclear weapons for security.

Iran’s apparent nuclear ambitions, especially, have destabilized the Middle East for decades. Western suspicions of Iran’s intentions grew out of its secrecy, its determination to enrich uranium and its efforts to be a dominant force in the region. President Ahmadinejad’s repeated denials of his intentions are taken with a generous pinch of salt.

Iran argues it needs nuclear power for its burgeoning population and industrial sector. After Russia and Saudi Arabia, Iran has the world’s richest oil and gas reserves.

“There is an economic rationale to diversifying energy sources,” says Mark Fitzpatrick, senior fellow for non-proliferation at the London-based International Institute for Strategic Studies. “But the strongest critical question for the Iranians is why they should want to enrich uranium, which is costly, when they can get it commercially. Very few countries enrich their own.”
The standard Iranian answer is that they cannot trust the recognized international suppliers to deliver. “Well,” says Fitzpatrick, “that’s why the International Atomic Energy Agency (IAEA) is trying to establish an independent supply.”

Concern about instability in the Middle East and the capriciousness of oil prices has more nations turning to nuclear power, potentially putting bomb-making materials within terrorists’ reach. According to the World Nuclear Association in London, 28 new reactors are under construction, 62 are planned, and 160 proposed, mostly in Asia.

Not too far down the road, predicts an IAEA economist, “An increase to 5,000 reactors is well within the range of many longer-range studies. People are positioning themselves. There seems to be a race coming and nobody wants to be left out.”

But if Shiite Iran acquires nuclear capability, can Sunni nations like Saudi Arabia and Egypt afford to do nothing, given the enmity between the two Muslim sects? In September 2006, Cairo announced plans to revive its once-active nuclear program, and Saudi Arabia reportedly is recruiting nuclear engineers for its own program.

Egyptian Mohamed ElBaradei, head of the IAEA, warns that if Pyongyang carries out further tests, “countries in the region will clearly re-think their reliance on the U.S. nuclear umbrella and shift the emphasis onto the possibility of having their own nuclear weapons.”

Deterrence worked for the United States and the Soviet Union. But the spread of nuclear weapons to multiple hands can have an opposite effect on deterrence; clearly, the danger of an accidental nuclear confrontation increases in proportion to the number of “nuclear club” members.

In addition, says China’s People’s Daily, “The stark global reality today is that different nations are confronted with different security dilemmas.”

Do Ahmadinejad’s aggressive calls to wipe out Israel, for example, mean that Iran will launch a nuclear attack on the Jewish state, even though Israel could probably still retaliate?

The question is a valid one, experts say, reflecting the dangerous, new jihadist wrinkle. As Noah Feldman, adjunct senior fellow at the Council on Foreign Relations, asked recently, “If leaders of Iran or some future leaders of a radicalized, nuclear Saudi Arabia shared the aspiration to martyrdom of so many young jihadists around the world, might they be prepared to attack Israel or the United States, even if the inevitable result were the martyrdom of their entire people? The answer depends on whether you consider Islam susceptible to the kind of apocalyptic thought that might lead whole peoples, rather than just individuals, into suicidal behavior.”
As nuclear-proliferation efforts continue, here are some of the questions being debated:

Is the Nuclear Non-Proliferation Treaty obsolete?

“Let’s not abandon the Non-Proliferation Treaty but look at the regime and see how we can strengthen it,” says the IAEA’s ElBaradei. “Thirty years ago, it was based on the theory that no one could enrich uranium.”

Kennette Benedict, executive director of the Bulletin of the Atomic Scientists, agrees. “The fundamentals of the treaty are right,” she says. “New nuclear-weapons programs should be discouraged or prohibited; civilian nuclear-energy development should be made available; nuclear-weapons states should be encouraged to reduce their arsenals so nuclear disarmament is the end goal of the treaty, as it now states. As with all rules, implementation is everything, but until now we’ve actually done fairly well on the discouragement element.”

India, Pakistan and Israel did not sign the treaty because “there is no provision in the NPT” for new members, says Olivia Bosch, an associate fellow on arms control at the Royal Institute for International Affairs in London. The treaty “still matters” and would be strengthened by a provision to accept new nuclear states, but “they don’t want to reopen it for renegotiation” because other articles could be challenged.

Some analysts maintain that the NPT already effectively has been abandoned — if not when India, Pakistan and Israel became nuclear weapon states then surely when the Soviet Union and the United States recently agreed to supply India with nuclear technology, in direct violation of the 1968 treaty’s intent.

The American argument was that India had “behaved well” and, unlike Pakistan, had not proliferated nuclear-weapon technology. But a Bush administration official admitted privately, “We made the Indian deal aware that it was not in the spirit of the NPT, but [was] in America’s interests.”

Critics of the NPT say the reluctance of the original five nuclear weapon states to fulfill their obligations under Article Six, which calls on them to disarm, has undermined the treaty’s validity. James P. Thomas, a member of the U.S. Arms Control Commission, writes that current Bush administration plans to develop a new generation of tactical nuclear weapons when the United States should be dismantling its arsenal threatens to “disintegrate” the NPT.

A 1995 U.N. conference that extended the NPT indefinitely ended the treaty’s effectiveness as a disarmament tool “and gave way to a different, irrelevant, stillborn NPT,” wrote Miguel Marin-Bosch, a senior Mexican diplomat specializing in disarmament. In a lengthy analysis of the treaty, Bosch maintained that the United States had waged an “intensive campaign” to ensure the indefinite, unconditional extension of the NPT, and the non-nuclear weapon states “surrendered what little leverage the temporary nature of the NPT gave them,” and got nothing in return.

In the 1960s, non-proliferation was one of the few areas of agreement among the original five nuclear club members. Now, NPT critics say, as the “club” fails to make a more determined effort to disarm in the post-Cold War climate, that collective agreement is a fatal flaw in the treaty. “It gives a sense of cynicism” to the agreement, admits ElBaradei.

His predecessor, Hans Blix, who heads Sweden’s Weapons of Mass Destruction Commission, recently expressed the same sentiment: “The moral authority of the ‘have’ states is undermined when they are easing their doctrines for the use of nuclear weapons rather than restricting them.”
The apparent credibility gap provides the justification to President Ahmadinejad to build the case for Iran’s nuclear-enrichment program, whatever his real motives. “In our view,” he said, “the legal system whereby a handful of countries force their will on the rest of the world is discriminatory and unstable.

“There are a number of countries that possess both nuclear energy and nuclear weapons. They use their atomic weapons to threaten other peoples. And it is these powers who say that they are worried about Iran deviating from the path of peaceful use of atomic energy.”

Charles D. Ferguson, a specialist in disarmament and weapons of mass destruction at the Council on Foreign Relations, says the NPT fails in a number of ways. “It is a discrimination treaty” limiting the nuclear-weapon states to those that had them by Jan. 1, 1967. This leaves India, Pakistan and Israel out in the cold. They are considered non-nuclear-weapon states in international law, yet actually possess nuclear weapons. It is also flawed in having “no time-bound commitment” for the nuclear states to disarm.

Another of the treaty’s failures is “the lack of adequate enforcement mechanisms to ensure compliance,” says Ferguson. The IAEA can make inspections, but its powers are limited, he notes. “The safer course is for nations to create an equitable system that would outlaw all nuclear weapons,” he says.

**Will nuclear deterrence work today?**

Pakistani fighter planes protectively circled Islamabad in May 2002 as India and Pakistan confronted each other over the status of Kashmir. Nuclear war seemed imminent.

But Pakistani Gen. Mirza Aslam Beg stood defiant, seemingly untroubled by the potential horror of nuclear war. “We can make a first strike, and a second strike, or even a third,” he said. When asked about the massive deaths such a tactic would cause, he was cavalier. “You can die crossing the street,” he observed, “or you could die in a nuclear war. You’ve got to die some day anyway.”

In India, Defense Minister George Fernandes seemed equally unmoved. “India can survive a nuclear attack,” he told the International Herald Tribune, “but Pakistan cannot.”

Yogendra Narain, India’s secretary of defense, rolled the drumbeat even faster in an interview with India’s Defence Outlook magazine: “A surgical strike is the answer,” he said, adding that if this failed to resolve things, “We must be prepared for total mutual destruction.”

Added Indian security analyst Brahma Chellaney, “India can hit any nook and corner of Pakistan and is fully prepared to call Pakistan’s nuclear bluff.”

Ever since India and Pakistan tested nuclear weapons in 1998, the international community had worried over what would happen if these adolescent nuclear powers ever reached the point of irrational enmity. Would the prospect of mutual mass annihilation bring them back from the brink?

The pessimists pointed out that there were significant differences between India-Pakistan and the United States-Soviet Union. India and Pakistan shared a deep mutual
hatred. And their nuclear arsenals were much smaller than those of the Cold War superpowers, so the threat of total
mutual destruction seemed remote. At worst, major cities would be wiped out. 17

Yet the peace held.

The widely held perception that nuclear deterrence averted a major conflict between the United States and the Soviet
Union is not a universal truth. But the impact of something that did not happen is hard to assess accurately, and as a
result there has long been a dispute among scholars over the exact role of deterrence in the Cold War.

Cold War nuclear deterrence depended on close communication between adversaries, and accurate information about
their respective nuclear strengths. It was “a tight club of nuclear powers with interlocking interests and an
appreciation for the brutal doctrine of ‘mutually assured destruction,’” writes Bill Powell in Time. Today, he notes, that
deadly but orderly pattern has been replaced by “an unpredictable host of potential bomb throwers,” casting serious
doubt on whether the same thinking can have either effect or validity. 18

Whether it’s “a Stalinist bomb out of North Korea, a Shiite bomb out of Iran, a Sunni bomb out of Pakistan, and
down the road possibly out of Egypt and Saudi Arabia as well, and, of course, an al Qaeda bomb out of nowhere,” the
rules of the game have changed to a frightening random pattern, Powell continues.

Indeed, some observers see the current geopolitical situation as “a natural byproduct of a fragmented world in which
countries no longer have to choose between the United States and the Soviet Union but can go separate ways and build
independent alliances.” 19

Therese Delpech, director of strategic affairs at the French Atomic Energy Commission, worries that, “The new actors,
such as Ahmadinejad or Kim (Jong-Il) are much more prone to act impulsively, [unlike] the United Stat

Paul Nitze, an adviser to President Ronald Reagan, once famously observed, “The deterrent effect of nuclear arms on
[irrational] parties is questionable . . . rational thinking is necessary for deterrence to work.” 21

Graham Allison, a security adviser to former President Bill Clinton, however, believes that is no reason to abandon
deterrence. “Deterrence is a concept that still works” he says, “but it needs three main components — clarity,
capability and credibility.”

In other words, a nation must make it clear exactly what kind of retaliatory strike a potential nuclear aggressor can
expect; must be seen to have the weapons to carry out its threat; and must have a reputation of following through on
its warnings. What could tempt a rogue state to use its nuclear weapons would not be a lack of rational thinking,
Allison believes, but the conviction that the targeted country lacks the will to hit back.

The danger of a terrorist nuclear attack by a rogue group is an added complication, but Allison says even a terrorist
bomb has a return address — the country that supplied the device. A recent British government white paper on
deterrence warns, “Any state that we can hold responsible for assisting a nuclear attack on our vital interests can
expect that this would lead to a proportionate response.” 22

President Bush aimed a similar warning at North Korea. The United States would hold Pyongyang “fully
accountable” for any delivery of nuclear weapons to another state or “a non-state entity,” he said last year.
A defiant army rallies in Pyongyang's Kim Il-Sung Square last October, celebrating North Korea's underground nuclear-weapon test. Despite world pressure to desist, the reclusive regime has also fired warhead-capable rockets into the sea, spreading unease throughout Asia. (AFP/Getty Images/STR)

As international-affairs scholar Derek D. Smith, author of *Deterring America: Rogue States and the Proliferation of Weapons of Mass Destruction*, observed, “If you can’t deter the terrorist organizations, you’d better be sure to deter whoever is supplying them.”

Bush was not the first to zero in on the suppliers of weapons of mass destruction. During the Cuban Missile Crisis, President John F. Kennedy grimly warned Soviet Premier Nikita Khrushchev in Moscow: “It shall be the policy of this nation to regard any nuclear missile launched from Cuba against any nation in the Western Hemisphere as an attack on the United States, requiring a full retaliatory response against the Soviet Union.”

But Kim Jong-Il is considered less rational than Khrushchev, and Ahmadinejad, if his words reflect his beliefs, may choose martyrdom for the Islamic cause.

“Some analysts have argued that all countries should have nuclear weapons, so they could deter each other,” says the Council on Foreign Relations' Ferguson. “But this situation could lead to disaster by increasing the likelihood of accidental use, or deliberate use if a national leader cannot be deterred.”

**Could terrorists get nuclear weapons?**

Despite the spread of nuclear weapons, experts still consider a full-scale nuclear attack less likely than a small “suitcase” bomb or similar device, which could still kill thousands. In 1998, when al Qaeda leader Osama bin Laden was asked about his reported attempts to acquire chemical and nuclear weapons, he replied: “Acquiring such weapons for the defense of Muslims is a religious duty.”

The fact that bin Laden apparently hasn’t acquired them yet does not mean he and other terrorists are not trying. Nor, unfortunately, does it mean international preventive measures have successfully blocked their attempts.

The Nuclear Threat Initiative warned in a recent study that “urgent actions are needed to prevent a nuclear 9/11.” The private group was founded by entrepreneur Ted Turner and former Sen. Nunn and receives funding in part from financier Warren Buffett. The study warns, however, that, “A dangerous gap remains between the urgency of the threat of nuclear terrorism and the scope of the U.S. and world response.”

President Bush is among many who regard a terrorist nuclear attack on American soil as the single greatest threat to the United States. At the G-8 economic summit in St. Petersburg, Russia, in July 2006, he persuaded Russian President Vladimir Putin to join him in launching the Global Initiative to Combat Nuclear Terrorism. It requires countries to improve accounting, control and protection of nuclear and radioactive material, tighten security at nuclear facilities and prevent acts of terrorism.

“It is extremely important for us to synchronize our watches with you,” Putin told Bush. Involving the Russians is considered the key to any improvement in global nuclear security because theft of nuclear fuel from Russia’s often poorly guarded facilities is a widely recognized danger.

Before its collapse in 1991 the Soviet Union had some 27,000 nuclear weapons. There are no confirmed reports of missing weapons or theft, but the former Soviet republics of Ukraine, Belarus and Kazakhstan still have stockpiles of weapons-grade uranium and plutonium, and a black market in nuclear material survives.
Despite the grim possibility, many experts say it is highly doubtful a terrorist group could manufacture the necessary fissile material by itself. First, it would have to steal the weapons-grade material or the weapon or acquire it from a rogue state. Since 1993 the IAEA has recorded roughly 630 incidents of trafficking nuclear and other radioactive material through its Illicit Trafficking Database, with 17 cases involving the most dangerous kinds of nuclear materials: plutonium 235 and HEU (highly enriched uranium).

But Fitzpatrick, of the International Institute for Strategic Studies, believes “neither Iran nor North Korea would give or sell nuclear weapons to terrorists as a decision of state.” They would be afraid of retaliation, he explains, and in addition there would be no guarantee that the weapons would not be used against them.

Terrorists could get their hands on nuclear weapons, however, “if there is a breakdown in society,” he says. “In the case of a second Iranian revolution — which is possible — some fundamentalists might get nuclear weapons and give them to terrorists, or become terrorists themselves.”

Or, Fitzgerald says, a succession crisis in Saudi Arabia could fragment the government “and control over nuclear weapons, should the Saudis have acquired them, falls in the hands of Saudi elites who are sympathetic to Osama bin Laden, or at least to his ideas.”

As for actions by North Korea, “we're not so sure because the decision-making process is more opaque,” Fitzpatrick says.

“I would not say it's inevitable that there will be a nuclear terror act,” says former Clinton security adviser Allison, “but I would say it is highly likely.” Then why hasn't it happened already? “Why didn't 9/11 happen before 9/11?” he asks. “We were fortunate.”

To discourage such an attack, nuclear fuel needs to be kept under tighter international controls — “locked up as tight as Fort Knox,” as Allison puts it. “If they can't get the fissile material, they can't have a bomb.”

An equally important deterrent, he says, is “the principle of accountability.” That is, the supplying state must be made aware of the consequences. To ensure that “a return address” is traceable, the Los Alamos National Laboratory in New Mexico is developing a system for detecting the molecular fingerprint of nuclear material. “It's technically feasible, and the work is advancing quite successfully,” Allison says.

Fitzpatrick cites other “purposeful steps” to limit the danger of a terrorist attack, such as “rolling back” Khan's black-market network, and more restrictive export controls for uranium by the Nuclear Suppliers Group, the 45 countries that strictly control their nuclear-fuel exports.

Also reportedly working well is the Proliferation Security Initiative proposed by President Bush in 2003, under which some 70 countries undertake to stop and search ships suspected of carrying banned weapons or technology in their territorial waters. Another initiative is U.N. Security Council Resolution 1540, passed in 2004, which requires all member nations to tighten their export-control regulations, ensure security of all nuclear materials and make breaches of the rules a criminal offense.

Also needed, says Allison, is a change of philosophy about nuclear weapons that would lead to a more rapid disarmament. A Martian looking down at Earth “would never realize that the Cold War is over,” he says. “The arsenals look almost the same, except neither side means to threaten the other. It's a fantastic anachronism. It's just the dead hand of the past.”

Background

'Destroyer of Worlds'

Hitler desperately wanted an atomic bomb, but despite pressure on German scientists, he did not get it. Werner
Heisenberg, the Nobel Prize-winning founder of quantum mechanics who headed one of the Nazi atomic weapon projects, would claim later that, troubled by his conscience, he had deliberately slowed down the work. 28

Heisenberg's critics say he failed to make a bomb only because he had miscalculated the amount of uranium needed. Either way, Heisenberg's biographers agree his report to the authorities in July 1942 on the difficulties, expense and time required to acquire enough uranium convinced the Nazis to scuttle the project. 29

The United States, of course, was at work on its own atomic bomb using enriched uranium. In 1942, the U.S. launched the top-secret Manhattan Project, with Italian nuclear physicist Enrico Fermi, Danish physicist Niels Bohr and American theoretical physicist J. Robert Oppenheimer, scientific director of the project.

Near the war's end, on July 16, 1945, the United States successfully tested its first atomic device at Alamogordo, N.M. Watching its famous mushroom cloud, Oppenheimer tersely remarked, “It worked.”

Later, with chilling prescience, he described his colleagues' reactions: “We knew the world would not be the same. A few people laughed, a few people cried, most people were silent. I remembered the line from the Hindu scripture, the “Bhagavad-Gita.” Vishnu is trying to persuade the prince that he should do his duty, and to impress him he takes on his multi-armed form and says, ‘Now I am become Death, the Destroyer of Worlds.’ I suppose we all thought that in one way or another.” 30

By then Germany had capitulated, but Japan was still fighting, and President Harry S Truman ordered an atomic bomb dropped on Hiroshima. The bomb was dropped on Aug. 6, virtually destroying the city and killing some 140,000 people, mostly civilians. Three days later, a second bomb hit Nagasaki; 74,000 died. The Japanese, stunned, surrendered on Aug. 15.

Boston for Berlin?

The devastation of Hiroshima and Nagasaki shocked many of the Manhattan Project scientists, including Oppenheimer, who ended up lobbying for international arms control. When the Soviets acquired nuclear capability in 1949, Oppenheimer attempted to influence policy away from a heated arms race. 31

But escalation was inevitable. In the 1950s, the Soviets had relatively few bombers that could reach the United States, while the far more numerous long-range U.S. aircraft, based around the world, could reach almost anywhere in the Soviet Union. The American nuclear arsenal was designed primarily to deter, and if necessary defeat, a Soviet attack on Europe, not on the United States.

The United Kingdom became the third nuclear power in 1952, followed by France in 1960 and China four years later.

The development of intercontinental ballistic missiles (ICBMs) during the 1960s put every corner of the globe—the United States included—within reach of nuclear attack. If the United States answered a Soviet attack on Europe, the Russians could hit the continental United States.

The nagging question was: Would the Russians believe that—as a commentator put it, “America was prepared to sacrifice Boston for Berlin?” 32

On the Soviet side, as newly gained documents of the Warsaw Pact reveal, the Soviet Union had plans to invade Western Europe with Warsaw Pact partners. 33

The invasion would be an offensive thrust deep into enemy territory, not a defensive reaction, despite the probability
of igniting a nuclear war.  

The Warsaw Pact postulated that the North Atlantic Treaty Organization (NATO) had weak defenses in Europe, that Soviet air defenses could destroy incoming NATO missiles before they landed, and that the Soviet Union would prevail because the West was less willing to suffer nuclear devastation.

As the Cold War escalated in the 1960s, the United States and the Soviet Union trained nuclear missiles at each other. Particularly alarming to the Soviets were the U.S. weapons in nearby Turkey. After the U.S.-led Bay of Pigs invasion failed to dislodge communist leader Fidel Castro from Cuba in 1962, the Soviets sent nuclear missiles to protect the island, citing the U.S. missiles in Turkey.

President Kennedy's showdown with Khrushchev over the missiles nearly plunged the world into nuclear war, but Khrushchev “blinked” first, dismantling the installations. As former U.S. Secretary of State Henry Kissinger later observed, “America and its allies had an incentive to emphasize both the certainty and the ferocity of their reaction to challenge. Since deterrence can only be tested negatively, by events that did not take place, and since it is never possible to demonstrate why something has not occurred, it became especially difficult to assess whether the existing policy was the best possible policy or just a barely effective one.”

Whatever its shortcomings, nuclear deterrence remained a key factor in U.S.-Soviet strategic thinking for nearly three decades.

In the 1950s, the United States and other nations were building the first generation of nuclear reactors for peaceful use. But this technological breakthrough also made weapons-grade fuel more accessible. Israel was already secretly creating its “unconfirmed” arsenal to ensure, as Israel Atomic Energy Commission Chairman Ernst David Bergmann said in 1952, “that we shall never again be led as lambs to the slaughter,” referring to the Nazi Holocaust.

In 1957, in a harbinger of problems to come, Iran launched a nuclear-energy program with U.S. help. “Petroleum is a noble material, much too valuable to be burned,” Iran's ruler, Shah Mohammed Reza Pahlavi, remarked. “We envision producing, as soon as possible, 23,000 megawatts of electricity using nuclear power.”

In an attempt to stem the rising nuclear tide, the world's five nuclear nations — also the five veto-wielding members of the U.N. Security Council — launched the Nuclear Non-Proliferation Treaty in 1968. But there were problems from the beginning.

Iran, for example, had agreements with the United States and France to develop nuclear power, and Iranian nuclear engineers began training at MIT. But in the late 1970s the United States said it had learned the shah was secretly developing nuclear weapons.

Following the 1979 Islamic revolution and the shah's overthrow, the ruling ayatollahs suspended Iran's nuclear program. In 1985, however, Iran's foreign minister said Iran needed weapons of mass destruction to counter Israel, and Iran's nuclear efforts were restarted with secret help from North Korea and Pakistan's Khan.

Weapons Ban Elusive

From the 1970s until the end of the Cold War, alternate cycles of nuclear escalation and disarmament followed the ebb and flow of East-West tension. Two major multilateral initiatives stand out — the effort to ban the production of fissile material for nuclear weapons and an attempt to halt nuclear testing.
The accumulation of weapons continued through the Reagan era in the 1980s, when the United States decided to position intermediate-range, ground-launched cruise and Pershing II missiles in Western Europe to counter the Soviet SS-20 missile. The SS-20 was mobile, more accurate than its predecessors and capable of targeting Europe, the Middle East and North Africa.

In 1983, Washington made Moscow a “dual track” offer in which talks about removing the medium-range missiles were to be held at the same time that they were being deployed. After hesitating, the Soviets agreed to negotiate. Meanwhile, the U.S. plan to deploy cruise and Pershing missiles had drawn widespread public protests throughout Europe.

In Germany, the missile-deployment issue split the ruling Social Democratic Party and brought down Chancellor Helmut Schmidt’s government. Eventually the United States and Russia agreed in the Intermediate Range Nuclear Forces Treaty (INF) to destroy their intermediate and short-range missiles, with attendant inspections. By the time the Pershings were removed from Germany, Italy and elsewhere they had still not functioned correctly in testing.

Bilateral (U.S.-Soviet) disarmament negotiations resulted in two Strategic Arms Limitation Treaties (SALT I & II). In 1972, SALT I froze the number of strategic ballistic missile launchers at existing levels. It also allowed old intercontinental ballistic missiles (ICBMs) that were dismantled to be replaced by submarine-launched ballistic missiles. Salt II, negotiated between 1972 and 1979, sought to curtail the manufacture of strategic nuclear weapons.

The SALT treaties led eventually to the START (Strategic Arms Reduction Treaty) talks. START I in 1991 and START II in 1993 (an agreement with the newly constituted Russia) limited the number of warheads to 6,000 for both sides, whether rocket-launched, fired from submarines or carried by bombers.

Talks on a Comprehensive Nuclear Test Ban Treaty, after four decades of efforts, began in Geneva, Switzerland, in 1994. The treaty, which President Clinton signed on Sept. 24, 1996, expanded an existing ban on atmospheric testing to include underground tests, even for peaceful purposes.

Clinton called it “the longest-sought, hardest-fought prize in the history of arms control.” The treaty allowed testing of non-radioactive explosives and would use an international network of monitors to ensure compliance. But the U.S. Senate stunned the world by soundly rejecting it in 1999.

Republican senators said the ban would leave the United States vulnerable and that the verification process would be difficult to implement. Sweden’s Blix recently called on the U.S. Senate to ratify the treaty because, he said, “it would set in motion a good communal effort. If the United States ratifies it, then China might; if India does, Pakistan could, and so on.”

The Bush administration took a skeptical view of nuclear-arms treaties. It did not resubmit the 1996 Comprehensive Test Ban Treaty to the Senate for ratification. It also abrogated the 1972 U.S.-Soviet Anti-Ballistic Missile Treaty, which was meant to discourage the superpowers from building safeguards against each other’s arsenals.
In December 2001, after the shock of the Sept. 11 terrorist attacks on New York City and the Pentagon, the administration called for research into new types of low-yield nuclear “bunker-busters” designed to penetrate deep underground — and for small-scale invasions against an entrenched enemy.

*The Warsaw Pact, including communist Central and Eastern European states, was established in 1955 to counter the perceived threat from the NATO alliance.

**Current Situation**

**New Threats**

Recent nuclear-related developments seriously threaten the fragile stability of two of the world’s most volatile regions. North Korea’s first underground nuclear test, on Oct. 9, 2006, “has produced an immense impact on peace and stability in the Korean peninsula and in northeast Asia,” commented China’s People’s Daily Online, which tends to reflect official opinion in Beijing.

Meanwhile, the growing likelihood that Shiite Iran will become nuclear power has become a matter of grave concern to Sunni powers such as Saudi Arabia and Egypt, to say nothing of Israel. The Jewish state sees itself as the No. 1 target of Iran, whose president threatens to wipe it off the map.

“Tehran is making a mockery of the international community’s efforts to solve the crisis surrounding Iran’s nuclear program,” Shimon Peres, vice premier of Israel, said last year, noting, “The president of Iran should remember that Iran can also be wiped off the map.”

“North Korea’s nuclear test alters the balance of power in northeast Asia,” says Fitzpatrick, of London’s Institute for Strategic Studies. “In every other field — economics, culture, diplomacy, technology, to name a few — the gap between the impoverished citizens of Kim Jong-Il’s regime and their world-class southern kinsmen could hardly be greater. The north’s aging conventional military capabilities have also fallen behind the south. But now North Korea boasts of possessing the ultimate equalizer” — a boast that has been confirmed by U.S. and other intelligence sources.

The IAEA’s ElBaradei calls the Pyongyang test “the only trump card Kim Jong-Il had. He felt isolated, and he was threatening: ‘We can do more harm unless you come and talk.’ ”

North Korea has been cut off from most of the outside world for decades, first under Kim Il-Sung, who transformed a Marxist regime into a personality-cult regime, and since his death in 1994 under his son. Soon after taking over, Kim had signed the so-called Agreed Framework with the Clinton administration: The United States and South Korea would supply light-water reactors and other nuclear energy technological aid in return for Pyongyang’s commitment to halt its nuclear-weapons program.

Bureaucratic complications delayed delivery of the reactors, and they had not arrived when George W. Bush succeeded Clinton in the White House. Where the Clinton administration had offered North Korea a carrot, Bush preferred the stick, pulling out of negotiations with the North Koreans. The Agreed Framework was scrapped, and Bush labeled North Korea a member of the “Axis of Evil,” along with Iran and Libya, for its human rights violations and efforts to develop nuclear weapons. Bush also labeled the diminutive Kim as the “Communist pygmy.”

But Kim still wanted bilateral talks with Washington as the price for halting his nuclear program. Instead, the United States demanded six-party talks involving Pyongyang and South Korea, along with Russia, China and Japan. Talks began on Aug. 6, 2003, centering on variations of the original technology-for-renunciation offer, buttressed by the warning of action by the U.N. Security Council in the case of non-compliance.
The talks were suspended on Feb. 10, 2005, and resumed on July 25. Between sessions and walkouts, North Korea was rumored to be continuing enrichment efforts. But on Sept. 19 Pyongyang announced that it was scrapping its nuclear program and rejoining the NPT, and the United States gave the North Koreans assurances that it would not attack.

The arrangement quickly soured, however, over attempts at an accord. North Korea refused to shut off its nuclear operations until it received the promised light-water reactors; Washington said delivery would follow the shutdown. As the deal went up in smoke, the six-party talks reconvened for their fifth session on Nov. 11, 2005.

On July 17, 2006, after the North Koreans had test-fired seven long-range Taepodong 2 missiles, the U.N. Security Council voted unanimously to impose sanctions to prevent North Korea from importing missile parts and materials. But then came the Oct. 9 nuclear underground test, and on Oct. 14 the Security Council imposed financial and weapons sanctions. On Dec. 18, the stalled talks were back on track.

Fitzpatrick at the London-based International Institute for Strategic Studies argues that “it’s questionable whether North Korea has the means of delivering a nuclear weapon.” The bomb design would not fit on North Korea’s Scud, Nodong or Taepodong missiles, he notes, and any plane or ship carrying the missile would be detected and taken out before reaching its target.

Moreover, a nuclear weapon fired over the 38th parallel into South Korea is unlikely because the “casualties and fallout would affect as many Koreans in the north as in the south,” he says.

America’s greatest concern is that “North Korea would sell or barter its nuclear weapons to another country or, God forbid, a terrorist group,” Fitzpatrick adds. “North Korea’s record of nuclear commerce, its financial crisis and its eagerness to sell missiles, weapons and illicit goods to any prospective buyer make the nightmare scenario a real possibility.”

A breakthrough finally came in the six-nation negotiations on Feb. 13, 2007, when North Korea promised to shut down its nuclear facilities at Yongbyon. In exchange, the other nations agreed to unfreeze certain contested North Korean bank accounts and to provide Kim with 50,000 tons of fuel oil as a first-step incentive to ensure eventual abandonment of all nuclear weapons and research programs. The final payoff would be additional economic, energy and humanitarian assistance to the value of 1 million tons of fuel oil.

The deal requires that the North Koreans seal the main nuclear reactor within 60 days and allow the IAEA to inspect the facilities. But at least one of China’s scientists expressed doubts. “What if North Korea doesn’t show them to inspectors, if they say we’ve stopped this and shut down that, what if they say you have to trust us?” asked Liu Gongliang, a physicist at the Institute of Applied Physics and Computational Mathematics who has followed North Korea’s nuclear program for the Chinese government.

The Japanese reaction hinged largely on the simmering issue of whether or not North Korea would apologize and make reparations for abducting Japanese citizens decades ago. “We understand it marks the first concrete step by North Korea toward its nuclear dismantlement,” Japanese Prime Minister...
Energy Agency (IAEA) won the Nobel Peace Prize in 2005 for his work against nuclear proliferation. (AFP/Getty Images/Samuel Kubani)

Shinzo Abe said, “But our position that Japan cannot provide support without a resolution of the abduction issue is unchanged.”

At the end of February 2007, North Korea asked IAEA head ElBaradei to visit Pyongyang. U.N. Secretary-General Ban Ki-moon called the invitation a “good beginning,” and added, “I hope sincerely that Iranian authorities should learn from the North Korean issue.”

The Iranian Conundrum

We face no greater challenge from a single country than we do from Iran,” President Bush declared in 2006. Yet Iran has so far tested no nuclear device, and experts believe it is not likely to be able to manufacture the bomb for another decade. President Ahmadinejad insists Iran has no intention of making nuclear bombs at all. He says Iran is within its rights as an NPT signatory to develop a nuclear program for peaceful purposes, and that is what is happening.

But the Bush administration points out that Iran, a major oil producer, has no need for a nuclear-energy program anyway. Yet a leading Iranian journalist, Kianouche Amirie of the Iran Times, argues, “Why should immense oil and gas reserves bar a country from developing nuclear energy? Everyone knows that oil and gas reserves will be finally exhausted, even if they might last for years. Above all, nuclear technology is a modern branch of science, and Iranians are eager to learn it.”

Nuclear technology maybe, but President Bush has said more than once that it would be “unacceptable” for Iran to have nuclear weapons.

Concern for Israel and for the implications of a Shiite bomb in the Middle East largely drive Washington’s opposition to the Iranian nuclear program. But foreign-policy experts believe that, like the North Koreans, the Iranians are at least partially trying to get America’s attention.

“From Iran’s perspective, the key is to normalize relations with the United States,” says ElBaradei. “In all these situations [involving Iran and North Korea] negotiating is indispensable, and we should move away from the idea of dialogue as a reward” for disarmament. In other words, halting Tehran’s nuclear program should not be considered a prerequisite for talking to the Iranians.

ElBaradei is not alone in thinking that Iran seeks to re-establish relations with the United States. The Bush administration itself believes that in refusing to talk directly to the Iranians, it is withholding a desired prize. Several leading Iranians, including former President Mohammed Khatami on his visit to the United States last summer, voiced similar sentiments.

One advantage to Iran from normalizing relations would be the restitution of over $10 billion in Iranian assets frozen by the United States following the 1979 revolution. But if Tehran’s motivation is normalization, continued stalemate is likely. Direct, bilateral dealings with Iran remain anathema to President Bush.

As in its negotiations with North Korea, the United States is part of a group negotiation with Iran, along with Britain, France, Germany, Russia and China. The Western powers are focusing on persuading Tehran not to enrich its own uranium and not to develop nuclear weapons capability. The European governments began talks with Iran in October 2003, and at the Europeans’ request, Iran stopped enriching uranium — the crux of the matter. Washington, after considerable hesitation, joined the talks in 2005, as did Moscow and Beijing.

The strategy was to offer Iran technical and financial incentives stiffened with warnings of U.N. action in the case of non-compliance. But Iran resumed its uranium enrichment in June 2006 at the Natanz reactor and two other locations.

An offer from Moscow to enrich uranium on Iran’s behalf and then collect the spent fuel to remove suspicion that it could be converted for weapons use was turned down flat. In August 2006 the Iranians ignored a U.N.-imposed deadline.
to stop. The result: On Dec. 23, the U.N. Security Council voted to restrict Iran's imports of sensitive nuclear material and to freeze the assets of 22 Iranian officials and institutions connected with the nuclear program.

Meanwhile, the debate about Iran's real intentions goes on in the international community with a growing tone of frustration. “The world is not against Iran going for nuclear power, but going for nuclear enrichment,” says Blix. “They say they have a right, but that doesn't mean they must do it. Today, it's very much a prestige question and a pride question, and that should be taken into account.”

French President Jacques Chirac let slip a comment that he quickly withdrew later, but it spoke volumes about the differences between French and U.S. policy toward Iran.

“[W]hat is dangerous about this situation is not the fact of having a nuclear bomb,” he said. “Having one or perhaps a second bomb a little later, well, that's not very dangerous. But what is very dangerous is proliferation.”

It would be an act of self-destruction, Chirac explained, for Iran to launch a bomb. “Where will it drop it, this bomb? On Israel?” he asked. “It would not have gone off 200 meters into the atmosphere before Tehran would be razed to the ground.”

U.S. reaction to the threats from Iran and North Korea is affecting U.S.-Russian relations and causing concern about a possible new arms race between the two former Cold War adversaries. Moscow has been infuriated by U.S. plans — announced on Feb. 22 — to deploy 10 missile interceptors in Poland and a missile radar in the Czech Republic by 2011 as part of America's new missile defense system. While Washington says the system is essential to dealing with rogue states, Moscow sees the move as an example of NATO's expansion into Eastern and Central Europe and the remilitarization of Europe.

“Plans to expand certain elements of the anti-missile defense system to Europe cannot help but disturb us,” said Russian President Putin in February during a speech in Munich, with U.S. Defense Secretary Robert Gates, sitting nearby. “Who needs the next step of what would be, in this case, an inevitable arms race?”

Two senior Russian generals later said Moscow might withdraw from the intermediate-range nuclear arms control agreement. Meanwhile, the Putin government — flush with burgeoning oil and gas revenues — has just announced a massive new $190-billion arms-buying spree that would replace nearly half of Russia's military arsenal over the next eight years, including its submarine-launched ballistic missiles.

Outlook

Twin Threats

The specter of nuclear theft from the remaining stockpiles of Cold War belligerents, especially in Russia, remains undiminished. Mini-powers India and Pakistan seem mutually deterred but could easily come to blows at the drop of an ethnic insult or a crisis in Kashmir.

Meanwhile, some analysts worry that if Pakistan's radical, pro-Taliban mullahs were to take power, the country's nuclear arsenal could fall into the hands of Islamic extremists. Pakistan's hard-line Islamist parties have grown in strength in recent years, despite President Pervez Musharraf's authoritarian, secular rule, and there have been repeated attempts on his life. The military under Musharraf, who seized power in a military coup in 1999, has instituted elaborate security measures to protect the nation’s nuclear arsenal, but the Bush administration has criticized Musharraf for not cracking down harder on a resurgent Taliban movement on the border between Pakistan and Afghanistan.

Israel will continue to contend with regimes that have threatened to annihilate it. Last August, The Jerusalem Post quoted a “senior source” as saying that Iran “flipped the world the bird” by not agreeing to stop enriching uranium. “The Iranians know the world will do nothing,” he said. “This is similar to the world's attempts to appease Hitler in the
1930s — they are trying to feed the beast.”

Israeli Foreign Minister Tzipi Livni warned that, “Every day that passes brings the Iranians closer to building a nuclear bomb. The world can’t afford a nuclear Iran.”

Meanwhile, despite cries of hypocrisy from developing nations and non-proliferation advocates, the United States will continue to augment its nuclear arsenal. In March 2007 the National Nuclear Security Administration announced the selection of a design for Reliable Replacement Warheads, a new generation of nuclear warheads initially for submarine-launched missiles — the first new U.S. nuclear weapons in more than 20 years.

Simultaneously, the U.S. will attempt to placate, through carrot-and-stick diplomacy, North Korea’s Kim Jong-il. Despite the February agreement that suspends North Korea’s nuclear program, the book is hardly closed on their episodic threats to global stability.

If a revanchist North Korea is allowed to continue to develop nuclear weapons, the reverberations would thunder throughout the Pacific Rim. As a dominant economy in the Far East, Japan would have to make a grave decision about its own security. That decision in part depends on whether or not Tokyo feels Japan is still covered by the U.S. nuclear umbrella.

The prospect of a U.S. umbrella is met with a dark sense of irony in the Japanese cities that actually experienced nuclear devastation. “I feel great anger over North Korea’s conducting of a nuclear test,” said Tadatoshi Akiba, mayor of Hiroshima.

The six-nation accord with North Korea was greeted by most of the world with a sense of relief and hope, but even those loyal to the Bush administration, pointing to the Hermit Kingdom’s record of obfuscation and brinksmanship, say the White House may have been outfoxed again.

“It sends exactly the wrong signal to would-be proliferators around the world: If we hold out long enough, wear down the State Department negotiators, eventually you get rewarded,” said John Bolton, chief of staff to President Bush and a former U.S. representative to the United Nations.

It is possible that North Korea, a nation that has suffered poverty and starvation under the mismanagement of its xenophobic regime, may keep its promises this time. But any return to its weapons program could easily launch a new chapter of the nuclear arms race in Asia.

Some Arab commentators even fear that Iran’s nuclear capability will be directed at them. Abd Al-Rahman Al-Rashed, director of Al-Arabiyya TV in Dubai, argues that Iranian nuclear weapons would more likely target the Gulf countries than anyone else.

“It is inconceivable that Iran will drop the bomb on Syria and target Jordan or Egypt,” he said. “It is incomprehensible that Iran will bomb Israel, which has a shield of missiles, tremendous firepower, and nuclear weapons and artillery sufficient to eradicate every city in Iran. In addition, any attack on Israel would mean the immediate, wide-scale destruction of the Palestinians. . . . This means that if this destructive weapon is used, the only option for a target is the Arab Gulf. . . . Fear will plunge the region into an arms race that will serve no one in the region — only the arms dealers in the West, and particularly in Russia.”

“What is our sin, and that of our children and our grandchildren, who must live [in the shadow] of concern about Iran?” added Qatari intellectual Abd Al-Hamid Al-Ansari, former dean of the Faculty of Shari’a and Law at Qatar University. “How can we be calm about Iran, when it still occupies the United Arab Republic’s islands and has a problem with every country in the region?”
Iran has reacted with typical bravado. Its government-owned Abrar newspaper reported last year that Iranians know that “American military strategists are considering rapid strikes on Iran’s sites in order to prevent Iran from continuing its nuclear program. The fact of the matter is that at times the news published in Western publications is aimed at launching a psychological warfare against the Islamic system. Although it might seem easy for the Americans to start a war against Iran, they cannot predict its outcome.”

The Russians, who have heavily invested in Iran, are urging caution in the dispute over Tehran’s nuclear ambitions. “At the current stages, it is important not to make guesses about what will happen, and even more important not to make threats,” said Russian Foreign Minister Sergei Lavrov.

Iran continues to roil international feathers. On March 24 the U.N. Security Council voted for new trade and financial sanctions against Iran, prompting a defiant Iran to announce it was suspending cooperation with the IAEA. Then, two days later, Russia and China urged Iran to accede to the U.N. demands, indicating new impatience on the part of two of Iran’s closest allies.

As the international nuclear community grows, the need for more international control becomes more urgent, and this issue is likely to dominate the coming years. “Sanctions don’t work as a penalty,” says IAEA chief ElBaradei. “They tend to put hard-line leaders in the driver’s seat. Enrichment and re-processing must be put under multinational control.”

He and others believe the answer lies in persuading countries to give up enriching their own uranium and obtaining the nuclear fuel they need ready-made, thus removing or limiting their ability to make weapons.

In September 2006, an IAEA meeting discussed the creation of multinational fuel banks where nations could watch one another and ensure that no country tried to divert some of the uranium for weapons. Russia has taken the lead in proposing to set up such a bank, selling the fuel internationally, and also collecting the spent fuel.

“The problem is to separate the enrichment capacity from the problem of deterrence,” says ElBaradei. “A lot of countries enrich for security reasons, and we need to reassure them.”

**Pro/Con**

**Is a total ban on nuclear weapons possible today?**

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<th><strong>PRO</strong></th>
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| **Kennette Benedict**  
Executive Director, Bulletin of the Atomic Scientists. Written for CQ Global Researcher, January 2007 | **Paolo Cotta-Ramusino**  
Professor of physics, University of Milan, Italy. Written for CQ Global Researcher, January 2007 |
| The chances of a total ban on nuclear weapons are certainly better than zero. Eliminating nuclear weapons is still like eliminating the institution of slavery to some people. But a *Wall Street Journal* essay in January by former Secretaries of State Henry Kissinger and George Shultz, former Secretary of Defense William Perry and | There are two existing treaties that ban the production, stockpiling and use of weapons of mass destruction. One is the 1972 convention banning biological weapons, and the other is the chemical weapons ban of 1993. Would a similar measure outlawing nuclear weapons be possible? |
former Armed Services Committee Chairman Sen. Sam Nunn, D-Ga., was one of several signs that some prominent people are rethinking the nuclear situation.

The Journal article called on President Bush to take the lead in reversing reliance on nuclear weapons as a step toward preventing further proliferation. It also called for ratification of the Comprehensive (Nuclear) Test Ban Treaty, taking nuclear weapons off high alert, further reducing the number of nuclear forces and halting the production of fissile materials.

While the authors didn't talk of prohibition, they did call for a world free of nuclear weapons.

In Washington, there is at least understanding that it doesn't make sense to be calling on others not to have nuclear weapons while at the same time continuing to have them. Prohibition would require the powers that have the weapons — and that really means the United States and Russia — to take seriously Article Four of the Nuclear Non-proliferation Treaty, which commits the nuclear states to nuclear disarmament.

That would be a beginning. At the height of the Cold War the combined number of weapons held by America and the Soviet Union was 60,000. Estimates are now down to 27,000 — so we're halfway there.

After the fall of the Berlin Wall, President George H.W. Bush made a significant start on dismantling America's nuclear arsenal. In Russia, thousands of missiles have been dismantled — the Russians can't afford to maintain the large arsenals they had in the past. People understand the danger to their own security of the spread of nuclear weapons, and the only way to protect ourselves is for nobody to have them.

It would take a pretty robust monitoring effort, but the International Atomic Energy Agency (IAEA) has shown that it can measure up to the task. We also would have to deal with the problem of enriched uranium being available for weapons, but there are ways to reduce and lock these materials away. And there would have to be security assurances, but isn't that what the United Nations was set up to do?

The advantages of such a ban are obvious: an end to the danger that nuclear states might use their weapons, to the problem of proliferation — and to the discriminatory situation between the “have” states and those without nuclear weapons. Outlawing them would also brand the use of nuclear weapons as illegal and immoral.

But equally obvious are the problems connected with the transition to an effective prohibition. How to ensure that some states will not retain nuclear weapons in defiance of the convention? How to prevent states with nuclear capability for commercial development from making the relatively easy switch to weapons production?

In the present international situation the pace of nuclear disarmament should be stepped up. But as the numbers of remaining weapons decrease to very small levels, the process of reaching zero will become more complex and laborious. Then there's also the difficulty of putting in place a mechanism to prevent clandestine weapons production. At this point, if we are realists, we will have to say that total nuclear disarmament is a utopian concept that works better in peace demonstrations than in the world of “serious” international politics.

If the nuclear situation were stable, it would be different. But a state of affairs that includes nations that are “officially” nuclear, others that are de facto nuclear, still others that want to be nuclear, and those that could become nuclear if the necessity arose, is not a stable situation despite the last 50 years of “cold peace.”

Much depends on the attitude of the United States and Russia. If nuclear disarmament moves swiftly, and if the emphasis on nuclear arms is eventually reduced, moving in the direction of zero, then international opinion will be more inclined not to condone nuclear proliferation, and the prestige of possessing nuclear weapons will become a thing of the past. But if the disarmament process were to slow down even further, and the emphasis on the nuclear component in defense were to increase even to a small degree, then the result will be the opposite.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1940s</td>
<td>U.S. drops world’s first atomic bombs.</td>
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<td>1945</td>
<td>Atomic bombing of Hiroshima (Aug. 6) and Nagasaki (Aug. 9).</td>
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<td>1949</td>
<td>Soviet Union tests nuclear weapon.</td>
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<td>1952</td>
<td>Great Britain tests nuclear weapon.</td>
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<td>1960</td>
<td>France tests first nuclear weapon.</td>
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<td>1963</td>
<td>Partial Test Ban Treaty outlaws tests in the atmosphere, outer space and underwater.</td>
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<td>1964</td>
<td>China tests first nuclear weapon.</td>
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<td>1967</td>
<td>Israel acquires nuclear weapons.</td>
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<td>July 1, 1968</td>
<td>Nuclear Non-Proliferation Treaty (NPT) is launched for signature.</td>
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<td>1970s</td>
<td>U.S. and Soviet Union slow arms race.</td>
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<td>1971</td>
<td>Strategic Arms Limitation Treaty (SALT I) halts production of ICBM launchers and limits further production of submarine-launched missiles.</td>
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<td>1974</td>
<td>India tests nuclear device.</td>
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<td>1977</td>
<td>Soviets deploy SS-20 medium-range missiles targeting Europe.</td>
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<td>1979</td>
<td>U.S. and Soviet Union sign SALT 2 treaty limiting strategic weapons.</td>
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<td>1980s</td>
<td>President Ronald Reagan announces plans to develop a “Star Wars” nuclear defense system in space.</td>
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<td>1983</td>
<td>Reagan announces plans to create a ground- and space-based system to protect the United States from nuclear attack. . . . NATO deploys American Pershing II and ground-launched cruise missiles in response to the Soviet SS-20s.</td>
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<tr>
<td>1988</td>
<td>North Korea builds two nuclear weapons.</td>
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<td>December 1991</td>
<td>Soviet Union disbands, leaving behind thousands of poorly guarded nuclear weapons.</td>
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<td>1994</td>
<td>Stolen nuclear material turns up in Czech Republic and Germany.</td>
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<td>1995</td>
<td>The NPT is made permanent.</td>
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<td>1996</td>
<td>Comprehensive Nuclear Test Ban Treaty is signed by 71 states on its first day, including the five original nuclear weapon states.</td>
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<td>1998</td>
<td>Pakistan conducts six nuclear weapons tests.</td>
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<td>2000</td>
<td>Iran is revealed to be constructing a large uranium-enrichment facility.</td>
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<td>2002</td>
<td>Clandestine nuclear-weapons program disclosed in North Korea.</td>
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<td>2004</td>
<td>Pakistani nuclear scientist A. Q. Khan admits to selling nuclear technology to Libya, North Korea, Iran.</td>
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<tr>
<td>2006</td>
<td>President George W. Bush and Russian President Vladimir Putin announce the Global Initiative to Combat Nuclear Terrorism at G-8 summit. . . . North Korea test fires seven missiles into the Sea of Japan in July, and conducts underground test on Oct. 9. . . . President Ahmadinejad denounces efforts to stop Iran’s nuclear program.</td>
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2007

North Korea agrees to seal its main nuclear reactor in exchange for heating oil. . . U.N. Security Council votes 15-0 on March 24 to ban all Iranian arms exports and freeze Iranian financial assets over Iran's refusal to stop enriching uranium. Iran responds by partially suspending cooperation with IAEA.

Short Features

A.Q. Khan's Black Market Nuclear Wal-Mart
Pakistan's chief scientist sold secrets

On Feb. 4, 2004, Abdul Qadeer Khan, Pakistan's chief nuclear scientist, went on national television and confessed that he had secretly sold nuclear designs and technology to other countries. “It pains me to realize in retrospect that my entire lifetime achievements providing foolproof national security to my country have been placed in serious jeopardy on account of my activities,” Khan said.

The next day, President Pervez Musharraf announced that he had pardoned Khan, and, while declaring him placed under house arrest, called him “my hero” and said, “I revere him for his contribution to making the defense of the country impregnable.” Pakistanis were stunned. A.Q. Khan (as he is usually known) was a national hero who in the eyes of many had delivered their country from the threat of a nuclear attack by India by developing Pakistan's own strategic capability.

India had tested a nuclear weapon in 1978. Under Khan's direction Pakistan was successful in producing its own nuclear response, carrying out six decisive tests in 1998.

But Khan's success had a dark side: Recognizing a major business opportunity, he also organized the largest known international nuclear black market ring. Robert L. Gallucci, a former top State Department nuclear proliferation expert, calls it “one of the greatest threats to international security of which I am aware.”

By his own admission, Khan had between 1989 and 2000 provided technology and expertise to Iran, Libya and North Korea. In a complex ongoing investigation, International Atomic Energy Agency (IAEA) officials have still not ruled out other possible customers.

Born in Bhopal, India, Khan migrated with his Muslim family to Pakistan when the two nations split in 1947. He trained as a metallurgist in Germany, and in December 1972 was hired by an Amsterdam-based engineering firm with links to a manufacturer of nuclear equipment with an enrichment facility in Almelo, the Netherlands.

By 1974, Khan had an office in that facility and became familiar with centrifuges and the enrichment process. But the story starts earlier, in 1971, as Khan watched Pakistan lose the war with India and vowed to help prevent another defeat from happening.

Three years later, as India tested its nuclear device, he offered Prime Minister Zulfikar Ali Bhutto his help in creating the world's first Islamic nuclear bomb. In 1975, when his Dutch employers discovered that Khan had stolen centrifuge blueprints he fled back to Pakistan.

“The Pakistan-based network traded everything from blueprints for centrifuges that enrich uranium to weapons' designs and parts,” according to a Council on Foreign Relations background briefing paper. “It also included a sophisticated transportation system to move the goods from the supplier to the buyer.”

Khan began transferring nuclear technology to the Iranians in 1989, even before Pakistan's own weapons had been fully developed. The help started with a centrifuge design and went on to hardware; the IAEA says Khan's assistance to Tehran continued until 1996, with the ruling ayatollahs paying millions of dollars for his expertise.
Abdul Qadeer Khan tossed the world of nuclear proliferation into consternation by admitting to passing nuclear designs and technology to Iran, Libya, and North Korea in 2004. The regime in Pyongyang exchanged its knowhow in nuclear-capable long-range missiles for Pakistani nuclear technology. One source says that Khan made 13 trips to North Korea to help with the design and equipping of uranium-enrichment facilities.

Libya was to prove Khan’s downfall. Western intelligence and the IAEA for some time had indications that the head of Pakistan’s nuclear program was engaged in nuclear proliferation on a large scale. For example, IAEA inspectors in Iran discovered that some centrifuge components in Iranian reactors had originated in Pakistan and that the Iranian enrichment program resembled Pakistan’s.

A major breakthrough came in October 2003 when Italian authorities intercepted a German ship bound for Libya with thousands of parts for uranium centrifuges. They had been made in Malaysia from Khan’s designs.

The discovery is said to have “tipped the balance” for Libyan leader Muammar Qaddafi, “forcing him to agree in December to disclose and dismantle his own nuclear program.” Qaddafi’s decision put “a mother lode of information” in the hands of the IAEA investigators. Documents turned over by the Libyans included centrifuge designs and even precise blueprints for the design and construction of a half-ton nuclear bomb. It was “the Libyans who blew up the Pakistanis,” and who made the role of Khan’s black market known, according to a New Yorker article by investigative journalist Seymour Hersh.

Starting in 1994 Khan was also involved in a technology trade with North Korea. The regime in Pyongyang exchanged its knowhow in nuclear-capable long-range missiles for Pakistani nuclear technology. One source says that Khan made 13 trips to North Korea to help with the design and equipping of uranium-enrichment facilities.

While the nuclear black market goes back almost to the dawn of the nuclear age, Khan’s approach broke new ground in scope and concept. Mohamed ElBaradei, head of the International Atomic Energy Agency, called it “the Wal-Mart of private-sector proliferation” because — as the CFR study states — Khan “created a centralized one-stop shop that offered technical advice, parts, and customer support.” Shipment of the Malaysia-produced centrifuges tended to be through a shipping company in Dubai, on the Persian Gulf.

A 2006 report by the Stockholm-based Weapons of Mass Destruction Commission charged that Khan’s network could not have functioned “without the awareness of the Pakistani government.” This has long been the belief of intelligence sources and experts. Islamic fundamentalists in the Pakistani intelligence service, they say, provided help and protection.

U.S. and British officials have complained publicly that efforts to learn which other countries Khan was in touch with prior to his discovery have been blocked by Pakistani authorities. But the consensus is that he has made the world more dangerous because some of the members of his wide organization could still do business. Already in 2004, ElBaradei was quoted as saying, “the information is now all over the place, and that’s what makes it more dangerous than in the 1960s.” And, says Gallucci, “Bad as it is with Iran, North Korea having nuclear-weapons material is much worse. The worst part is that they could transfer it to a non-state group.” In other words, to terrorists.

[3] Gallucci is dean of the Edmund K. Walsh School of Foreign Service at Georgetown University. For details of Khan’s black market activities see, for example, www.globalsecurity.org/wmd/world/pakistan.
The firm was Physics Dynamic Research. The company (also known as FDO) had business links to URENCO, a joint Dutch-German-British nuclear organization. Details of Khan's early career from Gordon Corera: *Shopping for Bombs: Nuclear Proliferation, Global Security, and the Rise and Fall of A.Q. Khan* (2006). Other sources, however, say it was Bhutto who approached Khan.


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**Inside the Nuclear Non-Proliferation Treaty**

*Dealing with the “haves” and “have nots”*

The landmark U.N. Nuclear Non-Proliferation Treaty (NPT) was essentially a bargain between the nuclear-weapon states — the “haves” — and the non-nuclear-weapon states — the “have nots.” Its three aims were, and remain to prohibit new nuclear weapons programs; to encourage civilian nuclear energy development; and to encourage nuclear-weapon states to reduce their arsenals to zero, or close to it. Opened for signature on July 1, 1968, and entered into force on March 5, 1970, it has so far been ratified by 188 sovereign states, including the original five “haves” — the United States, the former Soviet Union, Britain, China and France.

Pakistan and India, both of which have nuclear weapons, and Israel — also known to be a weapons state even though the Israelis have never publicly admitted it — have not signed the treaty. Iran was one of the early signatories (1968). North Korea signed the NPT in 1985 but withdrew — the only country so far to have done so.

In Article I of the agreement the “haves” undertook “not to transfer to any recipient whatsoever nuclear weapons or other explosive nuclear devices or control over such weapons or explosive devices directly, or indirectly,” or to help the non-weapon states to acquire such weapons.

In Article II, the “have nots” agreed “not to receive the transfer from any country whatsoever of nuclear weapons or other nuclear explosive devices,” and “not to manufacture or otherwise acquire nuclear weapons.” But Article IV confirms “the inalienable right” of all signatory states to develop, research, produce and use nuclear energy “for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.”

It has been said that by giving all states the right to develop their own nuclear power plants, the treaty in effect opens the way to proliferation since any nuclear reactor, if it has enough centrifuges, can enrich uranium to weapons level. On the other hand, the treaty drafters may have felt that Article VI would counterbalance this risk.

Article VI enshrines the heart of the bargain. In return for a commitment from the non-nuclear-weapon states not to develop weapons programs, the “haves” in effect promised to also become “have nots.” They agreed “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 or general and complete disarmament under strict and effective international control.” In other words, they promised a nuclear-free world.
The treaty established a safeguards system under the responsibility of the International Atomic Energy Agency (IAEA), which was to verify compliance with the treaty through inspections.

Tucked away almost at the end of its 11 articles is the treaty's definition of a nuclear-weapon state as a country that detonated a nuclear weapon prior to Jan. 1, 1967. In 1970, that meant the United States, the Soviet Union and the United Kingdom. China and France were retroactively added to the group in 1992.

Originally — and unusually for an international treaty — the NPT was supposed to run for 25 years. However, in 1995 it was extended indefinitely. At mandatory review conferences held every five years the treaty has invariably been criticized by the “have nots” as discriminatory by the “haves.” They have claimed that nuclear-weapon states have not done enough to comply with Article VI and reduce their arsenals.

The final declaration of the 1975 conference, for example, expressed serious concern that the nuclear arms race had continued unabated and called for more effort on reduction. The United States and the Soviet Union argued that the two agreements limiting offensive and defensive strategic weapons resulting from SALT I, the first stage of arms limitation talks, represented considerable progress in nuclear arms limitation.

The same complaints surfaced from non-nuclear-weapon countries in 1980, and again five years later. In 1990 their differences with the “haves” — particularly the United States — over a proposed comprehensive test ban treaty led to the conference closing without a final declaration. In 1995, a conference declaration stressed that with the Cold War consigned to history the time was right for arms reduction “to be fulfilled with determination.”

Despite the criticism, the 1995 conference decided in favor of extending the treaty indefinitely instead of for another 25-year period. As with all rules, implementation is everything, and the NPT has its defenders. “More countries have dismantled their nuclear weapons than have established such programs, and given that [President] John Kennedy believed in the 1950s that we would end up with 20 or 30 actual nuclear-weapon states by this time, we haven’t done badly with nine,” observes Kennette Benedict, executive director of the Bulletin of the Atomic Scientists.

Benedict concedes that the United States and the Soviet Union/Russia have made a good start on drawing down their respective nuclear arsenals — from a high of 60,000 in the 1970s to about 26,000 today. “But given the horrific destruction of these weapons, the goal of zero is still the right one,” Benedict says. “And the political conditions — no more Cold War — would seem to set the stage for a realistic drawdown.”


[17] See 1995 Conference Decision on http://disarmament.un.org/: “Nuclear disarmament is substantially facilitated by the easing of international tension and the strengthening of trust between states which have prevailed following the end of the cold war.”

Voices from Abroad

Don’t criticize Japan — Our nuclear program is peaceful

Yomiuri Shimbun
Japan
April 2, 2006

"Japan has . . . been singled out for operating a spent nuclear fuel reprocessing plant while not possessing nuclear weapons. Critics say there is no other nuclear weapons-free country in the world that operates such a facility. They are grossly mistaken. Japan's nuclear program is entirely aimed at serving peaceful purposes."

Nuclear doublespeak by Western countries

Xinhua News Agency
China
Dec. 9, 2006

"While many blame [North Korea] and Iran for frustrating international efforts on nuclear non-proliferation, the double standards adopted by some Western countries on nuclear issues could also be said to add to the problem, for their stance has undermined the authority of the Nuclear Non-Proliferation Treaty."

A blind eye on Pakistan?

Yashwant Sinha
Senior Leader, Bharatiya Janata Party, India
March 22, 2005

"The so-called international monitors are attacking Iran and Korea while they keep a blind eye on the nuclear proliferation activities of Pakistan."

American aid to Israel is hypocritical

Dawn
Pakistan
Oct. 10, 2006

"The behavior of the Western powers, America especially, is not above board, because they themselves have contributed to nuclear proliferation by aiding Israel in its clandestine nuclear project."

The entire edifice will collapse

The Jerusalem Post
Israel
Oct. 10, 2005

"If Iran, the foremost sponsor of terrorism in the world, is allowed to have nuclear weapons then the entire non-proliferation edifice will collapse, like a dam with one too many cracks."

Much, much more to do

The Globe and Mail
Toronto, Canada
Oct. 10, 2005
“Despite all the talk about non-proliferation in the past few years, the international regime for controlling the spread of nuclear weapons is still woefully weak. Only the United States has made non-proliferation a real focus of its foreign policy. Others merely tag along.”

ElBaradei angers U.S.

Arab News
Jeddah, Saudi Arabia
Oct. 8, 2005

“As head of the U.N.’s nuclear watchdog, Mohamed ElBaradei has had a tough time, not simply in the agency’s dealings with North Korea and Iran, but from the Americans, who opposed his reappointment. . . . His sin in Washington’s eyes was that, as America prepared to invade Iraq, he said clearly he did not believe that Saddam’s regime still had nuclear weaponry.”

Nuclear proliferation ‘wishful thinking’

The Daily Telegraph
London, England
Oct. 8, 2005

“The award of the Nobel Peace Prize to the International Atomic Energy Agency and its Egyptian director general, Mohamed ElBaradei, is a classic case of wishful thinking. . . . For the past 15 years, the IAEA has proved inadequate to the task. . . . It is to the director general’s credit that, before the invasion of Iraq in 2003, he resisted the fantasies of Tony Blair and George W. Bush about Saddam Hussein’s weapons of mass destruction.”

Why deny Iran its rights?

The Daily Star
Beirut, Lebanon
Aug. 10, 2005

“The international community’s reluctance to acknowledge Iran’s rights to nuclear power is understandable, considering the fact that Iran hid its nuclear program from the world’s eyes for nearly two decades. But if safeguards can now be established, it is unrealistic to deny Iran the rights that are extended to every other country in the global community.”

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The Next Step
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“A New Nuclear Realism,” Indian Express, Oct. 25, 2005. Only recently have senior Indian officials clearly addressed the country's desire for nuclear diplomacy.


Ryu, Jin, “Roh, Putin Stress Nuclear Diplomacy,” Korea Times, Oct. 17, 2006. South Korean President Roh and Russian President Putin reaffirmed their commitment to resolving the issue over North Korea’s nuclear ambitions through dialogue.

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“Iranian Nation Insists on Right to Peaceful Nuclear Technology,” Islamic Republic News Agency, Sept. 1, 2006. During a visit to Azerbaijan, President Ahmadinejad called for support of Iran’s right to use nuclear energy for peaceful purposes.

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6042 South Kimbark Ave., Chicago, IL 60637
(773) 702-2555
www.thebulletin.org
Nonprofit organization dedicated to security, science and survival since 1945.

Carnegie Endowment for International Peace
1779 Massachusetts Ave., N.W., Washington, DC 20036
(202) 483-7600
www.ceip.org
Think tank advancing international cooperation and U.S. international engagement.

Center for Arms Control and Non-Proliferation
322 4th St., N.E., Washington, DC 20002
(202) 546-0795
www.armscontrolcenter.org
Seeks the reduction of nuclear weapons as a significant tool of U.S. national security policy.

Council on Foreign Relations
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(212) 434-9400
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(212) 481-8100.
Nonprofit organization dedicated to inspiring the American public to learn more about the world; provides independent publications, programs and forums to increase public awareness of policy issues.

Foreign Policy Forum
517 Third St., Annapolis, MD 21403
(410) 263-1139
www.foreignpolicyforum.com
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International Atomic Energy Agency
P.O. Box 100, Wagramer Strasse 5, A-1400 Vienna, Austria
(+431)-2600-0
www.iaea.org
Global center for cooperation on nuclear issues.

International Institute for Strategic Studies
13-15 Arundel St., Temple Place, London WC2R 3DX, United Kingdom
+44-(0)-20-7379-7676
www.iiss.org
Think tank focusing on international security with emphasis on political-military conflict.

Israel Atomic Energy Commission
P.O. Box 7061, Tel Aviv 61070, Israel
+972-(3)-6462566
www.iaec.gov.il
Advises Israeli government on nuclear policy issues.

Nuclear Threat Initiative
1747 Pennsylvania Ave., N.W., 7th Floor, Washington, DC 20006
(202) 296-4810
www.nti.org
Works to reduce threats from nuclear, biological and chemical weapons.

Weapons of Mass Destruction Commission
103 39 Stockholm, Sweden
(+46)-8-543-56-112/123
www.wmdcommission.org
Works toward international cooperation for non-proliferation, arms control and disarmament.

World Nuclear Association
22A St. James's Square, London SW1Y 4JH, United Kingdom
+44(0)20-7451-1520
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About the Author

Roland Flamini is a Washington-based correspondent who writes a foreign-affairs column for CQ Weekly. Fluent in six languages, he served as Time magazine’s bureau chief in Rome, Bonn, Beirut, Jerusalem, and the European Common Market and later served as international editor at United Press International.

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