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The Enduring Effects of Atoms for Peace

[Peter R. Lavoy](#)

Five decades ago, President Dwight D. Eisenhower presented a bold and imaginative nuclear initiative to the United Nations. Although the “Atoms for Peace” plan was immensely popular and fundamentally altered the way the world treated nuclear energy, some contemporary observers contend that the policies and capabilities it produced inadvertently fueled the global spread of nuclear arms. As Leonard Weiss recently wrote, “[I]t is legitimate to ask whether Atoms for Peace accelerated proliferation by helping some nations achieve more advanced arsenals than would have otherwise been the case. The jury has been in for some time on this question, and the answer is yes.”^[1] This contention is correct but somewhat incomplete. On the one hand, Eisenhower’s policies did hasten the international diffusion of scientific and industrial nuclear technology, and some recipient nations—Israel, India, and Pakistan—did divert U.S. nuclear assistance to military uses. On the other hand, Atoms for Peace produced many of the most important elements of today’s nuclear nonproliferation regime: the International Atomic Energy Agency (IAEA), the concept of nuclear safeguards, and most importantly, the norm of nuclear nonproliferation. In the final analysis Eisenhower was no more or less successful than his successors in trying to balance the possession and possible use of nuclear forces for America’s defense with efforts to discourage other countries from acquiring nuclear weapons.

Truman’s Legacy: Technology Denial and Secrecy

The U.S. government was concerned about the diffusion of nuclear weapons technology and materials even before it manufactured its first nuclear explosives for possible military use in the Second World War. In order to prevent Germany, Japan, or Russia from acquiring the expertise or materiel required to make nuclear bombs, President Franklin D. Roosevelt placed the Manhattan bomb development project under strict secrecy—so secret, in fact, that his vice president, Harry Truman, was unaware of the bomb’s existence until after Roosevelt’s death.^[2] The high stakes of the nuclear race with Germany, however, soon led Washington to collaborate with its closest wartime allies, Great Britain and Canada. The world’s first nuclear nonproliferation accord, the secret Quebec agreement of August 1943, committed the Atlantic allies not to communicate any atomic information or share sensitive technology or materials with third parties without mutual consent.^[3]

When the United States was nearing completion of its first nuclear device, Danish physicist Niels Bohr urged Roosevelt to tell the world about nuclear weaponry and start planning to control atomic energy in order to head off an international arms race.^[4] Roosevelt was more intent on winning the war than worrying about its aftermath, but Bohr persuaded defense officials Vannevar Bush and James Conant that the wartime stress on secrecy should yield to the creation of a supranational nuclear control authority. Because other countries soon could acquire the means to make their own nuclear weapons, they reasoned, international control would be less risky than a nuclear arms race. Scientists involved in the U.S. atomic bomb program, including Robert Oppenheimer, also tried to convince U.S. and

British officials of the impending threat of a postwar arms race and of the historic opportunity the bomb provided for global political cooperation.^[5]

After ordering the nuclear attack on Japan, then-President Truman asserted that Americans alone “must constitute ourselves trustees of this new force” and directed the Department of State to devise an international control plan.^[6] The resultant Acheson-Lilienthal report stated that the “development of atomic energy for peaceful purposes and the development of atomic energy for bombs are in much of their course interchangeable and interdependent” and concluded that no country could be trusted to develop atomic power because even a primarily peaceful program might provide fissionable materials to build bombs.^[7] In June 1946, the United States presented a modified version of the Acheson-Lilienthal report to the United Nations. However, whereas the original plan envisaged an International Atomic Development Authority to manage global nuclear activities, Truman’s representative, Bernard Baruch, inserted language allowing the proposed agency to impose sanctions for minor treaty breaches and to establish a new, veto-free UN Security Council to deal with major violations.

Baruch asserted that the United States must retain its stock of nuclear bombs (which in June 1946 numbered nine) until the new agency created a reliable formula for international control and intrusive inspections. The Soviet Union, which for four years had been racing to develop its own nuclear weapons arsenal, rejected the Baruch plan, viewing it as a disingenuous effort to freeze and legitimize the global atomic disparity and preserve an unrivaled U.S. capacity for nuclear coercion. The Soviets also saw intrusive inspections as a threat to their sovereignty. Soviet Ambassador Andrei Gromyko declared, “The USSR government has no intention of permitting a situation whereby the national economy of the Soviet Union or particular branches of that economy would be placed under foreign control.”^[8] Instead, Gromyko argued that every U.S. nuclear device must be eliminated prior to the creation of a less intrusive international control body. Washington refused, and disarmament negotiations broke down.

As the United Nations debated proposals for international arms control, the United States enacted the August 1946 Atomic Energy Act. The act made the entire nuclear program secret and also created an independent, civilian Atomic Energy Commission to oversee nuclear research and development and to maintain physical control over U.S. nuclear forces until their release to the military. The commission was responsible for implementing a rigid system of security classification and export licensing, which effectively banned the release of sensitive data on industrial atomic uses as well as on the design and manufacture of nuclear explosives, not to mention nuclear material and technology exports. By these measures and through steps taken to buy up worldwide supplies of uranium and thorium,^[9] Washington tried to prevent additional countries from going nuclear.

Eisenhower’s Military Challenges

Although only two additional countries had joined the nuclear club—the Soviet Union and Great Britain—Eisenhower abandoned the policies of strict nuclear secrecy and technology denial largely because Moscow’s growing mastery of nuclear technology meant that it soon would be able to provide other countries peaceful nuclear assistance. U.S. officials feared that the Kremlin would score a huge propaganda victory, especially in the developing world, if the United States did not alter its own nuclear export policy. In addition, Moscow’s nuclear force buildup, starting with its first nuclear detonation in August 1949 and advancing with its thermonuclear weapon test in August 1953, compelled Washington to devise some countermeasure to the growing Soviet nuclear threat to U.S. territory.

The strategy Eisenhower approved in October 1953 slashed defense spending, which had spiraled during the Korean War, and—compared to the previous “containment” policy approved in the famous National Security Council (NSC)-68 document—established more aggressive requirements for security alliances, covert operations, overseas propaganda, and nuclear weapons.^[10] This “New Look” strategy maintained that a large force of nuclear weapons was “indispensable for U.S. security” because only a “massive atomic capability” could deter Soviet aggression. In Eisenhower’s eight years in office, the U.S. nuclear stockpile grew from 1,005 to more than 20,000 weapons.

Military doctrine changed too. “In the event of hostilities,” the new nuclear strategy stated, “the United States will consider nuclear weapons to be as available for use as other munitions.”^[11] Ironically, the United States is now trying to discourage India and Pakistan from adopting a similar nuclear doctrine.

A Bold Nuclear Initiative

In a celebrated address to the UN General Assembly on December 8, 1953, Eisenhower heralded a new Atoms for Peace campaign designed to “hasten the day when fear of the atom will begin to disappear from the minds of people.” The president began his speech by warning of two impending “atomic realities.” First, he advised that the means to produce nuclear weapons, then possessed by only a few states, would eventually spread to other countries, “possibly all others.” Next, he affirmed that surprise nuclear attack for the foreseeable future would be a serious military threat, one which neither “superiority in numbers of weapons” nor powerful defense systems could prevent.

Ultimately, the president’s message was one of hope. He claimed that atomic energy soon could be channeled to improve the socioeconomic condition of humankind. To redirect nuclear research away from military pursuits and toward “peaceful...efficient and economic usage,” Eisenhower invited “the governments principally involved” to “make joint contributions from their stockpiles of...fissionable materials to an international atomic energy agency...set up under the aegis of the United Nations.”^[12] Mandated to collect, store, and distribute fissile materials, the proposed IAEA would not have the ownership and punishment powers that doomed the chance for agreement on Baruch’s International Atomic Development Agency. Rather, the new agency and “uranium bank” were intended as simple steps to establish international trust and draw Moscow into a cooperative arms control dialogue.

U.S. officials realized that the IAEA would take years to establish and thus sought other dramatic proposals to advance the president’s nuclear initiative. In August 1954, the U.S. Atomic Energy Act was revised to allow nuclear technology and material exports if the recipient country committed not to use these items to develop weapons. U.S. companies were now free to sell nuclear technology to “strengthen American world leadership and disprove the Communists’ propagandist charges that the [United States] is concerned solely with the destructive uses of the atom.” Because U.S. power reactor programs were “unlikely to produce economically competitive atomic power for a decade or more,”^[13] Washington increased funds for its own reactor programs, reoriented these programs to foreign requirements, and initiated foreign aid and information programs to make potential recipients interested in U.S. technology. It also provided friendly nations nuclear training, technical information, and help in constructing small research reactors.

Nuclear Commerce and Proliferation

In March 1955, Eisenhower intensified his efforts to promote peaceful nuclear uses, directing the Atomic Energy Commission to provide “free world” nations “limited amounts of raw and fissionable materials” as well as generous assistance for building power reactors. These exports were intended to maintain U.S. global leadership, reduce Soviet influence, and assure continued access to foreign uranium and thorium supplies.^[14] In retrospect, it appears that these objectives were achieved, but an unintended outcome of Atoms for Peace was the proliferation of worldwide nuclear research and power programs, several of which eventually would be converted to the production of nuclear weapons.

Did U.S. policymakers not realize that sharing nuclear information and promoting peaceful nuclear uses could stimulate the appetite for nuclear weapons and increase the bomb-making capabilities of other nations? They generally understood the risk. In September 1955, Isador Rabi, chairman of the Atomic Energy Commission General Advisory Committee, told State Department nuclear affairs adviser Gerard Smith that, without effective international controls to prevent the diversion of commercial nuclear facilities to military uses, “even a country like India, when it had some plutonium production, would go into the weapons business.”^[15] As it turned out, the safeguard systems the United States enacted to ameliorate this risk were inadequate.

In particular, U.S. officials did not sufficiently enforce their own rules. In order to curb what Secretary of State John Foster Dulles called the “promiscuous spread” of nuclear arms,^[16] the new export policy “ordinarily” required recipients of U.S. fissile materials or reactors to send used fuel elements to U.S. facilities for chemical processing; to establish adequate production accounting, inspection, and other control technologies; and eventually to accept IAEA safeguards.^[17] In practice, however, U.S. enforcement of these measures was not very strict, other nuclear supplier states adopted even more relaxed controls, and the IAEA safeguards system turned out to be looser than originally envisioned. As a result, foreign nuclear technology recipients such as India, Pakistan, South Africa, and Israel slipped through the cracks of the nascent nonproliferation regime.

U.S. officials also were guilty of wishful thinking. They had too much confidence in their ability to control the nuclear behavior of other countries. To make matters worse, their emphasis on the scientific, commercial, and political benefits of U.S. nuclear exports prevented them from paying adequate attention to the security needs and perceptions of recipient countries, several of which would go on to misuse U.S. assistance. Moreover, many officials at that time believed that they had a responsibility to bring a scientific discovery as revolutionary as that of atomic energy into widespread application, whatever the risks. As the first Atomic Energy Commission chairman, David Lilienthal, recalled: “[T]his prodigious effort was predicated on the belief and hope that this great new source of energy for mankind could produce results as dramatically and decisively beneficial to man as the bomb was dramatically destructive.”^[18] Lilienthal’s successor, Lewis Strauss, expressed this hope in a September 1954 speech: “It is not too much to expect that our children will enjoy electrical energy too cheap to meter—will know of great periodic regional famines only as a matter of history—will travel effortlessly over the seas and through the air with a minimum of danger and at great speeds—and will experience a life-span far longer than ours, as disease yields and man comes to understand what causes him to age. This is the forecast for an age of peace.”^[19] Such optimism in the ability of U.S. technology to deliver prosperity and peace to the world did not abate until India’s 1974 nuclear explosive test demonstrated the dangerous potential of “peaceful” nuclear technology.

U.S. Nuclear Assistance

Within a year of Eisenhower’s UN speech, the United States began training foreign scientists at a new School of Nuclear Science and Engineering at Argonne Laboratory; declassified hundreds of nuclear studies and reports; sponsored the first UN Conference on Peaceful Uses of Atomic Energy, where many of the declassified documents were released; and concluded nuclear cooperation agreements with more than two dozen countries. The United States was responsible for whetting appetites for nuclear research and development in many countries, including Argentina, Brazil, and Pakistan, having no prior nuclear program. Even in countries such as India and Israel, where a strong demand for nuclear technology already existed, Washington mounted a major campaign to increase interest in nuclear energy. In late 1955, for example, the U.S. Agency for International Development put on a large exhibit at the New Delhi Trade Fair featuring a 30-foot-high reactor diagram, “hot” laboratories, and numerous working models. Nearly two million Indians attended.^[20]

Washington’s promotion of nuclear technology was a particularly high priority in South Asia in the mid-1950s because it supported two of the Eisenhower administration’s major policy directives: NSC 5409 (“U.S. Policy toward South Asia”), which the president approved in March 1954 to support “strong, stable and responsible governments” in a region that is “a major battleground in the Cold War”^[21]; and NSC 5507/2 (“Peaceful Uses of Atomic Energy”), which he approved in March 1955 to utilize nuclear technology exports to promote the international and regional interests of the United States. India’s nuclear energy chief, Homi Bhabha, was the last person that needed to be coaxed. He lobbied to make India the first recipient of U.S. nuclear material under Washington’s new nuclear export policy. The Atomic Energy Commission sold India 10 tons of heavy water in February 1955 for use in its Cirrus research reactor, a facility Canada had agreed to supply with generous financing. The United States was so intent on concluding a nuclear supply contract with New Delhi that it offered the heavy

water four years before the reactor's completion. U.S. policymakers were especially eager to please India owing to their concern that, following Joseph Stalin's death in March 1953, "the USSR and Communist China will focus increasing attention on India in an effort to insure [sic] at least its continued neutralism, and if possible to bring it closer to the Communist Bloc."^[22]

Largely because of its own regional security interests, but in some part because of Bhabha's relentless lobbying, the United States became India's leading supplier of nuclear technology and materials. Washington provided New Delhi with more than \$93 million in Atoms for Peace loans and grants between 1954 and 1974, three-quarters of which subsidized the construction and operation of India's first power reactor at Tarapur. In a few cases, India and other countries refused U.S. offers of assistance and tried to bargain for more advanced technologies. For example, when Washington offered India a standard research reactor deal in May 1955, Bhabha declined and asked instead for the United States to transfer to India a nuclear power reactor "omitting essential safeguard features," which Bhabha called "onerous" and "more or less of an insult to India's peaceful intentions." After discussing the matter, U.S. officials insisted that a reactor sale would be considered but only if India accepted international safeguards.^[23]

Requests by India and other strategically located recipients of U.S. assistance for more than what Washington would offer became routine. Less than a month after Eisenhower's UN speech, Indian atomic energy official S. S. Bhatnagar asked if the United States could establish a "joint enterprise with the Indian Atomic Energy Commission analogous to the U.S.-UK arrangement with South Africa" and collaborate in the development of Indian uranium resources.^[24] Washington declined. Also in January 1955, Bhabha asked a U.S. embassy official if the Atomic Energy Commission would provide India with technical information on the effects of nuclear explosions or establish a joint monitoring station in India to record airborne fragments produced by nuclear explosions.^[25] Once again, Washington indicated that it was "emphatically not interested." However, U.S. officials never suspected that Bhabha was trying to produce nuclear weapons, even though the technology and materials he accumulated under Atoms for Peace enabled India to manufacture and detonate a nuclear device in 1974 and become a full-fledged nuclear-weapon state in 1998.^[26]

An Imperfect Regime

Critics correctly point out that the road to nuclear weapons production would have been much rockier for India and Pakistan had the United States not launched Atoms for Peace. The liberal nuclear export policies initiated by the United States and other Western suppliers in the mid-1950s dramatically reduced the costs of undertaking serious nuclear research and development for dozens of nations around the world. Proponents of nuclear energy in countries without a nuclear program before Atoms for Peace, or other countries with foundering programs, were now able to convince national leaders of the technical and economic feasibility of operating nuclear reactors, uranium-enrichment plants, and plutonium reprocessing facilities. In a handful of cases, highly determined governments succeeded in producing nuclear weapons from so-called peaceful nuclear technologies.

That is only part of the story. There are many more instances where the diversion of scientific or industrial nuclear materials for military uses was detected and defeated by the nonproliferation notions and instruments that began under Atoms for Peace. Argentina, Brazil, Taiwan, and South Korea are cases in point. The norm of nuclear nonproliferation; the principle of regulated nuclear commerce; the idea of nuclear safeguards; and the IAEA, which was supposed to bring all of these tools together, are the linchpins of the current nonproliferation regime. Indeed, the 1968 nuclear Nonproliferation Treaty can be seen as a refined, negotiated expression of Atoms for Peace and follow-on efforts by the Eisenhower administration.^[27] Without doubt, the nuclear nonproliferation regime is imperfect, but it has managed to limit the possession of nuclear weapons to a single-digit number of states. Even more significant is the fact that not a single nuclear weapon has been employed as part of a military conflict since the Second World War. Considering the dire forecasts made in the 1950s and 1960s about the rapid international spread of nuclear arms and the likelihood of nuclear war,^[28] these are outcomes that probably would have pleased Eisenhower and many of his presidential successors.

NOTES

1. Leonard Weiss, "Atoms for Peace," *Bulletin of the Atomic Scientists* 59, no. 6 (November-December 2003), pp. 41-42.
2. Truman was not informed of the atomic bomb until April 25, 1945, 12 days after he assumed the presidency. David McCullough, *Truman* (New York: Simon and Schuster, 1992), pp. 376-377.
3. U.S. Department of State, "Articles of Agreement Governing Collaboration between the Authorities of the USA and the UK in the Matter of Tube Alloys," *Foreign Relations of the United States (FRUS): The Conferences at Washington and Quebec, 1943* (Washington, D.C.: Government Printing Office, 1970), pp. 1117-1119.
4. Richard G. Hewlett and Oscar E. Anderson, *The New World, 1939-1946: A History of the United States Atomic Energy Commission*, vol. 1 (Berkeley and Los Angeles: University of California Press, 1990), p. 326.
5. Lawrence S. Wittner, *One World or None: A History of the World Nuclear Disarmament Movement Through 1953* (Stanford, Calif.: Stanford University Press, 1993); Robert J. Oppenheimer, "Niels Bohr and Atomic Weapons," *New York Review of Books*, December 17, 1964.
6. "Radio Report to the American People on the Potsdam Conference," August 9, 1945, in *Public Papers of the Presidents of the United States: Harry S. Truman, 1945* (Washington, D.C.: Government Printing Office, 1961), p. 213.
7. The document was a compromise between Undersecretary of State Dean Acheson and a scientific group led by Oppenheimer and David Lilienthal that wanted an international body to take immediate control over all atomic activities. Acheson insisted that U.S. nuclear authority should be relinquished gradually. U.S. Department of State, *A Report on the International Control of Atomic Energy* (Washington, D.C.: Government Printing Office, 1946).
8. Joseph L. Nogee, *Soviet Policy Towards International Control of Atomic Energy* (Notre Dame, Ind.: University of Notre Dame Press, 1961), p. 136.
9. In June 1944, the U.S. government created with the British government a Combined Development Trust to buy up all known supplies of uranium and thorium overseas. Operating under the direction of Manhattan Project director Brigadier General Leslie Groves, the trust tried to survey, produce, and acquire sufficient uranium and thorium supplies to meet the nuclear research and development needs of the wartime allies and, as a protective measure, to monopolize these supplies so that none would fall into German or Soviet hands. "Agreement between the United States and the United Kingdom for the Establishment of the Combined Development Trust," February 13, 1944, FRUS, 1944, vol. 2, pp. 1026-1028. This effort was discontinued when global uranium and thorium were discovered to be too widespread and plentiful to monopolize. For background, see Jonathan E. Helmreich, *Gathering Rare Ores: The Diplomacy of Uranium Acquisition, 1943-1954* (Princeton: Princeton University Press, 1986).
10. The 1950 NSC report urged "containing the Soviet system...by all means short of war to...foster the seeds of destruction within the Soviet system that the Kremlin is brought at least to the point of modifying its behavior to conform to generally accepted international standards." It advised shelving global disarmament schemes, such as the Baruch plan, as long as Moscow refused inspection of its nuclear facilities. U.S. Department of State, FRUS, 1950, vol. 1, p. 271.
11. U.S. National Security Council (NSC), "Basic National Security Policy," NSC 162/2, October 29, 1953, in FRUS, 1952-54, vol. 2, pp. 578-597.

12. *Papers of the Presidents of the United States: Dwight D. Eisenhower*, 1953 (Washington, D.C.: Government Printing Office, 1960), pp. 813-822.
13. NSC, "Peaceful Uses of Atomic Energy," NSC-5507/2, March 12, 1955, pp. 2, 7.
14. *Ibid.*, p. 13.
15. Gerard Smith, September 14, 1955, *FRUS, 1955-1957*, vol. 20, p. 198 (memorandum for the file).
16. William B. Bader, *The United States and the Spread of Nuclear Weapons* (New York: Pegasus, 1968), pp. 29-35.
17. NSC, "Peaceful Uses of Atomic Energy," p. 17.
18. David E. Lilienthal, *Change, Hope and the Bomb* (Princeton: Princeton University Press, 1963), p. 96.
19. Stephen Hilgartner, Richard C. Bell, and Rory O'Connor, eds., *Nukespeak: The Selling of Nuclear Technology in America* (San Francisco: Sierra Club Books, 1982), p. 44.
20. Operations Coordinating Board, "Progress Report on Nuclear Energy Projects and Related Information Programs," May 23, 1956, pp. 8-9.
21. NSC, "U.S. Policy toward South Asia," 5409, February 19, 1954, p. 1.
22. CIA, "Communist Courses of Action in Asia through 1957," National Intelligence Estimate 10-7-54, November 23, 1954, p. 12
23. U.S. Department of State, "U.S.-India Relations in the Field of Atomic Energy," December 10, 1956.
24. George Allen, telegram to John Foster Dulles, January 9, 1954.
25. Andrew Corry, memorandum to U.S. Department of State, January 29, 1954, p. 1. For a detailed analysis of India's use of U.S. assistance to develop nuclear weapons, see Peter R. Lavoy, *Learning to Live with the Bomb: India, the United States, and the Myths of Nuclear Security* (New York: Palgrave Macmillan, forthcoming).
26. R. Gordon Arneson, letter to Andrew Cory, February 24, 1954.
27. This takes nothing away from the administrations of President John F. Kennedy, which aggressively promoted nuclear nonproliferation, or of President Lyndon Johnson, which negotiated the nuclear Nonproliferation Treaty. The Eisenhower administration created several of the key building blocks of the nonproliferation regime, which in turn facilitated the nonproliferation efforts of subsequent U.S. governments.
28. For example, Kennedy warned the public in March 1963 that 15-25 states might obtain military nuclear capabilities by the 1970s, the likely result of which would be international instability, reduced opportunities for nuclear disarmament, an increased chance of accidental war, and heightened prospects for global powers to become entangled in regional conflicts. *The New York Times*, March 23, 1963. Kennedy based this pessimistic forecast on a secret study that Secretary of Defense Robert McNamara had given the president one month earlier. In the document, McNamara expected that by 1973 eight new states might acquire nuclear weapons—China, Sweden, India, Australia, Japan, South Africa, Germany, Israel—and that, shortly thereafter, many more countries could go nuclear as the cost of acquiring nuclear weapons "may come down by a factor of 2 to 5 times." Robert McNamara, "The Diffusion of Nuclear Weapons with and without a Test Ban Agreement," February 12, 1963 (memorandum to Kennedy). A few

months later, the CIA, in its first national intelligence estimate on nuclear proliferation, concluded that India, Japan, and a few other countries threatened by China “almost certainly” will “continue development of their peaceful nuclear programs, some to a point which would significantly reduce the time required to carry through a weapons program.” CIA, “Likelihood and Consequences of a Proliferation of Nuclear Weapons Systems,” NIE 4-63, June 28, 1963.

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