Looking Back: Lessons From the Denuclearization of Brazil and Argentina

Later this year, the world will celebrate an arms control milestone: December 2006 will mark the 15th anniversary of the Quadripartite Agreement, which finalized the arrangements for effective inspections of the nuclear programs of Brazil and Argentina. In practical terms, the agreement ended a period in which Brazil conducted covert activities in military installations that could have led to the production of nuclear weapons. Argentina too had such aspirations.

As Brazil’s secretary of state for science and technology at the time, I was intimately involved in the preparations that led to this agreement. Previously, when I was an outside academic critic of Brazil’s previous military regimes, I had represented many Brazilian scientists in criticizing Brazil’s plans for nuclear energy, particularly the potential that nuclear technology could be diverted to nuclear weapons.

These experiences taught me that although the controls and rules exercised by the current nonproliferation regime can help to delay the acquisition of nuclear capabilities, the most effective nuclear nonproliferation strategy is to reduce the underlying incentives for states to acquire such weapons. In such a strategy, the role of regional neighbors is likely to prove crucial. It is a lesson that might well be applied to other regions, such as in the Middle East.

Southern Cone Nuclear Programs

Some might belittle the efforts to “denuclearize” the Southern Cone of Latin America, arguing that Brazil and Argentina lacked the technological expertise to ever produce nuclear weapons. Such an assumption is false, as both countries demonstrated that developing countries with technical elites can master many if not all of the technical steps required. Argentina and Brazil, for example, were able to produce the fissile material—enriched uranium or separated plutonium—necessary for nuclear weapons.

At the time, both countries claimed to have produced the material for purely civilian purposes in an effort to gain access to the full nuclear fuel cycle from uranium enrichment to plutonium reprocessing. To be sure, following such a strategy, a country does not have to make an explicit early decision to acquire nuclear weapons. In some countries, such a path is supported equally by those who genuinely want to explore an energy alternative and by government officials who either want nuclear weapons or just want to keep the option open.

Until it lost power in 1985, Brazil’s military government had clearly sought to keep the nuclear weapons option open. Brazil had begun its nuclear efforts in 1975 when it signed a cooperation agreement with Germany. The government claimed the nuclear program was a response to the 1973 oil crisis, which threatened the country’s trade balance. This was clearly not true as electricity in Brazil was and still is produced mainly in hydroelectric plants and not from petroleum. Building nuclear reactors would not reduce oil imports, which are used for transportation and industry. In addition, there was no shortage of electricity. Indeed, Itaipu, the 12,000-megawatt hydroelectric plant on the Paraná River—the largest plant in the world—had just been started and would satisfy increases in electricity demand during the subsequent years. As chairman of the Physics Department of the University of São Paulo, I criticized the nuclear program from the start, arguing that there was no justification for massive investments in nuclear energy at the expense of other, more acceptable energy alternatives.

When a civilian nuclear energy deal with Germany that included uranium-enrichment facilities
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crumbled under U.S. pressure in the 1980s, three separate “parallel” nuclear weapons programs were launched in the country under the navy, air force, and army. The air force focused on laser enrichment, the army on using natural uranium in a graphite reactor, and the navy on centrifuge enrichment. The navy program, which was run by officers trained at the Massachusetts Institute of Technology, succeeded in the crucial task of enriching uranium. The navy’s official rationale for this task was to enrich fuel for a compact power plant used in submarine propulsion.

The United States viewed these programs with great suspicion and included Brazil on a list of countries suspected of conducting secret programs for the production of nuclear weapons. As a result, Brazil’s access to some modern technologies was blocked, such as high-speed computers, needed by Brazil’s oil company Petrobras, the National Space Research Institute, and universities. Although these computers were purchased from U.S. companies, they were not delivered because the U.S. Department of Commerce blocked export of such items.

In addition, the controversy spilled into broader U.S.-Brazilian relations with the United States less inclined to support Brazil’s efforts to win much-needed loans from international organizations and other financial institutions.

Argentina, which started a nuclear program earlier than Brazil, installed several nuclear reactors and built a small gas diffusion enrichment plant. There are no clear indications, however, that Buenos Aires intended to engage in a parallel program that might lead to a nuclear weapon.

Nonetheless, efforts by the United States and others to hold back the nuclear programs of Argentina and Brazil fell flat. The programs continued to move ahead, even if more slowly and even if, in Argentina’s case, it was less clear that it was prepared to consider producing nuclear weapons.

Generally speaking, countries strive to acquire nuclear weapons for a number of reasons, many of which are immune to outside influence:

- The search for enhanced security against or the wherewithal to intimidate and coerce regional or international rivals.
- The “status” and prestige associated with mastering nuclear technology.
- National pride, because nuclear technology, as well as space technology, are viewed as a passport to the First World.
- Domestic policies and bureaucratic self-aggrandizement by the nuclear establishment.[2]

If countries are determined to acquire nuclear weapons, it seems it is nearly impossible for any other country’s policy of denial ultimately to stop them. Similar efforts, after all, failed in India, Pakistan, and Israel. Yet, nonproliferation efforts can slow programs geared to produce nuclear weapons so that internal political change can catch up and stop them before it becomes too late.

Such changes are what ultimately derailed the potential weapons programs in the Southern Cone. The end of military rule and the election of civilian presidents in 1990 led to a sweeping re-examination of Brazil’s and Argentina’s nuclear programs. With the return to democracy, both countries realized that their dreams of grandeur, of becoming great powers, served special civilian and military interest groups more than the interests of the state. The idea of pursuing semiclandestine nuclear activities lost priority.

Democracy also brought more transparency to government activities, resulting in oversight of previously secret programs. As I argued successfully in 1991 in convincing Brazilian President Fernando Collor de Mello to give up the quest for nuclear weapons, the road to enter the First World is not the development of nuclear weapons but solving the problems of underdevelopment. This new civilian president had appointed me as his secretary of state for science and technology. At the time, there were repeated press reports that preparations were under way to test a nuclear
explosive device near an air force base at the Serra do Ca chimbo in the State of Pará.[3]
The president asked me to investigate. This required me to visit all military installations where there
was ongoing work on nuclear weapons. Aside from the army installation, I had visited all of these
installations before and suspected that all the secrecy was in reality a ruse to magnify the
importance of the activities and justify budget increases. I found out that there was no significant
work being conducted on nuclear weapons production in any of the military laboratories and duly
reported that fact to the president.

Yet, the rumors persisted. Feeling that his authority was being threatened, Collor de Mello therefore
staged a visit to the alleged test site in the State of Pará and, in front of the army, navy, and air
force ministers, symbolically closed a well that had been dug for eventual use in a nuclear test. (It
was 1,000 feet deep and three feet in diameter.) Shortly afterward, all the “parallel” nuclear
programs experienced severe financial constraints. The Experimental Center at Aramar alone
dismissed 700 of its 1,600 employees between August 1994 and March 1995.

The president’s actions, widely publicized, signaled the end of the so-called nuclear arms race with
Argentina that, in the heyday of the military’s rule, had been the excuse for some groups to engage
in nuclear work. Argentina, which also had just elected a civilian as president after many years of
military rule, was more than willing to reach an agreement with Brazil banning nuclear weapons. The
two governments quickly negotiated an agreement, creating the Argentina-Brazil Agency for
Accounting and Control of Nuclear Material (ABACC) in July 1991.[4]

The Bilateral and Quadripartite Agreements

In addition to the creation of the ABACC, Argentina and Brazil made the following commitments
under the Bilateral Agreement for the Exclusively Peaceful Uses of Nuclear Energy of July 1991:

• To use the nuclear material and facilities under their jurisdiction or control exclusively for
  peaceful purposes;

• To prohibit and prevent in their respective territories, and to abstain from carrying out,
  promoting or authorizing, directly or indirectly, or from participating in any way in the testing,
  use, manufacture, production or acquisition by any means of any nuclear weapon; and the
  receipt, storage, installation, deployment or any other form of possession of any nuclear
  weapon.

The agreement also established that, in case of any serious noncompliance by either party, the other
party could abrogate the agreement or discontinue its application, either completely or partially by
notifying the secretary-general of the United Nations and the secretary-general of the Organization
of American States.

Aside from the agreement itself, Brazil and Argentina then agreed to adhere fully to the Treaty of
Tlatelolco, which had in 1967 established the framework for a Latin American nuclear-weapon-free
zone, and accepted full-scope nuclear safeguards.

The ABACC and the Brazilian and Argentinian governments formed three of the four legs of the
Quadripartite Agreement agreed to later in 2001. The other leg belonged to the International Atomic
Energy Agency (IAEA). The agreement (INF CIRC/435), which became effective in March 1994,
stipulated that the ABACC and the IAEA would perform their verification activities without
unnecessary duplication of safeguards but, at the same time, be able to reach independent
conclusions.

This move was complimented by the subsequent decisions of both countries to join the nuclear
Nonproliferation Treaty (NPT). Argentine authorities presented the legal instruments for the country’s

Lessons for Other Regions
Does the denuclearization of the Southern Cone of South America offers lessons for other areas in the Indian subcontinent, the Korean Peninsula, and the Middle East?

A short answer is that the “neighbor-controlling-neighbor” approach used in South America has the best chance of succeeding in regions that do not yet include nuclear powers. The Korean Peninsula might still meet this criteria given the lack of clarity about Pyongyang’s purported nuclear arsenal and the regional approach of the six-party talks. South Asia is a more difficult case as India and Pakistan already have nuclear weapons but confidence-building steps could de fuse a nuclear arms race in that part of the world. Both countries became nuclear powers not because they needed nuclear power for civilian purposes, but in pursuit of enhanced status and bureaucratic self-aggrandizement.

In the Middle East, only political agreements and solid no-first-use guarantees from nuclear powers in that region might change Iran’s attitude and behavior. It is clear that Tehran’s program is dictated mostly by internal political considerations, particularly perceived security needs, because it is difficult to justify a large nuclear program for civilian purposes in Iran on the basis of economic grounds. If the world community wants to slow Iran’s drive to acquire such weapons, it would be best to focus on altering these underlying security concerns rather than traditional nonproliferation tools.

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ENDNOTES


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