

THE HENRY L. STIMSON CENTER

**Pakistan-India and Argentina-Brazil:  
Stepping back from the  
nuclear threshold?**

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*Occasional Paper No.15    October 1993*

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*Pragmatic steps toward ideal objectives*



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## Project on Confidence-building Measures for Regional Security

Over the last three years of foundation-funded efforts to promote confidence-building measures (CBMs) within various regions of tension, the Stimson Center has found considerable interest among governments, militaries, and non-government organizations (NGOs) in the value of negotiating and implementing CBMs. The center stresses that some security problems—such as border tension, terrorism, and fear of surprise attack or unwanted escalation—are generic in nature, although the particulars vary in each case. If suitably adapted, CBMs designed to address problems in one region may have some utility in others. The project has focused primarily on South Asia, the Middle East, and the Southern Cone of Latin America.

Our programming has five main components:

- First, we hold a series of meetings on CBMs in Washington for diplomats and military attaches from South Asia. We also have participants from the executive and legislative branches, NGOs, and foreign journalists based in Washington. Initially, these meetings provided an opportunity for westerners to explain the theory and practice of CBMs in non-directive ways. Now, most of our speakers come from the region. We ask them to present their own ideas on CBMs, which then serve as the basis of discussion.
- Second, we commission papers to stimulate thinking and problem-solving CBM approaches within regions of interest. We prefer collaborations across borders to encourage networking. Our commissions have been carried out in South Asia and the Southern Cone.
- Third, with local co-sponsorship, we convene workshops on CBMs within regions of interest, reaching key target audiences: military officers, journalists, academics, and government officials. Workshops have been held in South Asia, the Middle East, and the Southern Cone.
- Fourth, we have initiated a Visiting Fellows program, whereby talented individuals from South Asia come to Washington to conduct research and to become immersed in the theory and practice of CBMs.
- Fifth, we publish materials on CBMs and distribute them to diplomats, government officials, military officers, journalists, and academics interested in these subjects.

Support for The Stimson Center's CBM Project has come from the Carnegie Corporation of New York, the W. Alton Jones Foundation, the Rockefeller Foundation, and the Rockefeller Brothers Fund.



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## Pakistan-India and Argentina-Brazil: Stepping back from the nuclear threshold?

Itty Abraham

### Introduction

On November 30, 1985, Raul Alfonsin and Jose Sarney the civilian presidents of Argentina and Brazil, met in the Brazilian border town of Foz do Iguacu to sign a historic agreement to share nuclear technologies and expertise and to open up nuclear facilities to one another. A series of steps designed to reduce bilateral tensions and draw the two countries closer together on the nuclear issue continued through the rest of the decade and even survived a change of government.<sup>1</sup> India and Pakistan, ostensibly implacable foes since their achieving independence from the United Kingdom in 1947, implemented an agreement in January of 1991 not to attack each other's nuclear facilities. India and Pakistan have continued this process of confidence-building and have exchanged lists of the facilities to be covered by this agreement.<sup>2</sup> The two countries have also agreed to inform each other of military exercises well in advance, and have bolstered existing agreements to ensure rapid communication in case of a rise in tension.

Given the spate of disarmament measures including those taken by the former Soviet Union and the United States, the pledge by China to join the Nuclear Nonproliferation Treaty (NPT), South Africa's agreement with the International Atomic Energy Agency (IAEA) to put all its nuclear facilities under safeguards, and France's decision to sign the NPT "in principle," the bilateral actions taken by India-Pakistan and Argentina-Brazil might seem to suggest that a period of unprecedented reduction in international tensions has opened.<sup>3</sup> Such optimism is somewhat premature. While the decisions taken by Argentina-Brazil and India-Pakistan are clearly affected by the rapid and heartening changes in the international system, and while steps to reduce bilateral tensions are likely to continue, to expect a complete abrogation of these countries' nuclear programs or a decision on their part to sign the NPT in the near future is wishful thinking.

This paper fleshes out these contentions by putting recent nuclear-related developments into context. First, this study rejects the traditional strategic studies approach toward nuclear proliferation. By addressing the issue as a problem in comparative politics, this discussion places the nuclear issue in a much wider context than strategic studies allow, or indeed, are capable of. The nuclear "problem" does not simply lie in the domain of elites but is affected by economic, political, cultural, and historical factors.

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1. Joe Goldman, "Argentina, Brazil Open to Inspection," *Bulletin of the Atomic Scientists* 47, no.4 (May 1991): 8-10.

2. "Nonproliferation Roundup: Two Steps Forward, One Step Back," *Arms Control Today* (July-August 1991): 26. The second exchange occurred on January 4, 1993.

3. "China Promises to Join NPT by March, Will Follow Missile Export Guidelines," *Arms Control Today* (December 1991): 22; "South Africa Signs NPT, China Announces It Too Will Join," *Arms Control Today* (September 1991): 28; "France to Sign Nonproliferation Treaty," *Arms Control Today* (June 1991): 33.

Second, lumping all countries suspected of being proliferators into a homogenous group is a common mistake: this characterization obscures more than it reveals. Carefully distinguishing between the development of nuclear programs in South America and South Asia permits a far more nuanced understanding of nuclear-related events among these potential proliferators. At the same time, a systematic comparison reveals generalizations about the forces that motivate a country's decision to "go nuclear." Such a comparison has yet to be systematically performed.

Third, this discussion operates at three levels of analysis—the historical, the international, and the domestic. Each level has a unique part to play in engendering nuclear proliferation or nuclear cooperation. When these dyads are further analyzed in comparison with other states, it becomes possible to separate the purely contingent from the more probably causal.

This paper first provides a brief historical analysis of the origins of each country's nuclear program. Regional patterns of development are isolated and compared. The next section identifies the international structures—regional and global—that condition relations within each dyad and then analyzes the impact of these structures on the nuclear programs. The relative importance of the international economic and the international political systems becomes quite clear in each regional case. The third section examines the crucial domestic context. This paper argues that this arena is the most vital, yet least understood, component of the web of factors that lead to nuclear proliferation. Unraveling the weave of domestic actors and institutions is vital to any accurate, contextual analysis of conflict management or confidence-building.

This paper concludes that recent tension-reducing measures taken by India-Pakistan and Argentina-Brazil are considerably affected by the following factors: the election of civilian governments in the South American region, the passage of time in South Asia, the decline in global economic conditions particularly in South America, the Soviet withdrawal from Afghanistan, and the growing threat created by internal security problems in South Asia. The distinct strategic landscape in each region requires distinct confidence-building measures (CBMs) to reduce regional nuclear tensions: in Latin America efforts should be made to encourage movement toward existing regional nuclear weapons-free zone agreements, and in South Asia multifaceted CBMs should be directed to both the conventional military and nuclear arenas. In all cases the role of nuclear scientists and their nuclear complex must be scrutinized in greater detail, and this group must be made the focus of the next wave of confidence-building.

### **Historical Factors**

The use of nuclear weapons in the Pacific during World War II had a profound impact on elites in Argentina and India. Juan Peron and Jawaharlal Nehru, leaders not usually compared to one another, were both convinced that control over nuclear power would be crucial for the long-term strength of their countries. Soon after the war these leaders set up committees and organizations dedicated to the study and mastery of the nuclear cycle.

## Argentina

The organization that controls the nuclear program in Argentina, the National Commission for Atomic Energy (Comission Nacional de Energia Atomica, CNEA), was set up in 1950. From its earliest days, The CNEA was largely autonomous in matters related to the nuclear program.<sup>4</sup> This autonomy was primarily due to the significant value that the highest levels of the executive and the armed forces, especially the navy, placed on the nuclear program. The CNEA, guided by the farsighted plans of physicist Jorge A. Sabato, operated in an atmosphere that allowed scientists to apply purely merit-oriented and scientific criteria to the selection of staff and individual technical projects.

The Argentine project, since its inception, has worked towards eventual self-sufficiency based on the mastery of all the stages of the nuclear cycle. Under the Atoms for Peace Program, the country's first research reactor, RA-1, was built in 1953 using imported heavy water from the United States. By the 1960s, Argentina had created a science and technology infrastructure that could build its own research reactors and carry out feasibility studies and that had mastered a number of important techniques, such as fuel element processing. During this period important links were constructed with the nonnuclear scientific community and business sectors, thereby consolidating the CNEA's position as a political actor and the nuclear complex as a national project.<sup>5</sup> The predominance of the self-reliance imperative became even more apparent in the discussions over the choice of a power reactor in 1971.

In deciding whether to choose an enriched uranium-pressurized water reactor or a natural uranium-heavy water reactor, Argentine planners eventually chose a German-built version of the latter.<sup>6</sup> The advantage of this model was the relative ease with which heavy water could be produced and the existence of plentiful supplies of natural uranium in the country. The pressurized water reactor, which was commercially more efficient, depended on supplies of enriched uranium material from either the United States or the Soviet Union. The Argentines considered such a dependence on foreign uranium to be unacceptable. The growth of the nuclear industry and the relative insulation of the CNEA continued through various changes in government, both civilian and military.

In 1983 the Argentines mastered the uranium enrichment cycle, which could be seen as the last step necessary to the development of a military nuclear option, since unsafeguarded weapons-grade uranium could now be produced within the country. Just two years later, the newly-elected civilian president, Raul Alfonsin, signed an agreement with his Brazilian counterpart at Iguacu Falls to begin mutual inspection of each other's nuclear programs.

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4. Virginia Gamba-Stonehouse, "Argentina and Brazil," in *Security With Nuclear Weapons: Different Perspectives on National Security* ed. Regina Cowen Karp, (New York: SIPRI and Oxford University Press, 1991): 231-32.

5. Etel Goldman-Solingen, "A Study in the Political Economy of Technological Development: Brazil's Nuclear Program," (Ph.D. diss., University of California at Los Angeles, 1987) chap. 6.

6. Emanuel Adler, *The Power of Ideology: The Quest for Technological Autonomy in Argentina and Brazil* (Berkeley and London: University of California Press, 1987), 292.

Argentina's nuclear establishment presently includes seven research reactors, three power reactors, two heavy water plants, two gas enrichment plants, a pilot reprocessing plant, and other facilities, such as mining plants.<sup>7</sup>

## India

India's nuclear program bears certain similarities to the Argentine program, especially in its emphasis on eventual self-sufficiency. Begun even before India's independence from the United Kingdom in 1947, the Indian Atomic Energy Commission (IAEC) was engaged by the 1950s in a variety of projects in pure and applied nuclear physics.<sup>8</sup> In 1956 its indigenously built research reactor, Apsara, began operation. By 1964 the IAEC had begun to reprocess uranium and had extensive mining and fuel manufacture operations, several research reactors, and well-developed training facilities.<sup>9</sup>

Just as the nuclear program in Argentina was linked to the name of Sabato, so too did the Indian nuclear program become closely associated with a single individual, Homi Bhabha, who may be described as a combination of scientist, administrator, and policy-maker. Bhabha pushed for the purchase of a Canadian-designed natural uranium-heavy water reactor, with the intention of eventually creating a series of thorium-based fast breeder-reactors that would provide self-sufficiency.<sup>10</sup>

The autonomy that this organization operated under is readily apparent. In 1948 the state monopolized the field of atomic energy for itself by decree. The prime minister of the country has traditionally held the portfolio of atomic energy, ensuring this department executive attention at the highest level. The Department of Atomic Energy (DAE), unlike all other departments and ministries, is located in Bombay, rather than the capital, New Delhi, so that the state bureaucracy can work for the benefit of the scientists rather than the other way around.<sup>11</sup>

The significant difference between the Indian and the Argentine nuclear program lies in the explicitly military-strategic objectives of the Indian nuclear program from at least 1964 onward. India's defeat by China in 1962, the explosion of a Chinese nuclear device in 1964, and the death of Bhabha in 1966 provided the context that favored a coalition between some policymakers and a sector of the scientific elite, the latter of which had been pushing for a military component in India's nuclear program for a some time.<sup>12</sup> In 1974, India carried out a "peaceful nuclear explosion" in the Thar Desert of Rajasthan.

7. Goldman-Solingen, "A Study in the Political Economy," Appendix C.

8. Itty Abraham, "India's Strategic Enclave: Civilian Scientists and Military Technologies," *Armed Forces and Society* 18, no. 2 (Winter 1992): 241.

9. Praful Bidwai and Achin Vanaik, "India and Pakistan," in *Security with Nuclear Weapons*, 259.

10. Atomic Energy Commission, "Atomic Energy and Space Technology: A Profile for the Decade 1970-80," (Bombay: Atomic Energy Commission, 1970), 12.

11. Abraham, "India's Strategic Enclave," 246.

12. Ashok Kapur, *India's Nuclear Option: Atomic Diplomacy and Decision Making* (New York: Praeger, 1976), 170-71.

The inclusion of a strategic component in the nuclear program changed the focus of the nuclear energy program but did not end the civilian project. The DAE has continued to build reactors and other components of a nuclear power project, but awareness of the often inefficient operation and escalating costs of reactors has increasingly drawn public criticism.<sup>13</sup>

India's present facilities include two light water reactors and eight heavy water reactors that work intermittently, seven heavy water plants, two fuel fabrication sites, four reprocessing units, and seven research reactors.<sup>14</sup> Most facilities are not under IAEA supervision.

## Brazil

Brazil's decision to begin the development of nuclear power was not as clearly defined or administratively streamlined as the processes in either Argentina or India. Although research related to nuclear physics has been carried out in the country since the 1930s, the first state organization that explicitly mandated the creation of a nuclear complex was the National Research Council (Conselho Nacional de Pesquisas, the national body for scientific growth and advancement). In 1956, after five years of confusion and bureaucratic politics, the Brazilian government consolidated matters related to atomic energy under the newly formed National Commission for Nuclear Energy (Comissao Nacional de Energia Nuclear, CNEN).<sup>15</sup>

The individual most responsible for promoting the need for rationalizing the state's approach to nuclear energy was Admiral Alvaro Alberto, who had been Brazil's chief negotiator on nuclear issues at the United Nations and elsewhere.<sup>16</sup> However, after a short tenure as the head of CNEN, Alvaro Alberto ran afoul of internal politics and was removed. During his stay, he had attempted to orient decision-making toward the Argentine/Indian model of eventual nuclear self-sufficiency but never managed to mobilize a sufficiently large coalition within the country to fulfill this goal. In fact, his dismissal was largely due to his efforts to diversify Brazil's suppliers of nuclear materials against the wishes of other vested interests.

Until the military takeover in 1964, each Brazilian president took a slightly different approach to nuclear energy. However, each administration showed a willingness, perhaps owing to a lack of clear direction during this period, to tolerate a plurality of scientific methods within the nuclear establishment. In 1967 CNEN was shifted to the Ministry of Mines and Energy by the military government. This marked the end of the self-sufficiency model CNEN had been flirting with under Alvaro Alberto. From this

13. Amulya Kumar and N. Reddy, "Is Power for Nuclear Power Necessary: Is it Economical?" *Information Unit for Militarization and Demilitarization in Asia (IUMDA) Newsletter* 2-3 (1990): 140-53.

14. Leonard Spector, *Going Nuclear* (Cambridge, Mass.: Ballinger, 191987), 97-99.

15. Regina Lucia de Moraes Morel, *Ciencia e Estado: A Politica Cientifica no Brasil* (Sao Paulo: T.A. Queiroz, 1979), 104.

16. James W. Rowe, "Science and Politics in Brazil: Background of the 1967 Debate on Nuclear Energy Policy, in *The Social Reality of Scientific Myth: Science and Social Change* ed. Kalman Silvert, (New York: American Universities Field Staff, 1969), 111.

moment on, nuclear policy in Brazil was characterized by the domination of international economic and political considerations rather than domestic or nationalistic concerns.

In 1968 CNEN purchased a US-built pressurized water reactor for commercial power production in the face of intense opposition by Brazilian scientists. A few years later, the so-called "deal of the century" confirmed the marginality of the Brazilian scientific community in nuclear decision-making. In 1975 the Brazilians reached a deal with the West Germans to supply the technology for the complete nuclear cycle, including enrichment and reprocessing facilities, centered around an enriched uranium reactor. The entire project would be under West German safeguards and was to be run as a joint venture between the German firm KWU and the newly created state holding company, Nuclebras. Apart from the choice of the reactor, which would be dependent on West German know-how and materials for years to come, enrichment was to be carried out using the still experimental "jet nozzle" technique, a development that caused a great deal of controversy.<sup>17</sup>

Especially given Argentina's nuclear capabilities, the Brazilian military had been interested in the military potential of a nuclear program. To their chagrin, they found that the extremely expensive "deal of the century" would not bring them any closer to countering Argentina's program. This led to the formation of a secret nuclear complex in the mid-1970s, the so-called "parallel program," dedicated to producing a military nuclear capability. The program was divided between the three services, with the air force responsible for the design of the weapon, the army involved in metallurgy, testing, and plutonium-based nuclear materials, and the navy involved in reprocessing and enrichment of uranium.<sup>18</sup>

The election of Fernando Collor de Mello, the first direct election of a civilian president in two decades, led to the disclosure of a number of details about the hitherto secret parallel program. Most threatening to civilian politicians eager to prevent the return of the military to power was the fact that the parallel program had continued after the military had formally left executive office in 1985. Collor seems to have closed down the military program. At the time of writing, however, Collor had left office in disgrace, with the military remaining a substantial force in Brazil.

Brazil's nuclear program now includes five research reactors, three power reactors of which only one works intermittently, three unsafeguarded (by IAEA) enrichment plants, two reprocessing units, and various other facilities.<sup>19</sup>

## **Pakistan**

Pakistan's experience resembles Brazil's in its response to a regional rival's quest for nuclear autonomy, and in its initial lack of direction and effective management. The first steps toward creating a nuclear complex in Pakistan began in 1956, when the

17. Goldman-Solingen, "A Study in the Political Economy," chaps. 3 and 4; Morel, *Ciencia e Estado*, chap. 4; Jose Goldemberg, "O Acordo Nuclear," *Boletim Informativo da Sociedade Brasileira de Fisica* (Instituto de Fisica da Universidade de Sao Paulo, 1975).

18. David Albright, "Brazil Comes in From the Cold," *Arms Control Today* (December 1990): 13-14.

19. Goldman-Solingen, "A Study in the Political Economy," Appendix B.

government established the Atomic Energy Council and the Pakistan Atomic Energy Commission (PAEC).

Early on, PAEC's primary mission was to undertake surveys of the availability of nuclear materials, expand the training of personnel, and begin negotiations with international agencies.<sup>20</sup> Similar to the experience of Brazil's Alvaro Alberto, the first head of the PAEC, Nazir Ahmed, was relatively unsuccessful in getting the support he needed for the autonomous functioning of the Pakistani atomic energy project. This was most vividly demonstrated by his inability to persuade either the US government or the Pakistani state bureaucracy to permit him to import the CP-5 heavy water research reactor he needed.<sup>21</sup>

In contrast, the next head of the PAEC, I. H. Usmani, was more successful in developing political links between the nuclear science community and the Pakistani government.<sup>22</sup> After 1964, when India started reprocessing spent fuel, showing that it was substantially closer to weapons capability, an additional impetus was added to Pakistan's development of a nuclear complex. Over the next six years, two wars with India and a recognition of India's advances in the nuclear field, compelled the Pakistani state to make its own nuclear program a matter of state priority. By the early 1970s, the Pakistani state had committed itself to the development of a nuclear military option. Like India a decade before, the combination of a military defeat and a demonstrated nuclear capability by a country considered to be a major threat convinced policymakers and the general public that the country's nuclear program had central strategic importance for national security. As in India, which had moved in the direction of a military nuclear capability through a combination of domestic and international factors, Pakistan's decision to develop a nuclear option was driven by international factors.

In 1976, Prime Minister Zulfikar Ali Bhutto separated the military component of the nuclear program from the PAEC and created an autonomous organization.<sup>23</sup> Headed by Abdul Qadir Khan, the Kahuta uranium enrichment project continued under the military regime of General Zia ul-Haq. Under the Zia ul-Haq regime, the impetus to produce a nuclear weapon accelerated: the military nuclear program now combined indigenous research with very effective international industrial espionage.<sup>24</sup> Additionally, to hedge its bets, Pakistan was seeking a military option through both the enriched uranium and the plutonium methods. By the beginning of the 1980s, international awareness of Pakistan's nuclear intentions was quite high. The first civilian regime after General Zia ul-Haq, headed by Benazir Bhutto, did little to stem the military nuclear program—perhaps because it was unable to do so—but continued a dialogue on nuclear issues with the Indian government. Bhutto's successor, Nawaz Sharif, took the process of regional nuclear dialogue further while continuing to build Pakistani nuclear capa-

20. Ashok Kapur, *Pakistan's Nuclear Development* (London: Croom Helm, 1987), 36. Kapur makes an over-vehement case for the peaceful origins of Pakistan's nuclear program.

21. *Ibid.*, 42.

22. *Ibid.*, chap. 3.

23. Bidwai and Vanaik, "India and Pakistan," 246.

24. Steven R. Weisman and H. Krosney, *The Islamic Bomb* (New York: Times Books, 1981). Although a polemical book, some useful information can be culled it.

**Table 1: Nuclear development in Argentina-Brazil and Pakistan-India**

Timing	Organizational Coherence	
	High	Low
Initiators	Argentina-India	
Followers		Brazil-Pakistan

bilities. Most recently, Pakistan announced that it was a de facto nuclear weapons state implying that future discussion would start from that "fact."

Pakistan's present facilities now include one heavy water power reactor, one research reactor, two heavy water plants, two enrichment units, three reprocessing sites, and other units. Only the power reactor and the research reactor are under international safeguards.<sup>25</sup>

Table 1 presents a brief summary of the above discussion. A convenient way of differentiating the historical experience of these four cases is to focus on simple variables of "organizational coherence" and "timing." Organizational coherence can be either high or low. The table places timing in a regional context: a country is either an initiator or follower in a particular region.

Two general points may be made. Both "follower" states, Brazil and Pakistan, initially less coherent and successful, adopted a more autonomous and effective organizational model as soon as the military component of the program began to dominate. This evidence supports arguments about the inherently ideological nature of "national security," on the one hand, and suggests that perceptions of threats to national security act as a sufficient condition for coalition-building and greater resource allocation among otherwise conflicting elite fractions on the other.

The previous discussion also indicates the crucial importance of a central figure around which countries organized their nuclear programs. Both Bhabha in India and Sabato in Argentina combined the necessary characteristics of this individual: an internationally recognized scientist and a politically astute organizational entrepreneur.<sup>26</sup>

### International Factors

In discussing the impact of global and regional factors on nuclear development in these two regions, the following discussion identifies, in a broad sweep, the primary variables that condition bilateral relations in each region. Global and regional systems each have their own dynamics, which are linked but which cannot be considered as one.<sup>27</sup>

25. Spector, *Going Nuclear*, 121-22.

26. Studies that explore this aspect in a Western setting include Bruno Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Cambridge, Mass.: Harvard University Press, 1987), and Thomas Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (Baltimore and London: Johns Hopkins University Press, 1983).

27. See Barry Buzan, "Introduction," in *South Asian Insecurity and the Great Powers* eds. Barry Buzan and Gowher Rizvi, (Basingstoke: Macmillan, 1986).



This section especially focuses on the relation between the regime type, the international economic system, and global patterns of cooperation and conflict among superpowers and their impact on bilateral relations within each region.

### Argentina-Brazil

The rivalry between Argentina and Brazil has shaped international relations on the South American continent for more than a century.<sup>28</sup> Argentina, until recently, had been the relatively more advanced and militarily powerful of the two states, but the balance of power has now clearly shifted in Brazil's favor. Nevertheless, interstate rivalry in South America is substantially different from that in South Asia or other regions of the world. Argentina and Brazil may consider themselves rivals but they have not fought a war in the twentieth century. The world is more likely to see Brazil protect itself from Venezuelan or Guyanese border incursions along the Amazon frontier, or Argentina react to Chilean encroachment in Patagonia, than a confrontation between the two states along their common border.

Rivalry between Brazil and Argentina is better characterized as a competition for regional influence and for symbolic prestige than as a scenario dominated by the threat of military conflict. For example, the US position during the 1982 Falklands/Malvinas War confirmed to many South Americans that greater threats to the region came from without rather than from within.<sup>29</sup> Despite being a signatory of the Rio Treaty, which called for common defense of the hemisphere, the US sided with its NATO ally, the United Kingdom, rather than Argentina. Yet, it remains true that events in Argentina are watched closely in Brazil, and vice versa. The perception that the Argentine program was far advanced, and that parity had to be achieved, clearly influenced Brazil's nuclear effort. Similarly, one of the reasons why Brazil actively sought to develop the hydroelectric potential of the Parana river basin adjoining Paraguay its desire to reduce or supplant traditional Argentine influence in Paraguay and Bolivia.<sup>30</sup>

The shift in the South American distribution of power became most manifest after World War II.<sup>31</sup> This was a period of import-substituting industrialization, and both countries grew rapidly, though not without corresponding social strains. After the 1960s, when the military came into power in both countries, competition between Argentina and Brazil became structured around a dual discourse of national security and geopolitics. Geopolitical thinking has a long tradition in Latin America, and in Argentina and Brazil in particular.<sup>32</sup> For example, the military regime in Brazil cited geopolitical

28. Wayne A. Selcher, "Brazil and the Southern Cone Subsystem," in *South America in the 1990s: Evolving International Relationships in a New Era*, ed. G. Pope Atkins (Boulder: Westview Press, 1990), 97-98.

29. Monica Hirst, "Transicao Democratica e Politica Externa: A Experiencia Brasileira," *Dados: Revista de Ciencias Sociais* 27, no.3 (1984): 377-94.

30. Maria Regina Soares de Lima, "The Political Economy of Brazilian Foreign Policy: Nuclear Energy, Trade and Itaipu," (Ph.D. diss., Vanderbilt Univ., 1986) chap 6.

31. Gamba-Stonehouse, "Argentina and Brazil," 232-33.

32. Sonia de Camargo, "Militares e Geopolitica no Brasil," mimeo, Institute of International Relations, Pontifical University of Rio de Janeiro (IRI-PUC), 1983; Jack Child "Geopolitical Thinking in Latin America," *Latin American Research Review* 14, no.2 (1979): 89-111.

reasons for its increase in the number of military bases in the Amazon, its building of the trans-Amazon highway, and its encouragement of the "colonization" of the interior of the country. Argentina, too, has used geopolitical arguments to justify an expansion of its navy which would be used to dominate the South Atlantic and Antarctica. Similarly, Argentina had to resist Brazilian attempts to reduce traditional Argentine influence along the Parana river, the main waterway connecting landlocked Paraguay and Bolivia to the South Atlantic.

Notwithstanding the ideology of national security which depicted South America as a theater of cold war operations, competition between Argentina and Brazil is unlikely to degenerate into overt and violent conflict. For example, during the cold war, many geopolitical thinkers assumed that the Soviets were involved in subversive activities within the continent.<sup>33</sup> Given the fragility of the economy and the social contract in most of Latin America, the primary threat to regimes was perceived to be internal in origin, embodied by groups of individuals who had been influenced by Marxism and other anti-status quo doctrines such as liberation theology. Indeed, the military regimes in Argentina and Brazil regularly shared information about subversives and guerrillas operating in each other's country.

In a further twist, national security was also seen to be closely related to development. This association took its extreme form in Brazil, where the military regime's slogan was "security and development."<sup>34</sup> Under the military regime, "development" meant economic growth through investment from abroad and state intervention in selected areas, especially high technology. The legitimacy of both military regimes was closely tied to the state of the economy; the worsening economy played a factor in the removal of both regimes.

For Brazil, the stress on classical geopolitical thinking, that may have predicted conflictual behavior, declined in the 1970s and was replaced with an attention to economic development and a search for new trading partners (see Table 2.) In 1979 Brazil's concern with its deteriorating economic condition and the need to strengthen ties in the Southern Cone region led President Figueiredo to make a series of state visits to neighboring countries, including a trip to Buenos Aires. Soon after, the pressing dispute over the Itaipu hydroelectric project was settled to the mutual satisfaction of both countries and Paraguay.<sup>35</sup> Argentines have made the case that Brazil's desire for closer ties with the United States has always been an obstacle to mutual cooperation between them and Brazil: hence they were no doubt heartened by Brazil's serious rift with the United States in 1977.<sup>36</sup> Brazil continued to move toward better relations with

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33. Some of this virulent anti-Communism was the result of US training. See Alan Rouquie, *The Military and the State in Latin America* (Berkeley and Los Angeles: University of California Press, 1987), 117-152.

34. For a discussion see Maria Helena Moreira Alves, *State and Opposition in Military Brazil* (Austin: University of Texas Press, 1985), 3-28.

35. Soares de Lima, "Political Economy of Brazilian Foreign Policy," chap. 6.

36. Brazil-US relations were already strained over the Brazilian deal with West Germany to acquire a nuclear power reactor. In 1977, Brazil reacted to the Carter administration's emphasis on human rights by abrogating the US-Brazil military assistance treaty.

its neighbors in the early 1980s, especially as international economic conditions worsened.<sup>37</sup>

Notwithstanding the benefits of closer cooperation, Argentina's movement toward a more conciliatory attitude in the region, and toward Brazil, went through fits and starts due to many regime changes during the 1970s. The 1982 war with the United Kingdom over the Falkland/Malvinas islands, however, marked the end of both the military regime in Argentina and any doubts about Argentina's priorities. The civilian government of Raul Alfonsín that succeeded the military junta immediately began to advance plans for economic integration with other regional economies. Argentina entered into negotiations with Chile over the Beagle Channel dispute, a process that was aided by Papal mediation.<sup>38</sup> In 1985, Alfonsín signed the agreement referred to above with Jose Sarney of Brazil.

The Falkland/Malvinas War reverberated through the region in a number of ways. The conflict confirmed not only historical suspicions about the reliability of the United States but also military planners' worst fears about interstate warfare in the South Atlantic.<sup>39</sup> Moreover, the South American region exhibited a markedly different response to war than other regions in similar situations had demonstrated. Rather than simply increasing military budgets, these countries drew closer together in an effort to increase security through collective consultation.

This consulting process was advanced by the fall of the military junta in Argentina, an event that prefigured a return to civilian rule in the Southern Cone countries. Given the primary need for these new democracies to consolidate their power over the military, negotiations with their civilian counterparts in neighboring countries was an additional and important means of keeping their own militaries in check.

The 1980s have been called the "lost decade" for Latin America. Real wages fell, debt burdens rose dramatically, inflation skyrocketed, the absolute number of the poor increased, and social tensions increased enormously. To a large extent these outcomes can be traced to the effects of changes in the international system, starting with the global recession of the early Reagan years. The high degree of integration of this region into the world trading system has its drawbacks, that is, it makes these economies highly subject to fluctuations and variations in that system.

The intense economic pressures being placed on these economies, especially the debt problem, have resulted in a much higher degree of coordinated multilateral planning and consultation. Examples of common planning include the Cartagena group on debt, the Lima subgroup to the Contadora process, the Amazon Pact, the Latin American Association for Integration, and the economic integration project between Argentina, Brazil and Uruguay. Joint ventures between Argentina and Brazil, both commercial and

37. Selcher, "Brazil and the Southern Cone," 94.

38. Howard T. Pittman, "Harmony or Discord: The Impact of Democratization on Geopolitics and Conflict in the Southern Cone," in *Geopolitics of the Southern Cone and Antarctica* eds., Philip Kelly and Jack Child (Boulder: Lynne Rienner, 1988) 36-39.

39. It should be mentioned that military strategists expected to see an East-West conflict, not a North-South one.

**Table 2: Variables affecting the degree of cooperation between Brazil and Argentina**

Regime Type Brazil-Argentina	International Economic Conditions	
	Better	Worse
MIL-MIL (1976-79)	Less Cooperative	
MIL-MIL (1979-82)		Cooperative
MIL-CIV (1982-85)		Cooperative
CIV-CIV (1985-present)		More Cooperative

technological, have increased since the mid-1980s, along with the potential for many more.<sup>40</sup>

These centripetal forces acting to further integration and cooperation between Argentina and Brazil have led to joint ventures in the military and nuclear areas as well. Embraer (Brazil) and FAMA (Argentina), the leading aircraft producers in their respective countries, are engaged in a joint project to manufacture the CBA-123, a medium-sized aircraft with dual military and civilian functions. Given the relative sophistication of the Brazilian aircraft program, the Argentine company will undoubtedly benefit technologically from this association while helping to defray the costs of the venture for Brazil. Similarly, in the nuclear area, Brazilian scientists are collaborating with their Argentine counterparts in a number of sectors and are looking into the possibility of joint sales of research reactors to third parties.<sup>41</sup>

This is odd behavior for ostensible rivals. Yet, given the singularity of their rivalry and the overwhelming pressures of the international economic system, Argentina and Brazil find it possible to exchange information and collaborate on what are usually considered the most sensitive and strategic areas of national security. For both countries, the need to develop their technological infrastructure and to benefit from economic integration overrides traditional concerns about military security and favors a developmental definition of security. Nevertheless, rapprochement would probably not have occurred without the transition to democracy in each country. Further, in spite of the fact that the first civilian governments in both countries have been succeeded by populist Presidents (Collor and Menem), the process of collaboration has continued.

The movement toward regional solutions to common problems and an increasing degree of multilateral consultation has meant that recent global political changes, particularly the end of the cold war, have had relatively little impact on the region. The slow movement toward regaining the levels of economic development of the 1970s has often taken priority, even over the consolidation of their democratic regimes. In sum, the state of the national and international economy is a crucial variable affecting the state of bilateral relations between these two states. Second, the need to keep the military at bay in each country has led to a greater degree of consultation between civilian ruling elites hoping to institutionalize a process where conflicts can be resolved rapidly, among

40. Helio Jaguaribe, "A Latina America no Presente Contexte Internacional," *Contexto Internacional* (Rio de Janeiro), 7 (January-June 1988): 21-23.

41. Goldman, "Argentina, Brazil Open to Inspection," 10.

the civilian branches of government thereby avoiding military involvement as much as possible.

### India-Pakistan

If the rivalry between Argentina and Brazil is relatively free of overt conflict, just the opposite is true of the regional powers of South Asia, India and Pakistan. Since the creation of the two countries during the decolonization of the subcontinent just over forty years ago, they have fought three wars and continue to have repeated border skirmishes. Disputes between the two countries include the status of Kashmir, support of irredentist groups in the other's country, the sharing of common river waters, cross-border smuggling, and Pakistani fears of losing economic and cultural autonomy to India.<sup>42</sup> The last war fought between these two states resulted in the dismemberment of Pakistan and the creation of a new state, Bangladesh in 1971.<sup>43</sup> That military success established India as the preeminent power of the region.

The secession of East Pakistan/Bangladesh meant another soul-searching moment for Pakistani identity. The creation of two Muslim-majority states separated by thousands of miles and a hostile neighbor was based on the idea that Islam could bind two nations that were historically and culturally quite distinct. Bangladesh belied that hope. Defining religion as a sufficient condition for statehood was also contrasted with the secular state-building attempt simultaneously being undertaken in India. However, for Pakistan, a state comprising four major ethnic groups often at odds with each other, a reassessment of its identity after 1971 could hardly ignore Islam. Eventually, the new civilian leadership looked to reaffirm the country's Islamic identity by turning west and establishing closer ties with the oil-rich states of West Asia.

For India, defeating Pakistan and eliminating the possibility of a war on at least two fronts allowed it to claim the undisputed position as the dominant regional power. For Indira Gandhi, India's Prime Minister at the time, the 1971 war marked the culmination of a political struggle for dominance within her party and confirmed her own centrality in the political process for the next decade.<sup>44</sup> The Simla Agreement, signed between India and Pakistan in 1972, forced Pakistan to accede to a long-standing Indian demand, namely, that bilateral disputes could not be internationalized but had to be settled within the region. In Indian eyes this constituted a diplomatic solution to the Kashmir problem, as it made earlier United Nations agreements irrelevant. The Simla agreement also legally constrained Pakistan's leverage for countering Indian dominance through alliances with extra-regional powers.

Strategically, India could now think of raising its sights and identifying China as the real threat to its interests and, by extension, to the region.<sup>45</sup> It was in this context

42. Raju G.C. Thomas, *Indian Security Policy* (Princeton: Princeton University Press, 1986).

43. Richard Sisson and Leo E. Rose, *War and Secession: Pakistan, India and the Creation of Bangladesh* (Berkeley: University of California Press, 1990).

44. Paul R. Brass, *The Politics of India Since Independence* (Cambridge: Cambridge University Press, 1990); Lloyd I. Rudolph and Susanne H. Rudolph, *In Pursuit of Lakshmi: The Political Economy of the Indian State* (Chicago: University of Chicago Press, 1987).

45. K. Subrahmanyam, *Indian Security Perspectives* (Delhi: Popular Prakashan, 1985).

that political approval for the testing of a nuclear device was given in order to impress upon extra-regional powers that India was now a force to be reckoned with. That the timing was politically motivated is clear: there can be little doubt that Indian nuclear capability had existed for at least a few years prior to the test.<sup>46</sup> In 1974, India detonated a "peaceful" nuclear device in the Thar desert. Not surprisingly, this event spurred Pakistan's efforts to acquire a strategic nuclear capability.

In Pakistan's new political climate, Prime Minister Zulfikar Ali Bhutto made it quite clear that India's possession of the bomb made it absolutely necessary for Pakistan to acquire one as well. Ashok Kapur characterizes Bhutto as a once lukewarm supporter of the nuclear establishment who after 1972 became its strongest advocate.<sup>47</sup> In order to broaden the base of support as much as possible and to dovetail with the state-led Islamization of Pakistan, Bhutto gave the process a significant twist by describing the nuclear effort as the "Islamic" bomb. The use of Islamic symbols and myths as a means to legitimize the state and its nuclear program continued with renewed energy after the overthrow and eventual execution of Bhutto.<sup>48</sup>

The next ruler of Pakistan, General Zia ul-Haq, took a less belligerent attitude to relations with India. While continuing the westward orientation of Pakistan's foreign policy, he sought to reduce tensions with India and made a number of proposals toward this end. Although Zia received a warmer reception from the Janata regime (1977-1979) than he had from Indira Gandhi, the Indian government eventually rejected all his proposals. The relatively short tenure of the Janata government prevented it from significantly changing the course of foreign affairs but marked an attempted return to a less pro-Soviet line in Indian foreign policy. The turning point in recent India-Pakistan relations, however, came in 1979, with the Soviet invasion of Afghanistan.

With the Soviets ensconced on Pakistan's north-western border, Pakistan's geopolitical position and the state of India-Pakistan relations changed dramatically. The long-sought strategic association between Pakistan and the United States, which had led to Pakistan's membership in the Central Treaty Organization (CENTO) and the Southeast Asia Treaty Organization (SEATO) in the 1950s and 1960s, was now being actively cultivated by the United States. President Zia's disingenuous rejection of \$400 million in aid from the Carter Administration as "peanuts" indicated Pakistan's awareness of its enhanced leverage. After Ronald Reagan came to power the aid package went up to \$3.2 billion and included forty F-15s.<sup>49</sup> Furthermore, Pakistan was exempted from the US Congress's anti-proliferation Symington Amendment, allowing Pakistan to have its (yellow) cake and eat it too!

The Soviet Union's invasion of Afghanistan in many ways completely reversed Indian strategic advances of the previous decade. India's long-standing desire to keep the region free of superpower involvement was completely overturned with the entrance

46. Abraham, "India's "Strategic Enclave," 243.

47. Kapur, *Pakistan's Nuclear Development* chap. 3 and 4.

48. Ayaz Naseem and Itty Abraham, "National Security as a Source of State Legitimacy in India and Pakistan," work in progress, 1993.

49. Spector, *Going Nuclear*, 104.

of both the USSR and the United States. Further, the primary actor responsible for this new strategic configuration was India's long-standing ally, the Soviet Union, which had not given India advance notice of the event. Pakistan, a once-defeated enemy, was rapidly rearming itself with the latest US equipment and was proceeding with its clandestine nuclear program. The USSR tried to make amends by providing India with a series of huge arms deals through the 1980s. The net result ushered in the greatest arms race South Asia has known.

Indian arsenals were bolstered both by purchases from abroad and by a significant increase in domestic procurement. It was in this period that the Indian guided missile program began, exacerbating the trend toward a qualitative as well as a quantitative increase in the regional arms race. On the nonconventional front, by the middle of the 1980s it was widely assumed that Pakistan had acquired the means to create a nuclear device while India probably had begun development work on a thermo-nuclear capability. These presumptions ushered in the bilateral stance of "nuclear ambiguity," which lasted until recently.<sup>50</sup> India had demonstrated the ability to produce a nuclear weapon but maintained that its nuclear program was for peaceful purposes only. Pakistan used nongovernmental organs to announce that it had achieved nuclear status, thereby letting the world know that it had weapons as it continued to deny its nuclear status officially.

From the beginning of the 1980s, the region was faced with a new set of threats to its security. Unlike the traditional pattern of competition and conflict between the two countries, with its potential for full-scale international war as the final outcome, India, and, to a lesser extent Pakistan, and the other states of the region, were now faced with growing levels of violence and militarization due to the political demands of ethnically-based sub-national movements. First came the bloody Punjab crisis, soon followed by the revival of two historically simmering separatist movements in Kashmir and Assam. Further, covert Indian support of Tamil guerrillas in Sri Lanka led to the dispatch of Indian "peacekeeping" troops in an unsuccessful attempt to resolve the conflict in that country. On four sides of the country, Indian armed forces were engaged in violent combat, whereas it had in the past always been far from the capital and on a much smaller scale. The line between internal and external security problems had been permanently breached. None of these conflicts has yet been resolved.

Pakistan, while reaping the benefits of renewed US aid and support, found that the Afghanistan conflict was not an unmitigated boon. The vast numbers of refugees to be taken care of, the rapidly increasing availability of advanced weapons within the country, and the growth of links between Afghan guerrillas factions and the illegal drug trade all contributed to the repeated breakdown of law and order in a number of Pakistani cities, especially Karachi. The nascent Sindhi secessionist movement was also on the rise, possibly abetted by Indian covert activity. As in India, the simultaneity of these events, each considerably dangerous, forced a reevaluation of the primary security threats facing country.

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50. Bidwai and Vanaik, "India and Pakistan," 267-270.

This enormous increase in domestic violence and the corresponding militarization of the region have led to a reconfiguration of the security problems of both India and Pakistan. The predominance of domestic security concerns is demonstrated by the negotiations to end a more traditional type of conflict, the Siachen Glacier incident. Indian and Pakistani forces have been withdrawn to less threatening positions, and tensions resulting from Indian war exercises near the Pakistani border have been diffused. In the past, these were the sort of incidents that might have led to war, but now it appears that policymakers on both sides fear the devastating impact that war would have on their own countries.

This qualitative shift in the security profiles of both countries has increased the likelihood of achieving a successful cooperative agenda. The first important step in a multilateral approach to South Asian problems was the formation of a regional organization, the South Asian Association for Regional Cooperation (SAARC) in 1985. In addition to opening a forum in which to discuss matters of mutual concern, SAARC has made it possible for leaders to meet regularly and discuss matters of bilateral and regional importance at the highest level without the media-induced pressures of a bilateral "summit."

Ironically, the assassination of Indira Gandhi in 1984 and the death of General Zia ul-Haq in 1988 were also of considerable importance in furthering the potential for cooperation. Indira Gandhi's death provided the opportunity for an important transition in Indian economic policy, namely economic liberalization, and a foreign policy less encumbered by past grievances. The death of Zia ul-Haq brought a civilian government back to power in Pakistan for the first time since 1977. Although the Pakistani military still retains veto power over the government—forcing, for example, the extra-constitutional ouster of Benazir Bhutto in 1990—Bhutto's government was followed by an elected civilian regime without overt military involvement. Finally, the end of the cold war and the winding down of the conflict in Afghanistan have also removed India's and Pakistan's superpower patrons from active involvement in the region. The uncertainties of what a post-cold war world would be like have helped in pushing the two countries toward trying to find mutually satisfying, regionally-based solutions to common problems such as terrorism and drugs.

### **The Case Studies Compared**

When one compares the India-Pakistan case to the South American situation, the differences in the two regions stand out markedly. Unlike the state of relations between Argentina and Brazil, which could be described as broadly conditioned by regime type and the state of the international economy, it is not possible to identify corresponding variables in the South Asian case that have led to the improvement of relations and even a reduction of regional tensions.

In the Argentina-Brazil case, changes in the international economy have acted as an important external factor pushing the two states together. Signifying the qualitatively different nature of South Asia's insertion into the international system, the degree of superpower political and military involvement within the region occupies an analogous position with respect to India-Pakistan relations. The end of the cold war, thus, has had a significant impact on the region.



The type of regime in each country does not help explain consistent variations in the state of bilateral relations in South Asia. Perhaps a more significant factor affecting conflict in the region is too obvious to mention—the passage of time. In Pakistan, time has led to the gradual empowerment of a generation which is less encumbered by doubts of Pakistan's legitimacy and which is less obsessed with India. This permits Pakistanis to negotiate with India without fear of being accused of selling out or caving in: a prevalent concern in earlier times.

The passage of time has also been instrumental in bringing to the fore the contradictions underlying early state-building efforts in both countries. The growth of civil societies in both countries has proceeded apace with the decline of state legitimacy in India and Pakistan, a contradiction that has led to "crises of governance" in both states. In the case of Pakistan, ethnicity has been the ostensible locus of contradiction, and in India, religion. Resolution of these contradictions in each society is difficult to predict; however, it is possible to suggest their implications for regional relations.

There has always been an argument made in scholarly literature on the causes of war that states will often go to war to avoid crises of legitimacy. The case of India and Pakistan would seem to belie that expectation for the reasons mentioned earlier. Yet where does that leave the region? Yet another homily of the international relations community has been that democracies do not go to war with each other. The growth of civil societies in both countries helps foster some optimism that, providing the state does not collapse, this growth will lead to a validation of the assertion that "democracies do not fight."

### Domestic Factors

A great deal of the discussion of domestic actors involved with nuclear proliferation issues is conducted in terms of the posited behavior of "hardliners" and "softliners" or some such variation.<sup>51</sup> While it is true that, depending on one's stance toward proliferation, an individual or a group can be described as "hard" or "soft" in relation to each other, it is not clear whether such labels help one better understand the internal dynamics of state decision-making.

This analytic fuzziness is especially problematic when the assumption is made, as it is in this paper, that the primary driving force behind proliferation is domestic in origin. Hence, the approach taken here is to highlight institutions such as the scientific community, the state, the military and political parties; these and other political actors have material and symbolic resources, and clearly defined objectives and goals which they act to fulfill. However, the dearth of systematic comparative research on domestic institutions makes generalizations more indicative than definitive at this point.

51. While this tendency is more common in newspaper and journalistic accounts, the statement that follows is not atypical of more scholarly work: "Today the [nuclear] debate is between the moderate and hawkish camps." (Spector, *Going Nuclear*, 88). The discussion goes on to identify certain individuals whose public pronouncements qualify them for moderate or hardliner status, categories defined by and applied by the analyst. The problem with this approach is that it will always be possible to find "moderates" or "hawks," but knowing what they supposedly stand for will not help predict what they might do, what power they have, and so on.

### **The Scientific Community**

Unlike the situation in most developing countries where scientists simply do not exist in large numbers or act as a coherent group, the scientific community in these four countries is large, complex, and politically involved. It is a gross, but useful, simplification to see the scientific community of each country as split between those that are for or against national nuclear energy programs. I would argue that, by and large, the scientific communities in these four countries accept the need for indigenous nuclear programs in principle, based on their understanding of the international stakes involved. However, factions of this community disagree with either the structure of the projects, their exclusivity, or the degree of resources devoted to them. This general consensus differs from the position of a number of scientists in the West and in the former Soviet Union who oppose all nuclear programs, especially for their role in global insecurity and environmental degradation. It is in this latter case that traditional labels of "hardliners" and "softliners" may have more semantic relevance.

At the time when the nuclear scientists in India and Argentina began their work, the gap between First World and Third World nuclear research was relatively small. Most nuclear work during World War II had been carried out in secret at a few specific sites, and their results were not available to the general scientific community. This meant that scientists in Argentina and India could begin studies and experiments with reasonable certainty that their work was new, and therefore of interest scientifically, and could believe that scientific work elsewhere was not much more advanced. This assurance, as well as the intense patriotism that imbued these early scientific projects, pushed the scientific momentum of these projects along at high pace.

The easy definition of the nuclear program as a project of national importance, the relatively early start on research, and the high quotient of political protection offered these scientists in Argentina and India were crucial for the institutionalization of the nuclear programs in these two countries. Argentina's atomic energy project would never have gotten off the ground without the efforts of civilian scientists working in conjunction with the politically powerful navy. In India, the scientist Bhabha's political association with then Prime Minister Nehru gave the nuclear program a high degree of insulation from other state agencies and civil society, which has continued to this day. The importance and prestige that these governments attached to nuclear science enabled these programs to attract the cream of the scientific community to their ranks, especially in their early years. Over time, however, as a process of financial "crowding out" has occurred, groups of scientists have begun to protest the exclusive privileges and resources available to the nuclear program. Such is the prestige of the nuclear program, however, that even these critics stop short of condemning it, asking instead for a more just distribution of state resources.

The case in Brazil and Pakistan is somewhat different. Because of the delay in embarking in their nuclear efforts, and their initial lack of organizational coherence, groups of scientists emerged in each country with alternating ties to the state and to the international scientific community. This meant, on the one hand, that the best minds in the scientific community were not necessarily absorbed by the atomic energy program, and, on the other, that the social and economic value of a state-led nuclear energy

program was debated among experts who were divided in their assessments. The contrast with India and Argentina is marked.

As long as the nuclear programs in Brazil and Pakistan could be successfully linked to the national security of the country, however, criticism could be deflected and appeals could be made to the patriotism of civilian scientists. This process was more successful in Pakistan, with the ever-present bogey of India, than in Brazil, with Argentina hardly likely to rain nuclear devastation down on Rio de Janeiro. Hence, the combination of political support at the highest level and the unqualified perception of a nuclear energy program as a national priority became necessary factors in deflecting criticism from other scientists and advancing nuclear projects in Brazil and Pakistan.<sup>52</sup> This combination was not always possible.

### The State

Three branches of the state are central actors in the domestic nuclear arena. The first is the civilian bureaucracy who are in nominal control of nuclear-related issues. Their interests lie, at minimum, in maintaining funding levels and keeping the nuclear enclave insulated from other agencies of the state and public. They may be expected to be the most die-hard supporters of a nuclear program.

The second is the ministry for foreign affairs which has the task of controlling the international impact of nuclear developments. In developing countries, foreign ministries are typically coherent, organized, and autonomous when compared with other organs of the state. The interests of the foreign ministry might well run counter to the scientific and technological needs of the nuclear enclave; the foreign ministry may take unpopular positions in international forums or may have to choose between its own conception of the national interest and one forced on it by domestic scientific developments.

The foreign ministry has had a varying impact on the nuclear question. In both countries where the nuclear project had an early start, Argentina and India, the foreign ministries were among the most ardent supporters of the project, especially in the early years. This may be taken as an indication of the high popular support for such a project as well as the diplomatic value, in the Third World especially, of appearing to be from a scientifically well-endowed country. As international debates about proliferation multiplied and concern about the spread of nuclear weapons grew, institutional support from the foreign ministries in Argentina and India for the nuclear energy establishment may have waned somewhat, but their international stance typically has not wavered. Hence, in these two countries today, the ministries of external affairs might act as a restraining force on further expansion or deepening of the nuclear programs.

The Brazilian case is somewhat different. The traditionally independent ministry of foreign affairs, Itamaraty, was instrumental in splitting the national consensus on atomic energy. In the 1970s, the foreign ministry pushed through a deal with West

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52. This support was available during the military regime in Brazil (1964-85) and from 1972 until the present in Pakistan.

Germany that resulted in the import of an enriched uranium-pressurized water reactor complex under complete safeguards.<sup>53</sup> The domestic scientific community was up in arms, both over the choice of reactor as well as the decision to go to foreign suppliers to develop a nuclear industry. When the military realized that this deal would make pursuing a weapons program very difficult, members of this establishment were also opposed, but by then it was too late. Here then is a case in which when the bureaucratic power of a nonscientific institution was able to set back the development of an indigenous program because of the relative disorganization of the scientific-military coalition.

### **The Military**

The third branch of the state that is intimately tied to the nuclear question is the military. The close involvement of the military with the nuclear project is usually a good indicator of the project's perceived importance and probable success, especially when a successful coalition is made with the nuclear scientists. It is more common, however, to see a particular branch of the military, rather than the military as a whole, take nuclear energy as its own institutional project and devote considerable attention and interest toward its fruition.

In both Brazil and Argentina, the navy has been the military branch most closely connected with the nuclear program. Naval involvement is probably due to two factors: first, the relatively higher degree of engineering and other technical skills required in modern navies, which predisposes them to favor technology projects, and, second, the strong interest in both the Brazilian and Argentine navies in developing nuclear submarines. Developing a reactor core small enough to fit in a submarine is a feat of considerable engineering skill, one that involves mastery of all aspects of the nuclear cycle. Its difficulty can be gauged by the small number of countries (five) that possess such vessels.

In Pakistan, however, the nuclear program is the army's project. Since the military dimension of the Pakistani program has been uppermost since the early 1970s, the army has developed a fit between its own strategic goals and the development of nuclear weapons. The army is by far the dominant branch of the Pakistani armed forces, and its ability to equate its own interests with that of the nation has given the nuclear program all the support it needs at the highest levels of government. The Indian case is somewhat different. At one point it could be truthfully said that no branch of the armed forces was particularly keen on the acquisition of a nuclear option. Such diffidence is now a thing of the past; a pro-nuclear lobby within the armed forces has grown for a variety of reasons since the mid-1980s.

The close involvement of the military or a branch of the armed forces with the nuclear program can also have negative consequences for the short-term health of the program. In Latin America, in particular, where contemporary political dilemmas center on keeping the military out of politics, support for the (military's) nuclear program can easily be read as support for the military institution, making potential nuclear supporters

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53. Edward Wonder, "Nuclear Commerce and Nuclear Proliferation: Germany and Brazil, 1975," *Orbis* 21, no.2 (1977).

extremely wary of such an association. During a transition to democracy, the nuclear program, along with other pet military programs, becomes immediately politicized and is used as a political weapon to demonstrate the prodigality of military regimes. However, in my view, these are tactical issues which are likely to subside once the civilian regime is consolidated and nationalistic support for a nuclear program manages to reassert itself.

### Political Parties and Public Opinion

Argentine political parties and the public appear to treat the nuclear question with a combination of nationalistic pride and uncertainty. The relative weakness of civil society and the near-absence of associational groups that might be opposed to nuclear power on environmental grounds make for a passive consensus on the nuclear program. Opposition is more likely to arise over the frequent power shortages occurring as a result of reactor breakdown or over the high-handed behavior of the Argentine Nuclear Energy Commission, CNEA.<sup>54</sup> However, when the international community pressures Argentina to alter or close down its programs, nationalism tends to override. The NPT, for example, is widely seen as discriminatory and pro-vertical proliferation: yet another example of a long list of developed country aggressions against the Argentine people. Overall, although there is a fairly high degree of support for the nuclear program, given the nature of competition in the region, this support in no way precludes bilateral confidence-building agreements with Brazil.

The Brazilian case is more divided. First, there is a political party, the Brazilian Green Party (Partido Verde) which is opposed to any kind of nuclear power for environmental reasons, but it has very little popular support. Second, the close association of the military with the nuclear program has tainted these efforts in a country that is engaged in a democratic transition. Third, the political furor over the choice of a German power reactor and later the revelations over the military's parallel program brought nuclear issues into normal political discourse. Although Brazilians would tend to resist obvious signs of international heavy-handedness or the appearance of discrimination, on the whole there is a fairly high degree of support for down-scaling the nuclear establishment and engaging in bilateral or regional cooperative agreements.

In both India and Pakistan, popular support for the nuclear option is high, especially in urban areas and even if the strategic details are not clear. Both countries believe the other to possess nuclear weapons, and in the Indian case, China is seen as an important symbolic threat as well. Given a long history of conflict in the subcontinent in a relatively short period of time, the likelihood of change in these perceptions is very low. In India, however, only the Bharatiya Janata Party (BJP), ideologically right wing and having strong Hindu affiliations, has come out in favor of crossing the nuclear threshold. This party, now growing alarmingly in electoral popularity, has never formed a government at the national level. In the past, new parties taking office in India have tended to remain firmly within the bounds of traditional foreign policy practices, especially with regard to the proliferation issue. Their present rhetoric notwithstanding,

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54. Joe Goldman, "Bad News in Buenos Aires," *Bulletin of the Atomic Scientists* (June 1990): 8-9.

**Table 3: The Relative Importance of Domestic Actors**

Country	Scientific Opposition	Military Branch	Foreign Ministry	Public Opinion
Argentina	Small	Navy	Pro-Nuclear	Largely Supportive
Brazil	Large	Navy	Mixed Record	Growing Opposition
India	Small, but growing	Probably Army	Probably Army	Pro-Nuclear
Pakistan	Small	Army	Pro-Nuclear	Very Supportive

even the BJP would probably need an external reason to officially declare that India possesses nuclear weapons.

As in Brazil, the close involvement of the military with the nuclear program has a negative association in some quarters in Pakistan. However, if the prevailing tendency in India is for pronuclear forces to become more moderate, in Pakistan the reverse is true, with moderately antinuclear forces becoming more pro-nuclear as they enter office. This was the case with Benazir Bhutto's Pakistan Peoples Party (PPP) which opposed General Zia ul-Haq's nuclear program while in the opposition but changed its position once in office. In both South Asian cases, as in South America, the popular reaction is likely to be very nationalistic and resistant when faced with the appearance of international pressure to alter or close down nuclear programs.<sup>55</sup>

### Summary and Conclusions

This paper so far has focused on clarifying the forces and motivations behind the nuclear programs in two regions of the world, South Asia and South America. The movement toward nuclearization acts to increase levels of insecurity within and outside these regions. Hence, what proposals can be offered to reduce tensions and continue programs of confidence-building between the primary actors in each region?

The preceding discussion of regional and bilateral relations within the context of each dyad suggests that external economic factors in South America and political factors in South Asia have a crucial part to play in explaining the degree of cooperation between these states. External economic and political factors are mediated via the type of regime in each country. When both states in a region are ruled by civilian, democratic, and legitimate regimes, bilateral concert is most likely. These conclusions should be taken as a necessary backdrop to a discussion of confidence-building.

In each region, one state has acted as the initiator of a nuclear program and the other has, eventually, followed suit. The motivation behind each country's decision to initiate nuclear programs was external. For the initiator country the external motivating factor lay at the global level; for the follower the external factor was at the regional level.

55. Nuclear power has grown to have a mass symbolic value that makes domestic opposition to nuclear projects seem antinational and unpatriotic. From the point of view of the public, an indigenous nuclear program seems quintessentially modern, appears to give a country heightened international status, and indicates that domestic scientists and technologists are equal, in this arena at least, with the best in the world.

Notwithstanding the external origin of decisions, I argue that once this decision is made, the primary force behind the program is domestic.

Nuclear-related decision-making in each country is the outcome of the competing pressures of the following interest groups: scientists, the military, the foreign ministry, and political parties and the public. The public in these countries are largely in favor of nuclear programs, as are sections of the military. The foreign ministries are, by and large, in favor of their country's nuclear program, yet they are also the most sensitive to the international cost of having such a program. Scientists are divided into those for and against the form and structure of their country's nuclear program, but they rarely question the existence of the program itself.

"Confidence-building measures" (CBMs) is a loosely defined term applied to any set of unilateral, bilateral, or multilateral actions or procedures that act to reduce military tensions between a set or sets of states, before, during, or after actual conflict. CBMs may be considered to be a softer version of arms control measures, which aim to reduce the potential of war between states. There are a variety of CBMs, including informative, communicative, access-related, notification, and constraint measures.<sup>56</sup> CBMs may also be divided by the degree of loss of sovereignty. Access-related and constraint CBMs both entail intrusive procedures—by reducing the options of decision makers inasmuch as they are directed to verify compliance with constraints.

The discussion has shown that the context of nuclearization in South America and South Asia is quite different. Hence, different sets of procedures are required to reduce tensions in each region. Brazil and Argentina have already crossed a number of CBM thresholds in the last few years. There is a high degree of communication and information about the relative strengths and weaknesses of the other's nuclear program. Scientists from each country have begun to collaborate with their counterparts on nuclear-related scientific matters. Scientists in one country already have access to most of the other's nuclear research institutions. As a result, the thrust of confidence-building and regional security measures can continue toward binding legal restrictions on the production and deployment of nuclear weapons. Brazil and Argentina should be encouraged to ratify jointly the Treaty of Tlateloco, which prohibits the use and manufacture of nuclear weapons in South America.

Reduced tensions in the region directly relate to the economic crisis that constrains the allocation of large sums to nuclear programs. The other crisis in the region is the democratic transition now under way. This suggests the need to identify CBMs as a way to end the military's continued isolation from public life. In other words, the chances of signing the Tlateloco Treaty and beginning constraining measures are higher if both the public and governments perceive these steps as another way of controlling the military.

Additionally, scientists in both countries must have opportunities to learn verification techniques in order to maintain the nonproliferation regime. International scientific bodies, rather than foreign governmental bodies, are the most appropriate

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56. From Richard E. Darilek, "Confidence Building and Arms Control in the East-West Context: Lessons from the Cold War Experience in Europe," (Washington, D.C.: Henry L. Stimson Center, n.d., mimeo), 28.

organs to pass on this information. Finally, international institutions and aid donors could reward a joint signing of the Tlateloco Treaty by increasing the capital flow into the region, provided it is made clear to the public that aid was in no way contingent on the signing.

However, at restricted installations, scientists are conducting research on missiles and nuclear submarines capable of projecting force well beyond the boundaries of the region. These weapon systems, rather than nuclear weapons, present the greater potential threat to regional and extra-regional security. Once the nuclear question is legally settled and verification procedures are in place, CBMs can be oriented toward these installations and the research being carried out there. CBMs on missiles and submarines will need to begin at a very basic level, as there is little public information or joint communication about these military-run programs. A necessary condition to begin CBMs in this area, however, is a medium-term resolution of the civil-military crises in both Brazil and Argentina.

Tensions between India and Pakistan are the outcome of uncertainty over both nuclear and conventional military issues. On the military front, the two governments have begun to communicate regularly about potential sources of threat, such as military exercises. The information shared about exercises usually includes the number of the units taking part, the duration of the exercises, and the general location where the exercise is to be carried out. Sharing information might appear to be an extremely positive step, but in practice, notification is not taken at face value. During each of the major military exercises carried out by India and Pakistan in the last few years, the level of readiness on both sides was extremely high due to suspicions that the exercise was only a front for the open movement of troops and material to battle formations. This attitude is a reflection of the high state of uncertainty that exists between the two sides with respect to the military.

Pakistan's lack of geographic depth, not surprisingly, makes military planners extremely cautious about any Indian activity close to the border. Confidence-building in the border regions must center on the removal of regular army troops and heavy military material to a considerable distance from cease-fire lines. Indian concessions will be vital for this measure to succeed, yet negotiations must be carried out without implying that India is the likely potential aggressor. A serious constraint on troop withdrawals in this area is that in both the Punjab and Kashmir regions the Indian army is engaged in fighting secessionist liberation movements, terrorists, or both. This suggests that the withdrawal of heavy equipment might prove relatively easier to negotiate than the removal of troop formations. At the same time, armed border patrols are vital to prevent the easy movement of terrorists and smugglers between the two countries. Hence, the possibility of creating a border patrol manned by troops from both sides should be examined. In addition to making this area more secure, such a measure would also make it more difficult for either country to aid terrorist groups on the other side.

Given the state of distrust and uncertainty between the two countries, the likelihood of seeing a movement toward highly intrusive measures like unannounced checks or constraining measures such as absolute reductions in military stocks is quite low. However, the number of communicative and informational CBMs could easily be increased. The practice of prior notification before military exercises must be encouraged



to continue. Further, the number of observers from the other side could be gradually increased. Senior and junior military officers could be sent regularly to specialized military colleges in the other country to keep up to date on shifts in military doctrine and to get to know their counterparts on a personal basis. A sustained AWACS (airborne warning and control system) capability, on the part of both the Pakistani and Indian air force would greatly reduce the likelihood of surprise attacks, without being overly intrusive.

On the nuclear question, scientists who are not a part of the nuclear establishment are a potential source of restraint on the nuclear program. These scientists could be encouraged to make their disagreements with the nuclear scientists part of the public debate on proliferation. As in South America, Indian and Pakistani scientists could be helped to gain expertise in verification and monitoring with the help of international scientific bodies other than the IAEA. Legal restrictions on the reporting and study of the Indian and Pakistani nuclear complexes have to be removed to allow the citizens of each country better and less biased information. For the same reason, the debate within the security community about the utility or non-utility of nuclear weapons should be made public.

In South Asia, "transparency" is an issue for the domestic public as well as for the outside observer. It is quite likely that greater openness about the nuclear program could lead to a split in the domestic consensus in favor of nuclearization. Greater attention on the part of the public, combined with greater pressure from expert groups, would aid any attempt between democratically elected governments to reach a stable solution to the nuclear problem. Formal negotiations of the kind suggested by Pakistan, and endorsed by the United States, may not be fruitful, as India would insist on the presence of China as a negotiating party, an unlikely eventuality.

Some bilateral accords, however, are a must. A joint commission could be appointed to look into the creation of a common site for the disposal of nuclear wastes and spent fuels. Since both countries have the ability to upgrade spent fuels to bomb-quality material, joint control over these wastes would assure control over a potential source of weapons materials. From an environmental standpoint as well, the joint disposal of wastes has advantages over separate storage sites.

At present, "hard" verification of a production freeze or a halt to qualitative shifts in weapons production would be impossible, as would be inspections by the other side or even by third parties. However, the willingness to admit to the existence of a problem and official recognition of the high stakes involved would be a great step in the right direction. With the withdrawal of the superpowers from the region, the moment is ripe for a multifaceted, regional approach to confidence-building.

The tendency toward regional solutions to problems can be strengthened, for example, by recognizing the regional dimensions of such problems as terrorism, the economy, and the environment. In addition, existing forums which allow for regional solutions, such as the South Asian Association for Regional Cooperation, have to be given more resources and made more prominent. Pakistan has to work toward keeping the presence of China from becoming a real or contrived regional threat, one allowing India to renege on its commitments on the grounds of national security. The bilateral

restrictions on trade, travel, communication, and investment in India and Pakistan must continue to be lowered. Joint ventures in areas such as communications, textiles, farm machinery, and engineering projects where the comparative advantages of each country are utilized, could be undertaken in Europe, the Middle East and Southeast Asia. In South Asia, a higher degree of contact and communication and increased economic ties between Pakistan and India will ultimately reduce the threat that each country perceives.

In conclusion, although civilian and military nuclear programs in both Latin America and South Asia are likely to continue with little chance of international oversight, these programs need not make their respective regions more dangerous. A variety of factors suggest not only that the dynamic of these regional nuclear races might be reaching a stable point, but that tensions within each dyad can be substantially reduced over time.

## **About the Author**

Itty Abraham is presently the program officer for South Asia and Southeast Asia at the Social Science Research Council in New York City. His areas of scholarly interest include militarization in the developing world, the political economy of Latin America and South Asia, and contemporary theories of International Relations. Mr. Abraham received his Ph.D. in Political Science from the University of Illinois, Urbana-Champaign.

## **Acknowledgements**

The author would like to acknowledge the help and comments of Kanti Bajpai, Michael Krepon, and Matthew Rudolph in the writing of this paper.

