

# **Nuclear Confidence-Building in the Southern Cone**

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**L**atin America's two leading nations have devoted considerable resources to nuclear development. Both have achieved significant progress toward independent mastery of the nuclear fuel cycle with potential military applications. Moreover, until recently, their nuclear development has been accompanied by a nuclear theology grounded in rejection of the basic tenets of the non-proliferation regime. Specifically, the two nations opposed the Nuclear Non-Proliferation Treaty (NPT) and full-scope International Atomic Energy Agency (IAEA) safeguards, and refused to fully accept the obligations of the Tlatelolco Treaty establishing a Latin American nuclear weapon-free zone.

These policies have now been reversed; the illusion of an 'independent' nuclear policy appears to have been discarded and both nations have apparently embraced the non-proliferation regime. This paper examines the background and implementation of these dramatic policy reversals and assesses the factors which led to the repudiation of long-held nuclear policies.<sup>1</sup>

## **Nuclear Confidence and Cooperation**

In the period following the conclusion of the Non-Proliferation Treaty (NPT) in 1968, the nuclear policies of Argentina and Brazil converged into a common front against what was viewed as an imposed nuclear order. In particular, there was growing resentment in both nations against nuclear supplier cooperation among the advanced nations to restrict nuclear exports. Such efforts were viewed as direct threats to their independence and their development objectives.<sup>2</sup>

In 1975 relations between the United States and Brazil began to deteriorate as a result of the strong US opposition to the German–Brazilian nuclear arrangement. Under this agreement, Brazil was to purchase two 1300 MWe light-water reactors, with an option for six more units, while West Germany was to supply Brazil with a complete nuclear package of

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<sup>1</sup> For a more extensive review of Argentine–Brazilian nuclear cooperation, see John R. Redick, "Nuclear Illusions: Argentina and Brazil," Occasional Paper no.25 (Washington, D.C.: The Henry L. Stimson Center, 1995). This essay is a condensed and updated version of the earlier publication.

<sup>2</sup> The meetings in London of nuclear supplier nations, convened in secret by US secretary of state Henry Kissinger, were particularly offensive to Argentine and Brazilian sensitivities. The meetings began in 1974, and agreement on export guidelines was reached in September 1977.

fuel fabrication, reprocessing, and a ‘nozzle’ type enrichment facility. The US–Brazilian relationship already had become somewhat strained in the early 1970s due to Marshall Costa E. Silva’s assertive nuclear policy. Following a direct initiative by US president Jimmy Carter to prevent the transfer of German reprocessing and enrichment technology (by sending Vice President Walter Mondale to West Germany in January 1977), the US–Brazilian relationship worsened considerably.

The US–Brazilian split over nuclear issues encouraged enhanced Argentine–Brazilian nuclear cooperation. While suspicion and competition remained a major feature of their relationship (particularly as regards water and energy rights in the Rio de la Plata area), there was nonetheless strong Argentine support of the Brazilian right to acquire advanced nuclear

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technology. In January 1977, shortly after the Mondale discussions in Germany, the Argentine and Brazilian foreign ministries issued a joint communique stressing the importance of nuclear policy cooperation and the initiation of systematic technological exchanges between the two countries’ respective nuclear energy commissions.<sup>3</sup>

These technical exchanges between the National Commission on Nuclear Energy (CNEA) and National Atomic Energy Commission (CNEN) were to prove central to the nuclear rapprochement process between Argentina and Brazil. The nuclear energy commission officials began to develop personal linkages and familiarity with their counterparts over a period of years. These exchanges and contacts, in turn, helped to pave the way for later development of further Brazilian–Argentine nuclear cooperation agreements.

By the late 1970s, Argentina was also engaged in an increasingly bitter dispute with the United States over Washington’s objection to Argentine purchase of its third power reactor and a heavy-water production facility without accepting full-scope safeguards. Argentina’s earlier support of Brazil over the 1975 German arrangement was reciprocated, resulting in enhanced coordination of nuclear policy.

In 1979 the two nations took a highly significant initiative by signing a treaty establishing a framework for managing their energy and water disputes in the Rio de la Plata area. This step removed the most contentious obstacle to improved bilateral relations and

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<sup>3</sup> Embaixada do Brazil (Embassy of Brazil), *Boletim Especial* (17 January 1977).

helped stimulate the beginning of regional economic cooperation and integration. The following year, the two nations signed a number of bilateral agreements, including a small, but symbolically important, agreement for nuclear fuel cycle cooperation. Under the agreement, Argentina provided Brazil uranium concentrate and zirconium used for fabrication of nuclear reactor fuel elements, and a Brazilian–German company (based in Brazil) assumed responsibility for construction of a major portion of the pressure vessel for the third Argentine power reactor vessel.

In the early to mid-1980s, both Latin American nations returned to civilian leadership, a development that accelerated and deepened their nuclear relationship. The return of civilian rule also helped to redirect the relationship from confrontation to eventual accommodation with the non-proliferation regime. In Argentina, the return to democracy was precipitated, in part, by the 1982 Falkland/Malvinas War, which discredited the military government.<sup>4</sup> President Raul Alfonsín assumed office on 10 December, 1983 and moved quickly to initiate discussions on nuclear issues with the incoming civilian administration in Brazil. As Alfonsín was assuming office, the Argentine nuclear energy commission, under the leadership of Admiral Carlos Castro Madero, announced the development of a gaseous diffusion enrichment facility. While the announcement came as a surprise to many nations, Argentine authorities had briefed their Brazilian counterparts in advance, thus enhancing the level of mutual confidence.

The timing and manner of the announcement of the enrichment plant suggest several possible motives. One informed observer believes that CNEA president Castro Madero wished to exert pressure on incoming President Alfonsín, who had little interest in the nuclear program. By informing Alfonsín just prior to the public announcement, Castro Madero may have been seeking to obtain the President-elect's support for the nuclear program and to assure his continued tenure as CNEA president. Castro Madero, however, described the announcement as stimulated in part by a desire to boost the national morale, which had been damaged by the Malvinas War.<sup>5</sup>

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<sup>4</sup> There are differing interpretations as to the impact of the Falkland War on Argentine–Brazilian relations. According to some interpretations, the conflict produced strains on the relationship due to a perception by many Brazilians that the Argentine invasion was reckless and foolhardy. See Jack Child, *Geopolitics and Conflict in South America* (Stanford: Praeger Special Studies, 1985), 103. Others note that Brazil provided Argentina with reconnaissance aircraft during the conflict and gave diplomatic support to Argentina's position at the OAS. This support, while limited, was nonetheless appreciated and encouraged further progress on nuclear cooperation. Monica Hirst, Hector Eduardo Bucco, "Nuclear Cooperation in the Context of the Program for Argentine–Brazilian Integration and Cooperation," Paul Leventhal and Sharon Tanzer, eds., *Averting a Latin American Nuclear Arms Race* (London: Nuclear Control Institute, MacMillan, 1992).

<sup>5</sup> Author's interview with former *Nucleonics Week* correspondent Richard Kessler, 23 April 1974, Buenos Aires. Author's interview with CNEA president Castro Madero, 12 October 1989, Montevideo, Uruguay.

In February 1985 President Alfonsín and Brazilian president-elect Tancredo Neves met and reportedly agreed to deepen cooperation on nuclear policy and the nuclear fuel cycle, and to work toward the eventual goal of a joint nuclear inspection arrangement.<sup>6</sup> For Alfonsín, cooperation with Brazil served a number of purposes, both domestic and foreign. The new civilian government was seeking measures to distinguish itself from the previous military regime, to develop a more cooperative Argentine relationship with other Latin American nations, and to end the nation's diplomatic and economic isolation, which was a legacy of the South Atlantic war. For the Brazilian leadership, enhanced cooperation with Argentina presented an opportunity to widen export markets, to reduce commercial dependency on the United States, and to improve relations with traditionally suspicious Spanish-speaking neighbors.<sup>7</sup>

Brazilian president-elect Neves died prior to assuming office, and his successor, José Sarney, was unable to support the proposed nuclear inspection arrangement.<sup>8</sup> As an appointed president, Sarney lacked a political base of support and was dependent to a considerable degree on the Brazilian military, which was disinclined to support a formal inspection arrangement at the time. Sarney nonetheless favored continuation of nuclear cooperation, and the two presidents met at Iguazú Falls in November 1985 and established a Joint Committee on Nuclear Policy. This committee, composed of the foreign ministers and high-level representatives from the nuclear energy commissions, became a source of continuous contact and discussion on nuclear policy and non-proliferation issues.<sup>9</sup> In July 1986 Alfonsín and Sarney signed a major trade agreement committing their nations to the phased elimination of trade barriers and the creation of a Southern Cone Common Market (MERCOSUR). The nuclear component of the agreement included joint cooperation on nuclear safety in the event of an accident. A subsequent presidential meeting in December 1986 resulted in agreements for joint research on breeder reactors and for what was described as “the development of

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<sup>6</sup> *Nucleonics Week* (14 March 1985).

<sup>7</sup> Paulo S. Wrobel, “Brazil–Argentina Nuclear Relations: An Interpretation,” unpublished manuscript, Argentina–Brazil Nuclear Non-Proliferation Project, University of Virginia, October 1993, 20.

<sup>8</sup> President Neves died on 21 April 1985. José Sarney succeeded him and served until 15 March 1990, at which point Fernando Collor de Mello assumed office.

<sup>9</sup> The Joint Committee later became a permanent Standing Committee and continued to serve as a useful forum for discussion on nuclear issues. Ultimately, the Permanent Committee evolved into the Commission of ABACC, which is composed of representatives from the foreign ministries and nuclear energy commissions.

safeguard techniques in view of commitments assumed by both parties with the IAEA (International Atomic Energy Agency).”<sup>10</sup>

In 1987 Brazil announced successful operation of its indigenous gas centrifuge facility at the navy facility (Aramar) near Sao Paulo. The achievement was psychologically and symbolically important to the Brazilians, as it put them on par with Argentina, which had inaugurated a gaseous diffusion facility four years earlier. As with the earlier inauguration of the Argentine unit, Brazilian authorities made sure that their Argentine colleagues were notified well in advance of the official announcement.<sup>11</sup> This advance notice, and the head-of-state meetings, prepared the way for a dramatic invitation from President Alfonsín to President Sarney to visit the unsafeguarded Pilcaniyeu gaseous diffusion facility. The visit, which took place in July 1987, was a highly significant confidence-building measure and was viewed by both nations as an important step toward making their nuclear programs mutually transparent. Sarney was accompanied by fifteen officials from the Brazilian foreign ministry and nuclear energy commission. Discussions reportedly focused on the desirability of institutionalizing and regularizing the process.<sup>12</sup>

The timing of the Argentine initiative was particularly significant because between late 1986 and early 1987 information about the alleged Brazilian nuclear test site at Cachimbo was first coming to light. Argentine authorities apparently were not briefed on this issue, and the Brazilian government continued officially to deny the existence of the test site until 1990, when President Fernando Collor de Mello made his deliberately public visit. The important point is that, from 1986 on, Argentine authorities were well aware of Cachimbo’s existence and of the particular sensitivities of the situation as it pertained to Brazilian civil–military relations. That Argentine authorities chose not to allow it to derail nuclear rapprochement is testimony to their commitment to the process.

The process of cooperation intensified over the coming months, surviving a change of government in Argentina. In April 1988 Sarney reciprocated by inviting Alfonsín and his

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<sup>10</sup> Although foreign observers failed to recognize it at the time, the two nations, in fact, were engaged in discussions directed toward the development of the Joint System for Accounting and Control of Nuclear Materials (SACC) as well as the agreement for full-scope IAEA safeguards. The Joint or Permanent Standing Committee played an important role in this effort.

<sup>11</sup> The notification was in the form of a personal letter from President Sarney to Alfonsín. The result was that, when the official Brazilian announcement occurred in September 1987, the Argentine government gave its warm, enthusiastic congratulations in what appeared to be a well-choreographed procedure. See Paulo S. Wrobel, “Brazil, the Non-Proliferation Treaty and Latin America as a Nuclear Weapon-Free Zone,” Unpublished Ph.D dissertation, Kings College, University of London, August, 1991, 79.

<sup>12</sup> *Nucleonics Week* (27 August 1987, 10 September 1987).

advisors to the official inauguration of the Aramar gas centrifuge facility.<sup>13</sup> The following November, Sarney and Brazilian government officials toured the Ezeiza pilot reprocessing facility near Buenos Aires.<sup>14</sup> Alfonsín was succeeded as President of Argentina by the Peronist Carlos Menem in July 1989. One month later, Menem met with Sarney in Brazil and agreed on additional measures of nuclear cooperation.<sup>15</sup> Even more significant than the agreements themselves, Menem was clearly committed to a break with his party's nationalistic traditions, emphasizing instead continued economic and political coordination with Brazil, including nuclear cooperation.

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In Brazil, the political landscape was undergoing dramatic transformation as well. Sarney's fifth and final year as president was nearing an end, and a rapidly deteriorating economy was undercutting his already weak public support. As an appointed, rather than an elected president, he was forced to rely on the military for support against an increasingly active congress. Congress had already asserted its authority in 1988 by requiring a clause in the nation's new constitution mandating that the nuclear program be limited to peaceful purposes. In response, Sarney had reorganized the administration of the nuclear program by removing the CNEN from the Ministry of Mines

and Energy and having it report directly to the office of the presidency. Moreover, as part of the reorganization, Sarney and his military allies united the autonomous and official programs under the CNEN (i.e., executive branch) authority. In effect, this was an effort to accommodate congressional concern regarding the nuclear program without actually losing control over the program itself.

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<sup>13</sup> According to some reports, Argentine nuclear energy commission officials had previously visited the Brazilian lab-scale gas centrifuge facility at the Institute for Energy and Nuclear Research (IPEN) at the University of Sao Paulo on the occasion of its first successful operation. See *Nucleonics Week* (23 July 1987).

<sup>14</sup> As noted above, both the Argentine and Brazilian reprocessing facilities were curtailed at approximately the same time the following year (1989). Argentine officials have stated to the author that the bilateral relationship dictated the timing of the decisions.

<sup>15</sup> The two presidents agreed to exempt from import duties equipment and materials being exchanged for the Atucha II (Argentine) and Angra II (Brazilian) nuclear power plants under construction and to accelerate joint breeder reactor research and development. *Latin American Weekly Report* (7 September 1989); *Nucleonics Week* (12 October 1989).

On 17 December, 1989 the situation changed dramatically with the victory in a run-off election of Fernando Collor de Mello over left-of-center Lula da Silva of the Democratic Workers' Party (PT). Upon taking office on 15 March 1990, Collor moved quickly to gain control of the nuclear program by appointing individuals loyal to him and favoring openness, accountability to congress, and effective internal accounting and control procedures. Collor also restructured the Strategic Affairs Secretariat to reduce the military's influence over the nuclear program.

With the fortuitous election of two dynamic and popular presidents, both committed to economic reform, increased foreign investment, and the reduction of the military's influence, the stage was set for a significant new step in the Argentine–Brazilian relationship. Consolidation of Southern Cone economic and political cooperation was seen as mutually advantageous. Both presidents recognized that dramatic new nuclear cooperation initiatives could serve to accelerate economic and political coordination. The result was a distinctive set of new agreements creating a bilateral accounting and control system, and the integration of both nations into the nuclear non-proliferation regime.

### **Implementation of Latin American Non-Proliferation Verification Systems**

On 29 November, 1990 Presidents Carlos Menem and Collor de Mello met at the historic border area of Iguazú Falls and reached a significant agreement, in principle, on a wide range of nuclear policy and non-proliferation issues.<sup>16</sup> In the resulting Foz de Iguazú Declaration on the Common Nuclear Policy, the two leaders formally renounced nuclear weapons and established a framework for the implementation of a bilateral nuclear accounting and inspection arrangement and of full-scope IAEA safeguards. The presidents also agreed to adhere to the nuclear weapon-free zone agreement through amendments (advanced in concert with Chile) to the Tlatelolco Treaty. In yet another significant innovation, the long-held option of developing peaceful nuclear explosives was explicitly abandoned by both nations.

#### **The Bilateral Agreement**

The 1990 Foz de Iguazú Declaration on the Common Nuclear Policy was implemented at a July 1991 foreign ministers' meeting in Guadalajara, Mexico. At that meeting, the two nations agreed to create the Joint System for Accounting and Control of

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<sup>16</sup> The November 1990 Iguazú Falls meeting was preceded by a July 1990 meeting of the two presidents in Buenos Aires. At the Buenos Aires meeting, nuclear issues were discussed and referred to the Permanent Standing Committee, which subsequently helped prepare final proposals for the November meeting.

Nuclear Materials (SCCC) and the Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials (ABACC). The SCCC and ABACC commenced operation on 12 December, 1991 following the ratification of the Bilateral Agreement by both nations.<sup>17</sup>

ABACC's principal responsibility is to administer the SCCC in order to verify that all nuclear materials and facilities under the jurisdiction of Argentina and Brazil are not diverted to nuclear weapons or nuclear explosive devices.<sup>18</sup> ABACC is overseen by a Commission of four members, two designated by each government.<sup>19</sup> The ABACC Secretariat is headquartered in downtown Rio de Janeiro and directed by a Secretary, a position that alternates annually between Argentina and Brazil.

The ABACC Secretariat is composed of ten professionals divided equally between the two nations: a secretary, deputy secretary, two planning and evaluation officers, two operations officers, two technical support officers, and two accounting officers.<sup>20</sup> Sixty inspectors (approximately thirty from each nation) are selected from a list prepared by the Commission. Inspectors are drawn from the nuclear energy commissions and nuclear utilities of the two nations. The team for each specific inspection is selected by the ABACC Secretary and must include at least one national from the other state. In practice, nationals of Argentina inspect Brazilian facilities, and Brazilians inspect Argentine facilities. Because of extensive previous cooperation between the Argentine and Brazilian nuclear energy commissions in the late seventies and eighties, considerable mutual confidence and rapport have developed

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<sup>17</sup> Interviews by the author of Argentine and Brazilian officials suggest that the concept of the SCCC and ABACC developed initially from officials within the nuclear energy commissions and grew out of the work of a joint standing committee on nuclear policy established in the mid-1980s.

<sup>18</sup> Argentina and Brazil also incorporated into their Bilateral Agreement a specific prohibition regarding the testing of nuclear explosive devices, bearing in mind that at present no technical distinction can be made between nuclear explosive devices for peaceful purposes and weapons. See Marco A. Marzo, Alfredo L. Biaggio, and Ana C. Raffo, "Nuclear Co-Operation in South America: the Brazilian–Argentina Common System of Safeguards," *IAEA Bulletin*, 36 no. 3 (1994), 31. This formalization of Argentine and Brazilian adherence to a no-PNE pledge was even more significant because neither country has, as yet, reversed its earlier interpretation of the Tlatelolco Treaty as permitting PNEs.

<sup>19</sup> The four commission members until recently have been composed of the presidents of the respective nuclear energy commissions and a high-ranking foreign ministry official responsible for nuclear policy. In late 1994, in the context of the privatization of its nuclear energy commission (CNEA), Argentina appointed Dr. Dan Jacobo Beninson to ABACC's Commission. Beninson is a long-time member of CNEA's inner leadership executive board and a respected hard-liner who reportedly was directly involved in the development of ABACC. Like former CNEA president Castro Madero, Beninson favored eventual full-scope IAEA safeguards and bilateral nuclear cooperation with Brazil as a way of preserving the vitality of the nation's nuclear program and permitting access to advanced Western nuclear technology.

<sup>20</sup> Carlos Feu Alvim and Ana Claudia Raffo, "ABACC and the Exclusively Peaceful Uses of Nuclear Energy," paper presented at the Conference on Regional Approaches to Nuclear Non-Proliferation: the Latin American Case, sponsored by the Argentine–Brazilian Nuclear Non-Proliferation Project, 1 February 1995, Washington, D.C.

among their respective officials. This foundation of trust has proved of significant benefit in developing the reciprocal inspection process.<sup>21</sup>

The basic provisions of the Bilateral Agreement are found in Article 1, in which “The parties agree to use for exclusively pacific purposes the nuclear materials and facilities subjected to their jurisdiction and control.” The two nations also agree to refrain from the “testing, use, manufacture, production or acquisition, by any means, of any nuclear weapon; and the receipt, storage, installation, placement or any form of possession of any nuclear weapon.”<sup>22</sup> In conducting the inspections and other procedures stipulated for the application of the SCCC, ABACC reports any abnormalities to the Commission, which may then call upon the offending party to correct the situation. Serious evidence of noncompliance by either party enables the other to abrogate the agreement and to notify the Secretary General of the United Nations and the Secretary General of the Organization of American States (Article 19).

The Bilateral Agreement also includes an Annex, which delineates further the scope of the SCCC. Among the points of interest is Annex Article 4, which notes that nuclear material used for propulsion, such as highly-enriched uranium for nuclear submarines, may be removed from SCCC control (i.e., be excluded from ABACC inspection or verification of record-keeping) while being used for that purpose. This provision of the agreement resulted in a degree of ambiguity as to whether indigenous facilities being used to produce militarily sensitive nuclear materials (such as Brazil’s Aramar gas centrifuge or Argentina’s Pilcaniyeu gaseous diffusion facility) could be designated as falling outside of ABACC’s responsibility at certain times. This potential loophole in the Bilateral Agreement underscored the need for a more comprehensive arrangement with the multilateral non-proliferation regime, a weakness that was later addressed through the Quadripartite Agreement with the IAEA.

At the time the Bilateral Agreement entered into force, it was recognized that the success of the SCCC and ABACC was dependent upon the effective administration of national nuclear control and accounting systems. Under the SCCC process, the national authorities provide ABACC with an initial inventory of all nuclear materials under their jurisdiction and design information on all nuclear facilities. ABACC inspectors then carry out initial design verification and inventory inspections. As a result of the *design verification* inspections, the ABACC secretariat prepares a separate facility attachment for each nuclear installation in both nations. The attachments define how and when ABACC inspectors are to have access to the

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<sup>21</sup> Author’s interview with Deputy ABACC Secretary Dr. Jorge Coll, ABACC Headquarters, Rio de Janeiro, Brazil, 28 April 1994.

<sup>22</sup> Accord between the Federative Republic of Brazil and the Argentine Republic for the Exclusively Pacific Uses of Nuclear Energy, FBIS, Latin America, 12 September 1991.

nuclear facilities.<sup>23</sup> These facility attachments are submitted, through the national authorities, to operators of each facility for their concurrence. As a result of the *initial inventory* inspections, ABACC establishes a baseline against which all its subsequent measurements and accounting efforts are measures. Consequently, correct and complete design and initial inventory information providing full details on nuclear installations and on locations and amounts of nuclear material is critical to the SCCC process.

The transition from military to civilian leadership in both countries was accompanied by a broadening of responsibility and accountability for nuclear materials to include civil authorities.<sup>24</sup> In Argentina, the transition was accomplished in 1986 during the Alfonsín administration, as the newly-elected president moved to obtain control over the highly independent nuclear energy commission. During the subsequent Menem administration, the coordination of the national nuclear accounting and control system with the emerging ABACC system has proceeded quite smoothly. In Brazil, the process of establishing effective civilian accounting and control of nuclear materials has been considerably slower and more complex. Brazil did not achieve a full accounting of all nuclear material until 1992, during the Collor administration when civilian authorities from the nuclear energy commission gained access to military facilities.<sup>25</sup> The result was a high degree of mutual confidence in both nations that national authorities had located and accounted for all nuclear material as jointly declared in their initial inventory to ABACC. What was not determined—and may never be—was the *origin* of all nuclear material imported from abroad.

Both the independence of the ABACC Secretariat and the professionalism of the inspectors could influence the long-term effectiveness of the Bilateral Agreement. The two governments exercise their oversight of ABACC through the Commission, currently comprised of representatives from the foreign ministries and nuclear energy commissions. The ABACC secretary, whether Argentine or Brazilian, reports directly to the Commission. ABACC personnel have emphasized that, thus far, they have been able to carry out their responsibilities and have been provided with adequate resources. As governments and

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<sup>23</sup> Facility attachments detail the accounting and control procedures for each nuclear facility, establish the frequency and type of scheduled inspection, and describe what the operator must do to maintain records, reports and measurements for ABACC inspectors. (*ABACC News*, Rio de Janeiro, Brazil, January–April 1993).

<sup>24</sup> This is not to suggest that the military governments failed to provide for safety and security of nuclear material under their control. Such systems as did exist for accounting and control, however, were closely held military prerogatives from which civil authorities were largely excluded (particularly in Brazil).

<sup>25</sup> Despite having overcome military resistance to obtain access to parallel program nuclear facilities, Brazilian civil authorities strongly favored retaining a distinct national accounting and control system separate from the emerging ABACC system. Their concern was that operation of ABACC would weaken the national system by drawing off limited financial and human resources. (author's interview with Dr. Anselmo Paschoa, former Director of the National Nuclear Safeguards Program, CNEA, 1 April 1992, Rio de Janeiro, Brazil).

priorities change in the future, however, it will be important to note the composition of the Commission, and how, if at all, its relationship with the ABACC Secretariat changes.

In contrast to the ABACC Secretariat personnel, inspectors are, in effect, on loan to ABACC. While inspectors report to the ABACC secretary when 'on the job', their ultimate allegiance is to the nuclear energy commission or national facilities from which they are drawn. This procedure is not necessarily a weakness, however, since the nationals of one country inspect facilities in the other nation, and thus have an incentive to carry out their responsibilities in a highly effective manner.

### **The Four Party Agreement (Quadripartite Agreement)<sup>26</sup>**

The 1991 Bilateral Agreement establishing the SCCC and ABACC was a highly significant step in nuclear confidence-building. Argentine and Brazilian leaders believed that successful implementation of the bilateral verification and inspection procedures would assure the mutual transparency of their nuclear programs and promote growing cooperation in a range of economic and political areas. This bilateral arrangement, however, was not sufficient assurance for key nuclear supplier nations such as Germany, Canada, and the United States, which continued to emphasize to Argentine and Brazilian officials the need for full-scope IAEA safeguards.<sup>27</sup> In response to this pressure, Argentina and Brazil began formal negotiations with the IAEA in March 1991. The negotiations were completed on 21 November, 1991 and the agreement signed on 13 December, 1991 in a formal ceremony in Vienna witnessed by Presidents Collor de Mello and Menem.

While the negotiations with the IAEA were still underway, Argentina and Brazil completed their Bilateral Agreement, creating a new international organization, the ABACC. Consequently, the ABACC became the fourth party to the agreement, which was concluded on the basis of IAEA Statute Article III, 5. The latter permits the IAEA "to establish and administer safeguards . . . and to apply safeguards at the request of the parties to any bilateral or multilateral arrangement. . . ."<sup>28</sup> In a covering memorandum of 25 November 1991, IAEA Director General Hans Blix described the Quadripartite Agreement as comprehensive and fully compatible with the Tlatelolco Treaty and covering "all nuclear materials in all nuclear

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<sup>26</sup> The complete title of the Quadripartite Agreement is the "Agreement Between the Republic of Argentina, the Federative Republic of Brazil, the Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials and the International Atomic Energy Agency for the Application of Safeguards." The full text of the Quadripartite Agreement can be found in the IAEA Document Gov/2557, 25 November 1994. Following the agreement's entry into force in March 1994, the IAEA also issued the document as an information circular: INFCIRC/435, March 1994.

<sup>27</sup> Author's interviews with Argentine and Brazilian governmental officials.

<sup>28</sup> Quadripartite Agreement, INFCIRC/435.

activities within the territories of Argentina and Brazil under their control anywhere.”<sup>29</sup> The Argentine congress completed ratification in August 1992, and the Brazilian congress in February 1994, allowing the agreement to enter into force on 4 March 1994.

The Four Party Agreement is explicitly modeled on the EURATOM–IAEA Safeguards Agreement (INFCIRC/193) concluded in 1977.<sup>30</sup> That agreement provides for safeguards in western European nations similar to those incorporated in INFCIRC/153, the IAEA’s model agreement for NPT parties. Under the EURATOM–IAEA agreement, EURATOM acts as the principal authority, collecting and verifying accounting reports in member states, which are then sent to the IAEA in Vienna. IAEA inspectors are not present at all inspections of facilities of EURATOM members. Both EURATOM and the IAEA have separate responsibilities, moreover, for verification and inspections (which may include routine as well as special inspections). IAEA and EURATOM officials conduct their inspections at ‘strategic points’ in a facility, where it is possible to measure movement of nuclear material, and undertake joint inspections at certain bulk handling facilities involving large quantities of fissile material (i.e., enrichment, fuel fabrication plants, etc.).<sup>31</sup>

Under the Four Party Agreement, ABACC is the principal safeguard authority, sharing certain responsibilities with the IAEA. As with the EURATOM–IAEA agreement, ABACC and the IAEA may work in joint teams to inspect some facilities with the objective of reaching independent conclusions. While ABACC has the lead position as regards verification and inspections, the IAEA’s core responsibility and authority is explicit. The IAEA’s right of access to Argentine and Brazilian nuclear facilities is delineated in several provisions of the Four Party Agreement. Articles 1–2 (Basic Undertakings) require all parties to accept the IAEA’s obligation to ensure that safeguards are applied:

on all nuclear material in all nuclear activities within the territories of the States Parties, under their jurisdiction or carried out under their control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.

Article 8 (Agency Inspectors) notes that the IAEA will seek ABACC’s concurrence on the designation of inspectors. Repeated refusals to accept the IAEA’s recommendations, such

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<sup>29</sup> Ibid.

<sup>30</sup> The European Atomic Energy Community (EURATOM) entered into force when the European Community came into being on 1 January 1958. The overall objective of EURATOM was to coordinate civil nuclear energy development in the European Community and to administer a regional nuclear safeguards system.

<sup>31</sup> See W. A. Higinbotham and Helen M. Hunt, “Nuclear Confidence-Building: Models for a Bilateral Safeguards Verification Regime,” in Paul Leventhal and Sharon Tanzer, eds., *Averting a Latin American Nuclear Arms Race* (London: MacMillan, 1992), 120–123; and Lawrence Scheinman, *The International Atomic Energy Agency and World Nuclear Order* (Washington, DC: Resources for the Future, 1987), 160.

that inspectors are impeded, will be referred to the Agency's Board of Governors for action. Under Article 13 (Special Procedures), Argentina and Brazil may temporarily remove nuclear material from safeguards while it is being used specifically for a submarine. This article is based on INFCIRC/153, Paragraph 14, pertaining to "non-proscribed military activity," which allows temporary nonapplication of safeguards to nuclear material when in actual use in a nuclear propulsion reactor. The article does *not* state that facilities producing the enriched fuel for a submarine can be temporarily removed from safeguards. Consequently, the Four Party Agreement has removed a potential weakness in the Bilateral Agreement.

Article 14 (Measures in Relation to Verification of Non-Diversion) provides another important vehicle for IAEA oversight of ABACC's operation. The IAEA Board of Governors may call upon ABACC and the state parties to take remedial action without delay if there is reason to believe that nuclear materials are being diverted to weapons or explosive devices. The IAEA may initiate such action when deemed necessary. It need not first subject the matter to the dispute resolution process described in Article 22 if the matter is considered urgent. The importance of Article 14 is that it accords the IAEA the authority to precipitate action if ABACC is judged to be insufficiently vigilant, or unable to act due to interference by the national parties.

The most controversial portions of the Quadripartite Agreement deal with "Special Inspections."<sup>32</sup> Under Article 71, special inspections may be undertaken by the Agency to verify special reports that may be requested from ABACC if there is reason to suspect that nuclear material is missing (as defined in Article 66). Special inspections also may be undertaken if the Agency determines that information obtained as a result of routine inspections is not sufficient for it to fulfill its responsibilities.<sup>33</sup> Under these circumstances, the Agency has the authority to "obtain access, in agreement with the State Party concerned and ABACC, to information or locations in addition to those locations" covered in ad hoc or routine inspections (Article 75). Should the States Parties or ABACC not agree to the

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<sup>32</sup> The Quadripartite Agreement defines three types of inspections that may be undertaken by the IAEA: ad hoc, routine, and special. Ad hoc inspections (Article 69) were used by the Agency to verify the initial reports on all nuclear material provided by ABACC to the IAEA. Routine inspections (Article 70) are standard IAEA inspections conducted at strategic points in facilities. Safeguards are placed at points where nuclear material is most easily measured, not necessarily where diversion is most likely (see Darryl Howlett, "Regional Nuclear Cooperation and Non-Proliferation Arrangements: Models From Other Regions," Programme for Promoting Nuclear Non-Proliferation, Papers from the twelfth PPNN Core Group Meeting, Shizuka, Japan, 28–29 November 1992). The strategic points for routine inspections are delineated in the subsidiary arrangements among the Agency, ABACC, and the states parties. Special inspections, implying extraordinary initiatives that might be undertaken by the Agency if there is suspicion of diversion, became a particularly sensitive issue in Brazil and nearly prevented congressional ratification of the Quadripartite Agreement.

<sup>33</sup> If the IAEA's routine inspections reveal a problem, the first step will be to request an explanation from ABACC. If ABACC's explanation is judged insufficient, then the Agency has the right to conduct a special inspection. This is the same process as defined in INFCIRC/153, Paragraph 73.

Agency's request for information or access to key facilities, arbitration may be undertaken. If, however, the Agency determines that action "is essential and urgent," it need not wait for the arbitration process, but may require ABACC and the parties to cooperate without delay.

The special inspection provisions of the Four Party Agreement may be understood in the context of the Agency's recent reassessment of its statutory authority. Under IAEA Statute Article 12, A.6, the Agency may "send into the territory of the recipient state or states inspectors . . . who shall have access at all times to all places and data and to any person. . . ." Stung by the Iraq experience and emboldened by the ongoing negotiations with North Korea, the Agency adopted a highly expansive interpretation of its special inspection prerogatives under the Four Party Agreement. While special inspections were not considered license for fishing expeditions, there is no disputing the fact that Argentina and Brazil granted broad legal authority to the Agency under the Quadripartite Agreement.<sup>34</sup>

In sum, the Four Party Agreement enhances and deepens the non-proliferation commitments assumed by Argentina and Brazil through the Bilateral Agreement. The legal obligations undertaken by the two nations are nearly identical and are fully equivalent to the NPT (INFCIRC/153). Indeed, as Argentine and Brazilian policy makers frequently note, the cumulative effect of the Bilateral and Quadripartite obligations exceed those of the NPT.<sup>35</sup>

## Conclusion

How permanent is the Argentine–Brazilian commitment to a non-proliferation status? While the outlook is promising, the durability of the commitment will be affected by the domestic political situation in both nations, continued progress on Southern Cone economic integration, and the support and actions of those nations with advanced nuclear programs and the nuclear weapon states.

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<sup>34</sup> Yet another interesting portion of the Quadripartite Agreement is Article 82, which notes that a limited number of unannounced routine inspections can be carried out by the Agency. These surprise inspections, while random, are expected to conform to a general pattern to be developed in consultation with ABACC. This article is similar to INFCIRC/153, Paragraph 84. In addition, it is notable that the IAEA and EURATOM have implemented (through subsidiary arrangements) a limited number of unannounced inspections of European enrichment facilities. ABACC conducted unannounced inspections of Brazil's gas centrifuge enrichment facility in 1995, 1996, and 1997. Inspections have not been carried out of Argentina's gas diffusion enrichment facility because it has been closed for repairs. See ABACC News, January–February, 1997; ABACC Annual Report, 1996; comments by Marco Marzo, Senior Planning and Evaluation Officer, ABACC, in *Argentina and Brazil: the Latin American Rapprochement* (Israel: Institute for Science and International Security, Nahel Soreq Nuclear Research Center, 16 May 1996).

<sup>35</sup> See, for example, Julio C. Carasales, "Non-Proliferation and the NPT", *La Prensa*, Buenos Aires (3 March 1995), as reproduced in FBIS, Latin America, 10 March 1995.

Domestic political stability is highly dependent on continued economic progress in both nations. Economic liberalization and reform programs undertaken by Brazil's president Cardoso, elected in October 1994 and Argentina's president Menem have successfully controlled inflation, but with an accompanying social cost, particularly in Argentina. President Menem's Peronist Party suffered significant political losses in the October 1997 Congressional elections. A Peronist loss in the 1999 presidential elections (Menem cannot be re-elected) to the opposition alliance of the Radical Party and center-left Frepaso Party is probable. Should this political change occur, however, it is unlikely to result in a significantly diminished Argentine commitment to non-proliferation, unless bilateral relations with Brazil worsen. In Brazil, President Cardoso appears to have achieved partial success in gaining needed Congressional support for ongoing economic reform programs, thus enhancing prospects for his re-election in 1999. Cardoso's commitment to non-proliferation appears secure, based in part on an appreciation of the importance attributed to this issue by the United States and other economically advanced nations.

The Argentine–Brazilian bilateral relationship, while subject to occasional difficulties, appears to be stable. Of particular importance is the continued joint commitment to economic integration through the Southern Cone Common Market (MERCOSUR) which has encouraged an upward trend in bilateral trade. Continued bilateral trade cooperation will contribute significantly to sustained political, military, and nuclear coordination, and to overall stability in the Southern Cone.

Support from nations with advanced nuclear programs and the nuclear weapon states can take several forms. The United States has been particularly active in providing assistance to ABACC under the auspices of the US Department of Energy (DOE). Under a 1994 DOE–ABACC agreement, a variety of projects have been initiated on environmental monitoring, data processing, transfer of spent fuel to storage silos, and non-destructive measurement systems. ABACC personnel have been sponsored for training workshops in US nuclear laboratories, and joint DOE–ABACC workshops have been conducted in both Argentina and Brazil. DOE support has been provided to purchase equipment used by ABACC for surveillance in both nations.

Assistance of a more limited nature has been provided ABACC by France, the United Kingdom, the IAEA, and EURATOM.<sup>36</sup> Finally, support is being provided by the US Department of Energy directly to the Argentine and Brazilian nuclear energy commissions under agreements for nuclear cooperation signed in 1995. These agreements, as well as similar

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<sup>36</sup>ABACC Annual Report 1996, ABACC News, January–April, May–October, 1997.

arrangements with France, Germany, and Canada, are helping integrate Argentine and Brazilian nuclear programs with those of nations supportive of the non-proliferation regime.

The integration of Argentina and Brazil into the non-proliferation regime is providing important psychological dividends in both nations. Helping design and implement the rules of the road is enhancing the comfort level of Argentine and Brazilian policy makers with the non-proliferation regime. By early 1998, both nations were parties to the Tlatelolco Treaty, under full-scope IAEA safeguards, and members of the Nuclear Suppliers Group (NSG) and the Missile Technology Control Regime (MTCR). In addition, Argentina has ratified the NPT and is a member of the Zangger Committee (Non-Proliferation Treaty Exporters Committee); Brazil has announced its intent to sign and ratify the NPT following final congressional action. Finally, both nations have signed the Comprehensive Test Ban Treaty (CTBT).

Permanent Argentine and Brazilian integration into the non-proliferation regime will require continued nuclear arms control and disarmament progress by the nuclear weapon states. The Principles and Objectives for Nuclear Non-Proliferation and Disarmament, which formed the basis for the indefinite extension of the NPT in May 1995, established a benchmark for measuring such progress, in the view of Argentine and Brazilian policy makers. The leadership in both nations has undertaken politically difficult steps to reverse long-held policies and assume a non-proliferation status. Failure of the nuclear weapon states to achieve demonstrable progress toward nuclear disarmament could, in the long term, serve to undermine the political commitment to non-proliferation in Argentina and Brazil. In discarding unproductive and illusory nuclear policies and establishing a unique bilateral non-proliferation verification mechanism linked to the multilateral non-proliferation regime, Argentina and Brazil have made a remarkable contribution to regional and international peace and security. Their historic accomplishment merits careful study and strong support by the international community.

