

Regional Approaches to Nuclear Security and Transparency: The Example of Argentina and Brazil

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Introduction

Since the beginning of the 21st century, with different projections and implications at the international level, Argentina and Brazil have shown a high interest in renewing their own nuclear programs. It would not be wrong to say that Argentina and Brazil are the most advanced nations concerning the nuclear field in the Latin American region. This fact, according to Carasales (1995, p. 39)¹, combined with the overall influence of the two nations in this region, explains why their nuclear policies are of such importance to the international community. Brazil² controls the whole nuclear cycle; whereas, Argentina³ restarted its nuclear program in 2006, newly becoming a real

¹ Carasales, J. (1995). The Argentine-Brazilian Nuclear Rapprochement. *The Nonproliferation Review*/Spring-Summer, pp. 39 – 48.

² According to the Nuclear Threat Initiative (<http://www.nti.org/country-profiles/argentina/>), Brazil is one of the few countries to possess competencies in all major dimensions of the nuclear fuel cycle, from mineral prospecting to uranium enrichment and fuel fabrication, albeit not yet on an industrial scale. Reportedly, Brazil has started negotiations to sell nuclear fuel to China, South Korea, and France, although this has not officially been confirmed. In December 2008, Brazil approved a National Defense Strategy (NDS) that prioritized the development of nuclear technologies, including completing the program for producing nuclear fuel and building a nuclear submarine. To fulfill these goals, Brazil sought cooperation agreements with foreign partners, including Argentina, France, and Russia. Brazil chose France as its partner for the construction of a nuclear submarine. France will provide technology, training, and assistance for the non-nuclear parts of the submarine, while the Brazilian Navy will equip the vessel with a nuclear reactor and supply its fuel.

³ According with Nuclear Threat Initiative (<http://www.nti.org/country-profiles/argentina/>), in August 2006, Argentina took an important step to revive its nuclear energy development program by announcing a major nuclear initiative worth \$3.5 billion over eight years. Argentina plans to finish its third nuclear reactor plant (Atucha II), extend the life of the Embalse nuclear plant by 25 years, and initiate feasibility studies for the construction of a fourth nuclear power unit. The plan also calls for the construction of the CAREM (Central Argentina de Elementos Modulares) reactor using technology indigenously developed by the National Atomic Energy Commission (CNEA); increased production of heavy water at the Arroyito plant; and revival of uranium enrichment at the Pilcaniyeu plant. In November 2009, the Senate approved the construction of a fourth nuclear plant. Argentina has an active export business. INVAP has sold research reactors to Algeria, Australia, Egypt, and Perú; the company is now seeking to expand its export market by offering small power reactors and services for large power plants. Another possible market for INVAP reactors is Jordan; Argentina signed a nuclear cooperation agreement with Jordan in 2008. CNEA supplies Brazil with more than one-third of its Molybdenum-99 (Mo-99) requirement and smaller quantities of this medical isotope to Chile, Uruguay, and Paraguay. Argentina is one of the six world producers of Mo-99 and the only one to use low enriched uranium (LEU) in its production.

competitor to Brazil's nuclear development, not only being involved in uranium enrichment, but also in the nuclear export business.

The history between them was not always under a confident nuclear environment, but rather a sort of competition and mistrust. Even though it has been denied by Argentinian and Brazilian governments, there are large amounts of academic material, papers and books sustaining that both nations were, along the second half of the twenty century, interested in becoming nuclear military powers.

Nevertheless, with the end of the Cold War, at the beginning of the 90's and under a utopic peaceful global world idea, both nations achieved one of the most celebrated nuclear regional agreements: The Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials (ABACC). Paraphrasing **Brigagão** and **Fonrouge** (1998), it seemed that the end of the old order [Cold War] created the possibility of overcoming the specter of a nuclear holocaust, and encouraging a renewed diversity of views, with new actors and a more open and plural agenda, in an attempt to keep up with the international dynamics whose growing complexity brings about the actual transformation of knowledge itself.

This work offers a brief analysis and background on the nuclear security and transparency of Argentina and Brazil. In section two, the nuclear security and transparency matter is touched. The third part presents the distrust between the two nations. Section four talks about the ABBAC agreements as a process of trust and finally, part five gives a short conclusion.

Why do Nuclear Security and Transparency matter?

In regions and countries where the atomic subject is part of their national and international agendas, nuclear security and transparency has become a central topic for their foreign affairs. In a direct or indirect manner, high levels of nuclear security and transparency have a significant impact on the image of those nuclear nations.

It is a matter of stability, confidence and perception, all of which may have an impact on economic growth, as well as political stability and international credibility. Carlson (2012)⁴ maintains that nuclear security involves a comprehensive work, which allows the creation of a system for tracking, protecting and managing nuclear materials in a way that builds trust that each state is meeting its security responsibilities. At the same time, Carlson highlights that accountability—for which transparency is a necessary condition—helps to ensure states meet their international commitments, to identify areas requiring improvement, and to target international cooperation and assistance.

Transparency has an important function on nuclear security and nonproliferation policies. It demands, for a better understanding, to build up a reliable system of communication and a cooperative monitoring framework. According to Richardson, Dillingham, Streeper and Makhijani (2012)⁵ universal transparency [between nuclear weapons nations] is an important factor for numerous reasons, but its primary aim should be a meaningful demonstration of a commitment to global security by removing the unnecessary secrecy surrounding nuclear weapons programs while preserving truly necessary

⁴ <http://www.nti.org/analysis/articles/transparency-accountability-and-assurance-nuclear-security/>

⁵ Richardson, B., Dillingham, G., Streeper, C., and Makhijani, A. (2012). Universal Transparency: A Goal for the U.S. at the 2012 Nuclear Security Summit. Arms Control Association. Download on 08/26/2012, from: http://www.armscontrol.org/act/2011_01-02/Richardson

secrecy, such as weapons designs. Nam and Shin (1999, p. 17)⁶ state that an agreement between two or more countries to increase transparency may bring about a temporary improvement in their relations, but more energy must be invested to make the improvement a lasting one:

“Investing time and resources in cooperatively monitoring a nuclear transparency agreement can contribute significantly to the permanence of the activity. Such an investment signals that the activity is important and that the countries are committed to its success. Cooperative monitoring also provides a method of documenting openly that nuclear activities are for peaceful purposes and are conducted safely. Finally, although an external party may assume partial responsibility for monitoring for nuclear transparency, full participation by the regional parties will strengthen the transparency activity (Nam and Shin (1999).”

Democracy has also been related with security and transparency as a whole. Brigagão and Valle Fonrouge (1998) sustains, that democratization itself becomes the parameter of the system and international relations; where international democratization may be substantiated by the political tripod: (1) greater transparency in the administration of global resources; (2) greater effectiveness and confidence building in the mechanism of control and verification; and (3) greater responsibility concerning global affairs such as stability, and the development and social compromise of democracy.

⁶ Nam, M-K., and Shin, S-T., (1999). ENTNEA: A Concept for Enhancing Nuclear Transparency for Confidence Building in Northeast Asia. Cooperative Monitoring Center/Occasional Paper-12 / Korean Institute for Defense Analyses. Download on 08/26/2012, from: <http://www.cmc.sandia.gov/cmc-papers/sand98-050512.pdf>

Mutual nuclear distrust: the years of suspicion between Latin America's nuclear giants

It is a fact that in between the 50's and the 80's, under the realist pillars and a global ideological division produced by the Cold War, the Latin American region was not immune to the interest of nuclear military development. It was considered not only technological progress to access nuclear energy but also important to become part of those States with nuclear military capacity.

In the second half of the 20th century, there were three nations known to be aspiring to possess nuclear military capability: Argentina, Brazil and Cuba. However, profound differences existed between those experiences. On one hand, while Argentina and Brazil developed their own nuclear programs, Cuba did not. The Cuban case considered the deployment of a Soviet nuclear missile system, but it did not contemplate a local atomic program or a transfer of nuclear technology.

On the other hand, what even today gives them a strong superiority and advance in the region, the Argentinian and Brazilian cases contemplated to develop national nuclear technologies and processes. In both cases the nuclear projects were beyond of the peaceful use of nuclear energy and they stumbled upon the frontier of nuclear military aims. Both States faced a scenario defined as "mutual rivalry" that, from a traditional security perspective, pushed them to observe each other as a constant threat over their geopolitical interests. Moreno (1961, p. 40)⁷ suggests that competition for leadership in South America, with elements of antagonism, rivalry, and mistrust, was always present [between both countries]. By this point, it was only natural that one way the traditional rivalry

⁷ Moreno, I., *Historia de las relaciones exteriores argentinas* (Buenos Aires: Editorial Perrot, 1961), pp. 23-91, in Carasales, J. (1995).

would express itself was in nuclear technology and development (Carasales, 1995, p. 40)⁸.

According to Barletta (1997, p.13) from the military perspective and strategic analysis, the Brazilian nuclear project development was conditioned by the steps and objectives of Argentinian efforts; as well as, by the desire to complete the needed technological requirements to develop a status of a "Big Power" (Gran Poder). In addition, Davies (2004, p.58) suggests that, at that time, the concern of the West to prevent the eminent proliferation risk that both States (Argentina and Brazil) represented was failing, particularly after what they had shown in front of the Tlatelolco treaty, as well as the Non-proliferation Treaty.

On one hand, **Argentina** started its nuclear research at the beginning of the 50's, but only between the 60's and the 80's was it involved in a complex development and research program. Along these three decades Argentina worked in uranium enrichment and achieved the necessary infrastructure to produce heavy water and fuel. According to Argentinian newspapers⁹, the nuclear advances made this nation ponder whether to cross into the nuclear military frontier or not. On the other hand, **Brazil** – as Argentina did, also researched non-peaceful uses of nuclear technology. Between the 70's and 80's Brazil was, as was Argentina, perceived by the international system as a nation involved in a "nuclearizing" process; which considered the nuclear technology with military objectives.

According to the Nuclear Threat Initiative (NTI), from the 1960s to the early 1990s, Argentina's nuclear program and missile activities aroused concern that the country was seeking to develop nuclear weapons and possibly aid other countries in developing and delivering them. At the same time, NTI proposes that from the 1970s to the early 1990s, Brazil appeared to many outside experts

⁸ Carasales, J. (1995). The Argentine-Brazilian Nuclear Rapprochement. *The Nonproliferation Review*/Spring-Summer, pp. 39 – 48.

⁹ <http://www.clarin/diario/2007/02/05/elmundo/i-02001.htm>

to be using its robust nuclear energy program to develop a hedge capability for nuclear weapons development. It is a fact too that they saw each other as a real threat reflected in their national security policies.

A trustworthy distrust: the ABACC solution?

In the 80's, when neither had signed the Non-proliferation Treaty, both nations were able to visualize the crucial meaning of building up a mutual system of nuclear control; as well as, to consolidate a cooperative vision of nuclear technology independence.

In the 90's, after the end of the Cold War, Argentina and Brazil changed their neighbors' regional and global security visions. Both nations, under a more friendly political and economic relationship, had consolidated their democracy returns (Argentina in 1983 and Brazil 1985). This new context allowed them to build up a more comprehensive and deep relationship enhancing a common understanding of mutual confidence and cooperation. The nuclear sector was not an exception and they were able to promote security and transparency, to understand that they needed to open a window between their own nuclear programs. It is interesting to mention that, after ABACC became a reality as a bi-national agency, Argentina only ratified the Non-proliferation Treaty four years later, in 1995; meanwhile, Brazil did so seven years later, in 1998. According to Peixoto (2008, p. 1)¹⁰ the bilateral agreement was often viewed as a successor to the Nuclear Non-Proliferation Treaty (NPT) as the countries [Argentina and Brazil] undertook commitments imposed by this agreement although without agreeing with what was rated as discriminatory in the NPT.

¹⁰ Peixoto, O., Oliveira, A. and do Canto, O., "Safeguards in Latin American Countries: The Role of ABACC". Paper submitted at the Symposium 2008 Expo Nuclear Energy Technology RIO 2008. Downloaded on 24/08/2012, from: <http://npsglobal.org/eng/images/stories/Articles/abacc2.pdf>

In 1991 the Agencia Brasileira-Argentina de Contabilidad y Control de Materiales Nucleares (ABACC) was created, which is responsible, in the framework of this agreement, to verify the peaceful uses of nuclear materials between them. ABACC's development has been constructed on three pillars which includes safeguards, the training of technical staff and staff of inspectors and technical cooperation with organizations in related areas. At the same time, ABACC's *leitmotif* is the nuclear integration of Argentina and Brazil and the use of nuclear energy for peaceful purposes for the scientific, technological, economic and social development of their people. One of the most interesting aspects of ABACC has been its Common System of Accounting and Control of Nuclear Material (SCCC)¹¹ that was reinforced with the Quadripartite Agreement¹² between the Federal Republic of Brazil, Argentina, ABACC and the International Atomic Energy Agency for the application of safeguards.

In any case, ABACC was not an easy process for Argentina and Brazil. As it is stated on the ABACC website¹³, both States required eleven years to consolidate this agreement, and between twelve agreements and statements¹⁴. Just one more step was needed before ABACC could be

¹¹ According with ABACC website (http://www.abacc.org.br/?page_id=157&lang=en), the General Procedures of the SCCC are split into three parts: the first one contains the requirements for the licensing of a nuclear facility, as from the safeguards viewpoint; the second one includes the procedures for the application of the SCCC by the authority in the nuclear sector of each country and the third one refers to the procedures for the regional application of the SCCC by the ABACC. Their relevance is essential; they define: the starting point of safeguards in a given facility, the procedures for the presentation of data on the design of the facilities to the ABACC, the accounting and operational records to be kept by the operation, the national and international transfers of materials, the purpose, intensity and scope of the inspections for the verification of the nuclear material inventories and their variations, in addition to the provisions for the application of containment and surveillance measures.

¹² To read the Quadripartite Agreement: http://www.abacc.org.br/wp-content/uploads/2009/10/quadripartite_ingles.pdf

¹³ ABACC website: http://www.abacc.org.br/?page_id=5&lang=en

¹⁴ Significant Dates:

1980: The Cooperation Agreement between Brazil and Argentina for the Development and Application of the Peace Uses of Nuclear Energy (<http://www.abacc.org.br/?p=530&lang=en>);

1985: Declaration of Iguazu (<http://www.abacc.org.br/?p=534&lang=en>) and Joint Declaration on Nuclear Policy (<http://www.abacc.org.br/?p=546&lang=en>);

consolidated, the system of common accounting and nuclear materials control (SCCC in Spanish).

However, ABACC has not only achieved a regional recognition. This bi-national nuclear agreement has become an international reference for other regions, and a nuclear regional architecture example to implement a similar system of nuclear transparency and accounting. For example, du Preez (2008, p.1)¹⁵ says that the African Commission on Nuclear Energy (AFCON) could work in very similar ways as other regional and sub-regional organizations tasked to verify regional compliance with safeguards on the one hand, while promoting the peaceful application of nuclear energy and use of material and technologies on the other; for instance, the Brazilian-Argentinean Agency for Accounting and Control of Nuclear Materials (ABACC) has among its tasks the verification of comprehensive safeguards agreements (CSAs) in both countries in a Quadripartite Agreement with the IAEA. Another good example is made by Nam and Shin¹⁶ (1999), which think that the institutional model for the Enhanced Nuclear Transparency in Northeast Asia (ENTNEA), might be taken from the ABACC.

1986: the Act for Brazilian-Argentine Integration (<http://www.abacc.org.br/?p=553&lang=en>), the Protocol # 17 – Nuclear Cooperation (<http://www.abacc.org.br/?p=577&lang=en>) and the Joint Declaration on Nuclear Policy, Brasilia;

1987: the Declaration of Viedma (<http://www.abacc.org.br/?p=583&lang=en>);

1988: the Declaration of Iperó (<http://www.abacc.org.br/?p=594&lang=en>), the Declaration of Ezeiza (<http://www.abacc.org.br/?p=615&lang=en>) and the Integration, Cooperation and Development Treaty between Brazil and Argentina (<http://www.abacc.org.br/?p=3419&lang=en>);

1990: Joint Communiqué of Buenos Aires (<http://www.abacc.org.br/?p=621&lang=en>) and Declaration of a Common Nuclear Policy, Foz do Iguaçu (<http://www.abacc.org.br/?p=629&lang=en>)

¹⁵ Du Preez, Jean, "The Potential Role and Functions of the African Commission on Nuclear Energy: Assessing the Benefits for Africa", paper presented at the March 2008 Southern African regional workshop on the entry-into-force of the Pelindaba Treaty, March 2008, http://cns.miis.edu/treaty_pelindaba/pdfs/pelindaba_afcone_rev2.pdf

¹⁶ Nam, M-K., and Shin, S-T., (1999). ENTNEA: A Concept for Enhancing Nuclear Transparency for Confidence Building in Northeast Asia. Cooperative Monitoring Center/Occasional Paper-12 / Korean Institute for Defense Analyses. Download on 08/26/2012, from: <http://www.cmc.sandia.gov/cmc-papers/sand98-050512.pdf>

Also, ABACC's consolidation has allowed both countries to build-up a new and stronger nuclear relationship. It has pushed them to think in a more collaborative perspective and triggered new potential nuclear projects. For example, Rossi (2008)¹⁷ indicates that technicians from both countries have worked on defining potential joint projects, such as a "uranium enrichment enterprise" and a "model nuclear power reactor" that would meet the needs of electrical systems of both countries and, eventually, of the region.

This initiative has also allowed Brazil and Argentina to articulate a more powerful common strategy on the nuclear global agenda in the international system; which, paradoxically, has for example created tension on the Additional Protocol. Hibbs (2011)¹⁸ argues, that some Nuclear Suppliers Group participating governments—and officials at the IAEA—objected to the implication in the "clean text" that the Additional Protocol and ABACC were somehow equivalent.

However, and beyond the good outcomes achieved by ABACC, it seems that the 21-year-old agreement will face tensions coming from the new international order logic: a multipolar world. It looks like Argentina and Brazil are, in some way, refreshing the old uncomfortable mutual feeling of the 60s, 70s and 80s; now competing for the market of nuclear fuel. Arguello (2011) states that mastery of sophisticated nuclear technology confers an international prestige that both Brazil and Argentina are eager to win.

In any case, ABACC has shown that it was able to resolve the initial distrust between Argentina and Brazil. However, now ABACC must face how to resolve the demands and tensions between these new nuclear partners.

¹⁷ Clóvis Rossi, "Brasil e Argentina assinam pacto para enriquecer urânio," *Folha de S. Paulo*, February 23, 2008, in Irma Arguello, "Brazil and Argentina's Nuclear Cooperation", Carnegie Endowment for International Peace. January 8, 2009.

¹⁸ Mark, Hibbs. "New Global Rules for Sensitive Nuclear Trade". Carnegie Endowment For International Peace. Nuclear Energy Brief, July 28, 2011, in: <http://carnegieendowment.org/2011/07/28/new-global-rules-for-sensitive-nuclear-trade/4avp>

Conclusions

There is no doubt that ABACC has become a bi-national nuclear agreement that has allowed to Argentina and Brazil to decompress their own nuclear fears and threats. Also, the ABACC agreement has permitted both of them, while keeping the typical national nuclear secret of all nuclear countries, to know what each other is doing at a nuclear research.

ABACC is an important nuclear instrument for the nuclear global architecture too. It is important to highlight that this bi-national nuclear agreement has become an important reference for other regions. Some of those areas are interested in developing a similar order and organization as well as Argentina and Brazil did, and promote and enhance nuclear security and transparency, where nuclear accountability between its members is a basic pillar.

However, it seems that in the international system there exists an uncomfortable feeling about the parallel power that agreements like ABACC are able or could be able to achieve; specially if this kind of agreement could become as powerful as the Additional Protocol is on nuclear safeguards.

Beyond the meaning of ABACC as a bilateral, regional and global nuclear organization, it also seems that this agreement could face a tension between its members. The apparent new multipolar global order that will dominate the international system in the 21st century and that is raising new topics, as well as the behindhand Argentinian nuclear development compared with the Brazilian program, could damage the confidence that ABACC has developed between both countries.