Brazilian Nuclear Policy

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Summary

Brazilian perspectives on nuclear governance are characterized by an acceptance of most existing international governance mechanisms and a focus on access to nuclear technology. The tension between Brazil and current governance mechanisms stems from domestic criticism of a lack of progress in nuclear disarmament by the nuclear-armed states, on the one hand, and the discriminatory nature of non-proliferation obligations – especially their expansion since the end of the Cold War – on the other. Of particular concern is the focus on detection rather than accountability of nuclear material and the move away from multilateral forums as a setting for the creation of norms.

Introduction

1. This Policy Brief analyzes the Brazilian approach to nuclear governance. It highlights Brazil’s interest in nuclear technology and explains some of the complexities in Brazil’s approach to the nuclear non-proliferation regime: its acceptance of many of the international nuclear governance mechanisms currently in place, and its criticism of the discriminatory nature of some of the non-proliferation mechanisms and obligations that have developed since the end of the Cold War. As a non-nuclear weapon state that adheres to the Nuclear Non-Proliferation Treaty-based regime and that controls significant natural resources, nuclear expertise and infrastructure, Brazil’s support for and contribution to international nuclear governance is vital. The country’s sensitivities regarding access to technology and participation in some key decision making processes should be taken into account.

2. Brazil accepts the rules and procedures that underpin the nuclear governance mechanisms, particularly since the 1990s, including safety and security measures and safeguards. But it is also critical of some of the changes that have been introduced in the last twenty-five years. Since the 1990s, Brazil has ratified the Nuclear Non-Proliferation Treaty (NPT) and several other treaties, but it refuses to sign the Additional Protocol and has not accepted a number of other post-Cold War innovations that have been devised in order to produce a more robust regime. This stems from the view that there is a compliance deficit regarding the Article VI disarmament obligation of the NPT, from a concern with moving negotiation out of the multilateral system and from possible limitations posed on the development of technology.

3. This Policy Brief outlines the main features of Brazil’s approach to international nuclear governance. It highlights the country’s interest in nuclear technology and the combination of acceptance and tensions that characterize Bra-

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2 The International Atomic Energy Agency (IAEA) comprehensive safeguards system was designed to detect diversion to non-peaceful uses of declared nuclear materials, facilities and activities. The basic safeguards measure is nuclear material accountability, carried out through on-site inspections, supported by containment and surveillance measures (for example, seals and cameras). The two main elements of recent safeguards evolution have been development of the Additional Protocol to strengthen the IAEA’s ability to detect undeclared nuclear material and activities; and the move to “state-level” approaches in order to improve the effectiveness and efficiency of the safeguards system by gathering a comprehensive picture of a state’s nuclear and nuclear-related activities, including all nuclear-related imports and exports. Most countries have signed the 1997 Additional Protocol and Brazil has been under pressure to do the same.
zil’s nuclear posture regarding the international nuclear governance mechanisms.

**Brazil’s Nuclear Program**

4. Brazil’s interest in nuclear technology and the establishment of a link between development projects and control over knowledge in this field dates back to the 1930s. Nuclear technology has been seen as a passport to modernity by the physicists, military and political leaders who made investment choices. Brazil’s approach to international nuclear governance must be understood in this context. During the tenure of the Workers Party (2003–14) this link was reinforced.

5. According to the 2008 National Strategy of Defense, Brazil has a strategic need to develop and master nuclear technology. The document states that “the nuclear sector is of strategic value and transcends by its very nature the division between development and defense”; and that Brazil should complete “the full nationalization and the development at industrial scale of the fuel cycle (including gasification and enrichment), as well as the technology for the construction of nuclear reactors.” The document also stipulates the objective of accelerating “the mapping, ore searching and utilization of uranium reserves.”

6. Particularly during the second term of President Luiz Inácio Lula da Silva’s administration (2007–10), the pursuit of major power status became a central and explicit goal of Brazilian foreign policy, as did the development of nuclear technology. Foreign policy documents and declarations from the period reveal the government’s conviction that Brazil is on its way to major power status. President Dilma Rousseff’s administration (2011–present) allowed for continuity of the projects in this field. The most significant investments of the current administration include collaboration with Argentina in the construction of a nuclear reactor, and cooperation with France in the development of a nuclear powered submarine.

7. Nuclear energy accounts for three per cent of electricity production in Brazil. According to the 2030 National Energy Plan, published by the Ministry of Mines and Energy in 2007, and the Decennial Energy Plan 2020, published in 2011, thermonuclear energy is considered crucial for the country’s future. Two nuclear power plants are operating and one is being built and should be connected to the national power grid by 2018. Four more plants are planned although this has yet to be negotiated in Congress. The need to maintain the increase in energy resources and concerns that Brazil’s high dependence on hydropower make electricity supplies vulnerable to climate variability explain the move towards greater investment in the nuclear sector. The 2001 drought in particular highlighted this reality. Thus strategic planning for more plants has been under debate for the last two decades, although the percentage of nuclear energy in the overall production should not exceed the current three per cent.

8. The country’s resources of uranium are well documented and represent five per cent of the world’s total. The production of nuclear fuel is being industrialized although the country still relies on France’s Areva for fuel supply. The production of fuel pellets, loading them into fuel rods and bundling the fuel rods together into fuel assemblies is done in the country. Up

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4. In 2014, President Dilma Rousseff was reelected for another four-year term to begin in 2015.


to five per cent uranium 235 enrichment takes place at the Aramar Experimental Center in Iperó, São Paulo. Enrichment is considered a central component of Brazil’s nuclear policy, enabling the use of Brazilian enriched uranium in nuclear power plants and in nuclear submarines, which will use low-enriched uranium fuel.

9. Construction of the country’s multipurpose reactor in Iperó (in cooperation with Argentina) is being driven by a desire for self-sufficiency in technological development and more specifically in the production of radioisotopes and radioactive sources used in nuclear medicine, industry and agriculture.

10. Brazil is in the unique position of being the only non-nuclear-weapon state pursuing a nuclear-powered submarine capability, which raises several new questions for future nuclear governance. The most important of these relates to how safeguards will operate once the submarine becomes operational.10 The Brazilian Nuclear Submarine Project (PROSUB), which is headed by the Navy, is based at the Navy Aramar Experimental Center, where work is underway to develop a prototype of a nuclear-powered submarine.11 This is a long-term project, which aims to complete the construction of the first submarine in 2023. Brazil’s future nuclear-powered submarine capability is hailed as having a crucial role to play in defending the country’s territory and resources, particularly in off-shore waters. It is seen as a tool for strategic flexibility and superior cover, helping secure Brazil’s regional security interests, including the control of natural resources in the South Atlantic and denial of access to outside actors (these are not specified). It will be armed with conventional torpedoes, thus increasing Brazil’s conventional deterrent capability.

11. In 2012, President Dilma Rousseff created the state-run Blue Amazon Technologies of Defense (Amazul), subordinate to the Navy, with the objective of developing technological projects for the Brazilian nuclear program and for the nuclear division of the Navy.12 For the Brazilian government, Amazul represents a step towards the development of a viable project of the first Brazilian nuclear submarine and the nationalization of the development, on an industrial scale, of the nuclear fuel cycle and the technology for the construction of nuclear reactors. It is expected that this expanded nuclear infrastructure will decrease Brazil’s dependence on the international nuclear fuel and technology markets in line with a broader concern with autonomy, development and participation in multilateral and bilateral international relations and institutions.

Brazil and International Nuclear Governance Mechanisms

12. Substantial changes in Brazil’s security policies occurred after the country returned to civilian rule in 1985. After decades of openly criticizing the way international security was managed by the superpowers, Brazil began the process leading to the current situation whereby it abides by most formal and informal norms, treaties, rules and regulations that govern, however imperfectly, international security affairs – the exceptions are discussed below in the next section.

13. The change in relations between the two nuclear competitors in Latin America – Brazil and Argentina – was crucial for the region’s integration into the nuclear non-proliferation regime. Between 1985 and 1988, a nuclear regime was built, laying the institutional foundations for verified nuclear nonproliferation in the 1990s. During this time, Argentina and Brazil engaged in a number of nuclear confidence-building measures and sought to integrate their national nuclear programs. The Argentine-Brazilian Agency for Accounting and Control of Nuclear Materials (ABACC) was created in 1991, to apply full-scope safeguards to all nuclear activities covering all nuclear materials in both countries.13

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13 The agency was established by the Treaty of Guadalajara (Agreement for the Exclusively Peaceful Use of Nuclear Energy, 18 July 1991) which prohibits the testing, manu-
14. The same year, the Quadripartite Agreement (involving Brazil, Argentina, ABACC, and the IAEA) was signed, which placed all nuclear installations in both countries under the supervision of the IAEA. Argentina and Brazil have agreed to submit reports to ABACC containing inventories of all their nuclear materials and a description of their nuclear facilities. ABACC, in turn, is responsible, together with the IAEA, for inspecting those facilities, to ensure the accuracy of the reports. Brazilian inspectors verify the Argentine facilities and Argentinians inspect the Brazilian facilities. ABACC applies safeguards to both civilian and military facilities and it has been able to institutionalize a practice of verification that generated a high level of confidence between the two countries.

15. As a result of these developments, Argentina and Brazil became examples of proliferation "rollback." In 1987, the Brazilian government had acknowledged the existence of a "parallel" nuclear program (Brazilian Autonomous Program of Nuclear Technology), under military direction. In 1991, the IAEA was allowed to inspect formerly secret nuclear facilities that had been part of Brazil’s nuclear weapons program. Subsequently, Brazil joined the Treaty of Tlatelolco (1994), the Missile Technology Control Regime (MTCR, 1995), the Nuclear Suppliers Group (NSG, 1996), the Comprehensive Nuclear-Test-Ban Treaty (CTBT, 1996), and the NPT (1998).

16. Nevertheless the Brazilian elite has developed a critical stance vis-à-vis the current mechanisms of nuclear non-proliferation, which it considers insufficient and therefore temporary. Various sectors of Brazilian society frequently raise concerns about the discriminatory nature of the non-proliferation regime and the need to advance nuclear disarmament. The statement made by the Brazilian representative at the UN General Assembly in 2014 is representative of this view:

It is Brazil’s longstanding position that the implementation of the NPT has suffered from a fundamental imbalance. While we have fared well on the non-proliferation objectives, we cannot say the same about the commitments on disarmament. It is our view that the "compliance deficit" by the nuclear-weapon States in this regard harms the integrity of the NPT regime and jeopardizes the success achieved on the non-proliferation area.  

17. The right to universal access to nuclear technology and energy, the lack of move towards nuclear disarmament, the treatment of different states with different criteria and the fear that international norms and operations might threaten access to nuclear technology are raised often. The constant reminder of the need to move towards a world free of nuclear weapons can be found in the discourse of different Brazilian governments. In this regard the "Thirteen Steps to Disarmament" that were agreed upon and included in the Final Document of the 2000 NPT Review Conference are considered crucial. In fact, Brazil is a member of the New Agenda Coalition, which played a central part in building support among NPT member states for the adoption of the Thirteen Steps.

18. Beyond the non-proliferation and disarmament agendas, Brazil supports the safety and security measures that are a central part of current governance mechanisms. Regarding the mechanisms geared towards safety of nuclear materials, the Brazilian stance has been to adhere to international norms and regulations. Brazil supports the IAEA Code of Conduct on the Safety and Security of Radioactive Materials.

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15 It should be noted that Brazil has never engaged in research necessary to develop employable nuclear weapons. Regarding the competition between Brazil and Argentina, Brazilian military and diplomatic thinking was based on the notion of latent technological deterrence. M. Barletta, “The Military Nuclear Program in Brazil” Center for International Security and Arms Control, 1997, http://jis-db.stanford.edu/pubs/10340/barletta.pdf.
17 The monitoring system for the CTBT includes the installation of six monitoring stations on Brazilian territory (one primary seismic, two auxiliary seismic, one infrasound and two radionuclides monitoring stations), as well as a radionuclides laboratory.
19 Paulo S. Wrobel, “Brazil and the NPT: Resistance to Change?” Concern over barriers to technology transfer date back to 1975, when the US opposed the transfer of technology from West Germany to Brazil under the 1975 Brazil/West Germany nuclear cooperation agreement.
20 The main goal of the 1998 New Agenda Coalition is the elimination of nuclear weapons and the guarantee of the prohibition of their future production.
Sources, the Guidance on the Import and Export of Radioactive Sources, the Convention on the Physical Protection of Nuclear Material and the Convention on Nuclear Safety. Moreover, procedures demanded by United Nations Security Council Resolution 1540, which imposes binding obligations on states to adopt appropriate legislation to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery, are in place. The planned creation of a domestic Nuclear Security Agency in 2015 should enhance the state’s capacity to deal with these issues.

**Brazilian Reservations**

19. Changes to governance mechanisms since the end of the Cold War have increased the tension between Brazil and the system of norms and institutions in place, particularly:

- The growing imbalance between non-proliferation and disarmament obligations (with disarmament not being advanced quickly enough);
- The existence of countries with nuclear capabilities outside the NPT receiving preferential treatment, in particular India;
- The move from nuclear material accountancy to a detection-based approach in IAEA safeguards procedures;
- The distinction that is being made between countries considered sufficiently reliable for the development of an enrichment capacity and those under suspicion;
- The move from multilateral forums for nuclear diplomacy to informal and plurilateral arrangements.

20. The focus on detection rather than accountancy of nuclear material, which has characterized the changes to the non-proliferation regime in recent years, is considered an excessive interference in sovereign rights. The 2012 National Strategy of Defense states that “Brazil will watch to keep open the access pathways to the development of its own nuclear power technologies. Brazil will not adhere to amendments to the Non-Proliferation Treaty that seek to extend the restrictions provided by the NPT itself, unless countries that possess nuclear capability advance their own disarmament.”

21. Although pressed to adhere to the Additional Protocol, the Brazilian government has maintained its position against it, as expressed in the National Strategy of Defense in 2008 and 2012. The government argues that extending the scope of inspections may affect technological development, thus undermining state sovereignty and autonomy.

22. Other mechanisms created in the post-Cold War period have also generated unease in the Brazilian government. The multilateral approaches to the nuclear fuel-cycle are viewed with concern in case they hamper legitimate peaceful programs. Until now, Brazil has not endorsed the 2003 Proliferation Security Initiative (PSI), which aims to interdict illicit transfers of weapons of mass destruction, since it is regarded as being detrimental to multilateralism and the UN system. Brazil is doubtful whether PSI is compatible with international law, in particular with the Law of the Sea and the Law of the Airspace.

23. Brazil has supported the Nuclear Security Summits but contends that the UN system institutions must play the central role in building nuclear governance. Accordingly, Vice-President Michel Temer has stated: “this process initiated in Washington has achieved the purpose of bringing world attention to the various aspects related to nuclear security. It is now important to reinvest our time and effort in upholding the multilateral forum in charge of these issues: the IAEA.”

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22 For the list of PSI participants, see US Department of State, http://www.state.gov/t/isn/c27732.htm.


24. Brazil joined the MTCR in 1995 after adapting national legislation to the MTCR guidelines. Nevertheless, due to concerns over the maintenance of conditions for technological development, the 2002 Hague Code of Conduct against Ballistic Missile Proliferation (HCOC) has not been supported by the Brazilian government. The argument is that the HCOC does not adequately address the development of technology for the peaceful use of outer space. As Brazilian diplomat Antonio da Rocha Paranhos put it:

The Code does not address Brazilian expectations regarding development of technology towards the peaceful use of outer space, especially regarding programs concerning satellite-launching vehicles. We were disappointed with the downgrading of the Code’s cooperation aspects in the final text. Moreover, we were not satisfied with the way negotiations were conducted, as there was not sufficient debate. Many views were not considered at that time.26

25. The same concerns explain Brazil’s opposition to a possible fissile material cut-off treaty (FMCT). Brazil accepts the need to end the production of fissile material for nuclear weapons, but believes that this step alone would not go far enough. Any treaty must also address existing stocks in order to assist a genuine process of nuclear non-proliferation and disarmament.

26. Overall, Brazilian foreign policy strongly supports the negotiation of a nuclear weapons convention (NWC) that would lead to the total elimination of nuclear weapons. In sum, as stated in 2013 by Ambassador Carlos Antonio de Rocha Panhos, in the High-level Meeting of the United Nations General Assembly on Nuclear Disarmament, Brazil, due to humanitarian, economic and security reasons, has a position of:

Firm support to the early commencement of negotiations of a clear, legally binding and multilateral commitment, on the part of all States, to nuclear disarmament, with clearly defined benchmarks and timelines. This framework shall lead to the prohibition of the possession, development, production, acquisition, testing, stockpiling, transfer, use or threat of use of nuclear weapons, and to provide for their destruction.27

27. Brazil’s response to the Iranian nuclear standoff is a good indicator of the government’s approach to international nuclear governance as a whole. In 2010, Brazil and Turkey came forward as mediators in the diplomatic crisis, which they tried to resolve via a compromise agreement known as the “Tehran Declaration.” According to this proposal, Iran would send 1200kg of low-enriched uranium (3.5%) to Turkey, and the Vienna Group (composed of the United States, Russia, France and the IAEA) would commit to provide Iran with 120kg of uranium enriched at the necessary level for Iran’s research reactor (20%).28 However, the agreement was rejected by the United States, which stepped up negotiations with Germany and the other permanent members of the Security Council to impose new sanctions on Iran. Brazil and Turkey were the only two countries on the Security Council to vote against the subsequent resolution.

28. President Dilma Rousseff defended Iran’s nuclear program for peaceful purposes on several occasions in 2012. She called for no external military intervention against Iran’s nuclear facilities, even before the intensification of international pressure against Iran’s nuclear program: “We are concerned with the growing rhetoric in favor of military unilateral action against installations in Iran. Any initiative of this kind will be a violation of the UN Charter, will destabilize still further the Middle East and

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27 Statement by Brazil at the High-level Meeting of the UNGA on Nuclear Disarmament (2013), p. 3.

will hurt the Iranian population with grave humanitarian consequences.\textsuperscript{29}

### Conclusion

29. Brazil can play a relevant role in efforts to build the governance mechanisms needed in the nuclear field. It can be an important player in the nuclear governance mechanisms both as a mediator and norm propeller. Importantly, it can help foster greater legitimacy in the development of these mechanisms. Brazil’s contribution is important, thanks to its position as a middle power in world politics and its positive approach to multilateral institutions. Moreover, as a non-nuclear weapon state which controls significant natural resources, nuclear expertise and infrastructure, Brazil’s contribution is critical to the development of international norms.

30. The tensions generated by the changes that have been made to the mechanisms of nuclear governance during the last twenty-five years could have long-term, negative consequences unless Brazil’s calls for greater flexibility, openness and fairness are heeded. The negotiations on the state level approach, in response to which Brazilian representatives put forward an agenda of greater transparency at the IAEA, are an expression of these tensions.\textsuperscript{30}

31. The perception in Brazil is that important decision making in the non-proliferation regime does not take place in the UN multilateral forums where it plays an active part. The role of Security Council members in their formal and informal negotiations and of the United States government, in particular, in designing the post-Cold War transformation of the regime has added to the legitimacy gap already present, given the distinction established between nuclear and non-nuclear states. The continuous emphasis on the need to move towards nuclear disarmament\textsuperscript{31} is a reaffirmation of the original NPT commitment, but also an indirect way to point out that the non-proliferation agenda put forward by members of the Security Council and Western countries should not highjack the international nuclear policy agenda. Ultimately, an NWC negotiated within the UN system could accommodate these Brazilian demands and allow for the country to play a positive role in this sphere.


\textsuperscript{30} A supplementary document on the state level concept was produced as a result of these negotiations in 2014. For the full document, see http://armscontrollaw.files.wordpress.com/2014/09/iaea-state-level-safeguards-document-august-2014.pdf.

\textsuperscript{31} See, for example, Antonio Aguiar Patriota, General Assembly 69th Session First Committee General Debate, New York, 10 October 2014.
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