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THE ROLE OF NUCLEAR TECHNOLOGY IN BRAZILIAN STRATEGY AS AN EMERGING POWER

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Introduction

The multipolar world of the post-Cold War has facilitated the emergence of regional powers who desire a greater role in global decisions. In the early years of the 21st century, Brazil has assumed a position of prominence on the international scene and together with other countries with similar characteristics (BRICS) insists on obtaining a greater area of action and influence on the world.

One aspect that differentiates Brazil from this group is related to the fact that it is the only one which has not developed nuclear technology for military purposes. However, in recent years, Brazil has participated in negotiations with other countries that deal with the nuclear issue in a strategic manner. In October 2009, the country has signed a military agreement with France, contemplating the trade of military ships and the transfer of technology, included the necessary for the construction of the Brazilian nuclear submarine.

Then, in May 2010, Brazil has signed with Turkey and Iran, a controversial treaty to facilitate the enrichment of Iranian uranium by nuclear power plants in Turkey. In this sense, the aim of this paper is to examine how Brazil uses its nuclear program to increase its image of emerging power, and which are the consequences that are derived from this new modus operandi of the Brazilian international insertion strategy.

1. The evolution of the brazilian international positioning with respect to non-proliferation and nuclear disarmament.

Since the research in the nuclear area were initiated in Brazilian territory in 1934, Brazil had an interest in developing its own nuclear program and to put itself in the international context, not only as a supplier of uranium and other radioactive elements, but, also, as a keeper of a solid industry, able to compete with other countries with peaceful nuclear technology.

The Brazilian position with respect to nuclear issues is not different from most countries. Despite an official speech of State from leaders, the country has condemned the practice of military nuclear technology while it fosters and encourages the nuclear disarmament by the countries with nuclear weapons (OLIVEIRA, 1999).
The Brazilian conduct has always support any initiative that took into account mechanisms for general and complete disarmament; however, the country took too long to be part of universal and regional nuclear non-proliferation regimes. Since the beginning of the international discussions, Brazilian behavior was to define measures to prevent the development of nuclear weapons technology, and to denounce the reluctance of the nuclear powers that resist to reduce their military capabilities.

Since that the United States (US) used twice the nuclear bomb against civilian population in Japan, Brazil has sought a highlight on the international scene by supporting peaceful initiatives to control the production of nuclear weapons, as well as the ban on nuclear tests. Also, it has been placed in favor of the technology transfer for peaceful uses and the dismount of military nuclear programs.

This Brazilian profile, in several moments, influenced the international negotiations at the time. In 1963 in the speech of Minister Alfonso Arinos in XVI ordinary Session of the United Nations – UN, were placed the bases of the country’s official position, regarding the problem of proliferation and nuclear disarmament. One year later, the Minister Araújo Castro speech to the General Assembly of the United Nations the famous 3D: Disarmament, Decolonization and Development.

There was a very active participation of Brazil in the international context performing with leadership and autonomy in the UN official speeches. However, during the 1960s Brazilian position in the matter began a period of ambiguity, mainly about negotiations of the Nuclear Non-proliferation Treaty – NPT. In spite of Brazil being in favor of the NPT, it always made critics with respect to the discriminatory nature of the treaty and its unequal obligations between the countries.

At the beginning of the 1960s the João Goulart government established the monopoly of the country on the research of ores of radioactive materials, of fissionable materials and fertile, and also of radioactive substances and the by-products. In that decade began the period of the military dictatorship in which followed changes on the position of the Brazilian State with respect to make commitments with the international order. Brazilian behavior during the 20 years of dictatorship was more directed to not commit fully with international treaties on disarmament (RUBLEE, 2010).

During the period of the Brazilian military regime, in the international context were negotiated several treaties relevant for the Brazilian official position with respect to the nuclear issue. The Non-Proliferation Treaty, known as NPT, was signed on July 1, 1968 simultaneously in the cities of London, Paris and Moscow, entering into force on March 5, 1970. The treaty was designed to prevent the horizontal and geographical nuclear proliferation, while ensuring the legality of the possession of these weapons only to the five countries that until January 1, 1969 had done nuclear tests of large capacity.

³ Let us remember that the horizontal proliferation refers to the development of nuclear weapons by new countries; and the vertical proliferation refers to the military nuclear technology improvement by the countries that are already owners. The geographical proliferation is the introduction of nuclear weapons by the countries that have such weapons to test them in regions that are not yet places of nuclear tests (CIRINCIONE, et al., 2005)
Brazil supported this Treaty with the condition that all the arrangements were completed by the countries. However, during the next years, the NPT has been transformed into a reason of discord because it was used to perpetuate the possession of the countries recognized as the only ones with the right to develop nuclear technology through military objectives of war. While this treaty was presented as ineffective for preventing nuclear proliferation in other countries, the NPT also proved unable to encourage disarmament of the countries that already possessed nuclear military facilities.

Parallel to the NPT was negotiated the first Nuclear Weapons Free Zone in Latin America through the Treaty of Tlatelolco, that was signed in 1967. Martinez (2008) makes a comprehensive analysis on the dynamics, interactions and power games that took place during the negotiations of the Latin-American regime for prohibition of nuclear weapons.

During the negotiations of the Treaty of Tlatelolco, Brazil has complied a coalition along with Argentina and assumed a leadership well differentiated from the other coalition conformed by the majority of countries in the region. Since the beginning of the meetings, Brazil positioned itself against any limitation to the development of the technology, including the peaceful tests. It was also against the transit of nuclear weapons by the region and was in favor of the monitoring of safeguards directly by the International Atomic Energy Agency – IAEA and not through the Latin American nuclear weapons proscription organism – OPANAL. The reason for that it is because that is a political body and not technical.

However, despite the final results of the Tlatelolco Treaty have been favorable to Brazil and to Argentina, there was not an immediate entry to the new Latin American regime. Brazil, once more, surprised the international context by not signing immediately the Treaty of Tlatelolco. It did so alleging that preferred solve regional issues, and also, to set its position with respect to the universal regime of the NPT.

During the military period, Brazil signed important technology transfer agreements. In 1965, was signed an agreement with the USA for the acquisition of the first Brazilian reactor which started to be built in 1972, in Angra dos Reis city, state of Rio de Janeiro. This reactor started commercial operations in 1985. In 1975, Brazil has signed an agreement with West Germany that included the construction of 10 reactors (OLIVEIRA, 1996). Only one plant was completed, Angra II, went into commercial operation in 2001.

The military felt frustrated by the drawbacks that featured the civil nuclear program, because the initial aim of this program was to seek to promote the country in rapidly growing next to the club of the nuclear countries. Therefore, in 1979 is the beginning of the parallel nuclear program, which wanted to reduce the dependence on nuclear energy that the country had before the USA mainly (OLIVEIRA, 1996).

The military oriented parallel program was intended to eliminate the country vulnerabilities in sensitive areas and materials by replacement of imports for equipment, materials, instruments and radioisotopes but also the development of facilities in industrial scale, necessary to characterize the technological field and the industrial viability of the processes (JESUS, 2012). The clandestine nuclear program was ended with the beginning of the democratic regime in 1985.
Precisely, with the advent of democracy, Brazil started again a rapprochement with Argentina, a country that also had developed nuclear technology and with which there was a regional rivalry. Thus begins a bilateral negotiation between Argentina and Brazil with regard to transparency and confidence building in the area of nuclear technology. The two countries have built up such an understanding that was an inspiration and international example of decreasing political rivalries with nuclear technological development. These countries materialized a cooperation that until today remains bilaterally. The Brazilian-Argentine Accounting and Control of Nuclear Materials Agency – ABACC, brought a level of maturity, helping to overcome the rivalry between then to the point of that nuclear activities are of full knowledge between both parties.

The Brazilian excuse for not signing the NPT was related with the priority that Brazil gave to the Latin American disarmament regime. However, Brazil did not sign the Treaty of Tlatelolco by assuming a bilateral commitment with Argentina that considered it more transcendental yet, what it generated a typical procrastinator behavior.

Once closed the agreement with Argentina in 1991, the ABACC was established by the Agreement for the Exclusive Use of Nuclear Energy for peaceful, which established the Common System of Accounting and Control of Nuclear Materials -SCCC. Thus, Brazil to sign the Quadripartite Agreement (Brazil, Argentina, IAEA and ABACC) has opened a new chapter of approximation when applied safeguards directly with the IAEA.

According to the unfolding international pacification and nuclear non-proliferation, Brazil posture was a typical case of post the Cold War period. The country has concluded several international agreements that had not completed previously. The incorporation of Brazil to the Tlatelolco Treaty was already easier to close. Therefore, in 1994, Brazil concludes its regional obligations and became a full member of the Latin America nuclear-weapon-free zone.

This new orientation in the Brazilian position with respect to nuclear issues was based on the political value of democracy, with an insistent focus on development and the constant struggle for nuclear disarmament. With respect to the new axis (Democracy, Development and Disarmament), the Brazilian position would be strengthened when the government of Fernando Henrique Cardozo decides to sign the NPT in 1998. On the external side, Brazil attempted to implement a proactive international agenda based on its participation to contribute in the processes of drawing up of multilateral rules.

We can check that, during all the years that Brazil has developed external policies on nuclear energy and non-proliferation, there was indeed a constant search for partners and its diversification for the development of peaceful nuclear programs. Since the first agreement was made in 1965, Brazilian nuclear program has become relevant also for the country energy policy.

Cervo and Bueno (2002) concluded that the Brazilian nuclear civil program encompassed basically two relevant aspects. On one hand, there is the complete renunciation of developing nuclear weapons by supporting the initiatives of non-proliferation and disarmament. On the other hand, is the understanding that nuclear energy would function as a platform to gain higher
levels of cooperation in technology and development among strategic countries for Brazil.

Having interest in strengthening its nuclear program, Brazil sought to build different partnerships in strategic order in order to achieve a greater international position. In this sense, we will discuss in the next chapter how the current Brazilian foreign policy can boost the nuclear capacity that Brazil has, and its relationship with the unfolding international contemporaries.

2. Brazilian current nuclear capabilities and its foreign policy

For sharing very similar characteristics such as expressive population, territorial expansion, regional leadership, increasing consumption market and industrialization in full development, Kennan (1993) classified Brazil as a monster country, next to USA, Russia, China and India. Therefore, due to the fact that Brazil has enormous geographical, economic, industrial and cultural advantages, the country was assuming a prominent position in multilateral negotiations, broadening the space for the full exercise of its foreign policy.

In the international context, only the USA, Russia and Brazil have the three strategic aspects associated with nuclear energy: assured uranium reserves, technological field of the nuclear fuel cycle stages and the use of nuclear energy for electricity generation (GOLDEMBERG, 2010, p. 80). In this sense, we can verify that Brazil, in fact, has capabilities that generate authority to enter into the nuclear international scheme as a leading actor marked by a peaceful orientation.

The proposal for a global and regional Brazilian leadership is based on the values of international law through a soft power in which Brazil, decides to act according to the new logics of the post Cold War world, and to express the public renunciation of nuclear technology weapons.

The Brazilian alignment with pacifist tendencies during the post-Cold War, opened up a range of opportunities in which Brazil assumed several multilateral commitments by participating in various international forums, developing a quite overactive praxis. This opening had a greater scope in the government of Lula, in which it has been applied the logistical globalization as paradigm of Brazilian foreign policy at the beginning of the XXI Century, acquiring the country a new impetus for their achievement on the international scene as average power with the intention to participate in major international decisions (CERVO, 2008).

In the late 20th century and early 21st there was a new reading of the problems of disarmament and nuclear non-proliferation. With the indefinite extension of the NPT in 1995, the nuclear countries didn’t materialized and didn’t defined goals to achieve the destruction of their nuclear arsenals, while at the Conference of 2000 the negotiations were stalled by the lack of a concrete plan to give free track to disarmament.

However, Brazil had its multilateral participation quite active in this first decade of the century. In 1998 the country participated actively in the conformation of the New Agenda Coalition – NAC, group of countries that advocates changes, practices and targeted measures directed to nuclear disarmament. In the same year, Brazil ratified the Comprehensive Nuclear-Test Ban Treaty – CTBT; in 1995 was joined to the Control System of Missile
Technology – MTCR, and had highlighted in increase acting as president in 2009 and 2010. In 2005 Brazil presided over the VII NPT Review Conference acting with several criticisms to the lethargy of the countries that possess nuclear weapons to dismantle their arsenals. Also, Brazil was president of the Group of Nuclear Suppliers - NGS in 2006 and 2007, hosted the 16th Plenary Meeting held in Rio de Janeiro, in which Brazil once again argued that the controls should not interfere with the legitimate uses of nuclear energy.

Finally, in the Conference on Disarmament in 2010, Brazil assumed the presidency and took advantage of the international moment propitious to claim the demands and requirements to general and complete disarmament by the nuclear powers.

There was, in fact, a stalemate in 2004 when Brazil claimed that for reasons of national heritage protection. During the visit of the inspectors of the International Atomic Energy Agency, coatings were used to cover ultracentrifuges at the nuclear fuel plant in Resende. This system didn’t allow the inspectors of the IAEA to know details of the national technology (FLEMES, 2006; JESUS, 2012). This issue didn’t represent negative perceptions because there is an official placement that consists in not develop nuclear weapons as a commitment assumed in the Brazilian Federal Political Constitution.

However, in this Brazilian universe of participation on international nuclear issues, we find two aspects that have received a differential treatment. In 2010 Brazil assumed a radical posture during the Conference of Nuclear Safety, headquartered in Washington, and with relation to the annex of the NPT. Immediately after, Brazil started a transcendental episode in history when was announced an agreement between Turkey, Brazil and Iran, for the enrichment of Iranian uranium by the Government of Turkey with the Brazilian inspection.

According to the Brazilian foreign policy, the current arsenals of the nuclear powers are those that must be feared, because there is no reason to assume new commitments by the non nuclear countries within the framework of the NPT as the nuclear powers have complied with their obligations for over 45 years when was signed the Treaty. By the fact of the failure and also by the delay to take actions that will lead to a real disarmament by the nuclear states, some countries have decided along with Brazil not to join the additional protocol to the NPT as the behavior of the nuclear powers remains the same.

The additional Protocol to the NPT provides more control of the IAEA on semi-annual inspections made in each country that has nuclear power energy plant. This greater openness that can be imposed on countries that do not possess nuclear weapons has no parallel to the lack of openness of the countries with nuclear arsenals. That is why Brazil interprets the adherence to the additional protocol as inconsistent and as an act of tying to the nuclear powers while they do not fulfill the agreements established decades ago.

The trilateral Agreement of 2010 between Iran, Turkey and Brazil, concentrates the characteristics of this new Brazilian behavior towards nuclear issues. Not to adhere to the Additional Protocol of the NPT, makes profound criticism to the inefficiency of the nuclear powers because they don’t comply with their disarmament agreements, and finally, takes an autonomous approach to participate on sensitive matters of international security.
The deadlock as a result of the negotiations between Iran and USA through the UN, was mitigated by the diplomatic management developed by Brazil and Turkey. By the terms of this negotiation, Iran will be able to enrich uranium on the percentage that needs for its technological facilities in Turkish territory, and Brazil arises as an observer of the fulfillment of the agreement with the necessary procedures and protocols, thus closing a pact between equal countries.

The consequences of the Brazilian “daring" were immediate. On one hand, it was confirmed that there is a trend that points to turning the country into a leading actor in international issues. In this sense, Brazil assumes a posture more mature with the aim to strengthen its bargaining between States. On the other hand, the country was in a situation of relative isolation in order that the other members of the UN Security Council followed the positioning of the USA that was opposite to the Brazilian point of view.

However, the form of cooperation proposed by Brazil with Iran would be more focused on the attempt of the accommodation of Iranian claims and for the search of confidence by the insertion of greater flexibility into a peace dialog, without being desired as the definitive solution to the problem, but as a confidence-building measure designed to lay a groundwork for a big negotiated solution (JESUS, 2012).

Considering the status acquired after signing the regimes and treaties not completed before the 1990s, the new context of the world of the 21st century brings challenges and opportunities in which the country aims to achieve recognition as a global player taking part in matters, which were almost exclusive of the nuclear powers.

It is very interesting to note that the worldwide golden age of nuclear energy coincides precisely with the period of the Brazilian military regime. Between 1965 and 1983 is accurately the period when were built more nuclear power plants in different countries. Also coincides with the period in which the price of oil was high due to the crises in the Middle East. During this period Brazil starts to sign agreements for nuclear technology transference to developing a civilian nuclear program. This interest of Brazilian political elites about developing nuclear technology for achieving self-reliance, it was a part of an internal policy that favored and gave priority to initiatives that could lead the country to development.

In graph 1, we can realize that there is a decline after 1985, a period in which the number of reactors built has decreased considerably. Several factors point to this behavior. Goldemgerg (2011) argues that this stagnation of nuclear reactors construction around the world is due to the rising costs of additional security measures introduced after the nuclear accident at Three Mile Island (1979) and Chernobyl (1986). Coincidentally, there was a downturn in oil prices making the oil more attractive for industries again. Also, we can notice that there is a gradual increase in the first decade of 21st century in favor for the construction of more nuclear reactors in the world. However, in 2011, once again there is a low abrupt that coincides with the atomic power plant disaster in Fukushima, due to strong earthquake followed by a big tsunami in March 11.
Brazil as an emerging country and with the sixth largest economy in the world (in 2012), is not out of this new "race" that appears in the international context. Brazilian nuclear energy production is very modest, mainly due to other energy resources that the country possesses. However, there is a diversity of energy sources in the country. Firstly, the energy derived from oil, followed by the biomass, mainly, from sugar cane (ethanol), and in third place we find the hydroelectric power. Interesting to see that the contribution of nuclear energy in Brazil is very low in comparison with the other sources (see graph 2).

Also, it is important to note that with respect to the production of electricity, Brazil gives priority to the hydroelectric, precisely for its geographical conditions that favor the construction of this type of mills, which generates 75% of national production, followed by very distant, the contribution of the gas and thirdly, the nuclear electricity with 3% (see graph 3). With this, it is demonstrated that Brazil has practically one of the best renewable energy matrices of the countries in advanced industrialization process.
Graph 2
Brazilian energy matrix 2010

Graph 3
Brazilian electricity generation sources 2010

Nota
* Inclui lenha, bagaço de cana de açúcar, madeira e outras recuperações.

In recent years, Brazil has developed policies to expand nuclear power in the country. According to the National Energy Plan 2030, the share of nuclear energy in the energy matrix will be gradually gaining impetus in 2025. The route schedule foresees the Angra III plant completion in 2013 and the entry into operation of new plants every five years, being the first planned for the period 2015-2020. Other nuclear power plant should start operating between 2020-2025 and two more between 2025-2030. The strategy of gradual deployment seeks to meet one of the guidelines of the Nuclear Program Brazilian, to preserve the qualification gained, to invest in technological development and to ensure the renewal of the quota of human resources in the sector (GOLDEMBERG; LUCON, 2011, p. 115).

We have identified three relevant aspects to demonstrate the emergence of Brazil in international context related to the nuclear issues. In recent years, there has been a big transformation in Brazilian society related to the concentration of population that increased from 20% in urban areas to 80%. This represented an increase of problems of sanitation, transportation, employability, and quality of life. All this added to the process of industrialization that the country has experienced that reflects in increased consumption of electricity (VEIGA, 2011, p. 30).

On the other hand, Brazil is one of the five biggest natural uranium reserves possessors. The possession of this valuable mineral resource, along with the national technological field that holds and its capacities to generate renewable and non-renewable energy, Brazil is placed as a strong candidate to implement a nuclear program that considers itself as an industrial power, and able to offer peaceful products and others obtained from the uranium enrichment and plutonium reprocessing to foreign markets.

Accordingly, realizing the need to expand greatly the capabilities of energy generation to sustain the growth of the economy in the first decades of the 21st century, the country also understands the need to strengthen its defense capabilities and to ensure better regional strategic conditions, taking into account its continental dimensions and its projection in the South Atlantic. It is, therefore, necessary to discuss the military dimension of Brazilian nuclear plan, mainly in connection with the construction of nuclear submarines policy to safeguard its huge coastline and, thus, define and set up more clearly its new dimension of power emerging.

3. The role of nuclear technology in Brazilian Defense Policy and Strategy

As important as the debate on nuclear technology on the field of diplomacy and Foreign Policy are the impacts of this technology in the military and strategic areas. To think about the nuclear debate in Brazil is to think in its central role in the arms race between Brazil and Argentina and the latter processes of building confidence measures (CERVO, 2008). In this process, from the 1960’s to the 1990’s the understanding of the value and purpose of this kind of technology has passed through important changes. Until the nineties, nuclear technology was viewed by Brazilian militaries as a sensitive and strategic technology, a power multiplier. In a very clear way, nuclear
meant deterrence capabilities against an old enemy, Argentina. The peace process and latter rapprochement between then has changed the way on how nuclear technology could be used for war, but it still meant an asset for deterrence. In other words, nuclear means power, but now in an indirect way.

In a previous moment we discussed how Brazilian diplomacy has sought to defend the national interest and its changes in multilateral and regional forums. Now, we will draw attention in the military and strategic dimension of this technology. One viable way for doing so is by analyzing how nuclear technology and politics is seen in Brazilian high policy documents.

In the second half of the 1990's, Brazil had made public its first National Defense Policy (NDP). In the 1996 document (BRASIL, 1996), nuclear issues appeared very little, most of them related to the country traditional diplomatic position towards the problem of nuclear war, disarmament and the process of non-proliferation (vertical and horizontal) with help of multilateral regimes and institutions.

A second version of the document was released in 2005 and in it, Brazilian position regarded nuclear power and its strategic purpose was made clearer. The first statement about the issue is made by saying that the regional context, South America, is a Nuclear Weapons Free Zone. Initially, nuclear policy is put in the context of confidence building measures in the region and in a peaceful environment. Similar to its previous version, 2005 NDP reinforces the country position in defense of banning biological, chemical and nuclear weapons. But in a different way, it claims for the need for Brazil to build capabilities in relation to its weight. It is interesting to note, that although the country reinforces its claim for compliance to the Chapter VI of the Non-Proliferation Treaty, 2005 NDP makes clear Brazilian position related to the importance of the use of nuclear technology as an economic good and for peaceful means.

The National Defense Policy in its 1996 and 2005 version poses Brazilian preferences in the issues of nuclear technology and politics, but how the country understands the use of this power source for military and defense matters. In this sense, the 2008 National Defense Strategy (BRASIL, 2008) makes clear how Brazil understand the political and defense uses of nuclear technology. It is also possible to observe changes in how Brazil thinks of this kind of technology for deterrence without meaning nuclear power.

The National Defense Strategy starts by pointing nuclear technology as one of three strategic sectors for national defense, aside with cybernetic and aerospace technology. This kind of technology is seen as fundamental to national independence and autonomy. The control of sensitive technologies is deeply related with goals as defense and development. In a similar way to the previous document, the National Defense Strategy reinforces Brazilian position towards disarmament. But in the same sentence, it is stated the relevance of its use for peaceful means. In this sense, two projects (orientations) emerged related to nuclear technology: first, in order to foster a diversification of the country energetic matrix; second, its importance to Brazil new submarine project, nuclear powered.

The nuclear submarine reflects changes in Brazilian strategic thought in the field of defense and strategy. During Lula da Silva Government, especially in his second turn, deterrence started to gain ground as the main strategic objective. It is important to emphasize that is not the objective to arm the
submarines with nuclear weapons, but with nuclear reactors for propulsion only. By building a nuclear submarine, Brazil aims to be able to develop and achieve modern and stealth military equipment. Added to that, it also wants to be able of building one and having domain of sensitive technology and techniques (MACHADO, 2010). We will return to this issue next.

The National Defense Strategy states that nuclear technology transcends the field of defense and development, having a strategic value in itself. In this sense, the Strategy seeks to achieve goals as: 1) the construction of a nuclear powered submarine; 2) the acceleration of mapping and use of Uranium in Brazil and 3) the need of fostering nuclear energy in the country energy matrix. It is interesting to see how Brazilian policy-makers has manage to keep the classical claim towards disarmament keeping coherent with the understanding of nuclear technology as a relevant capability for both national defense and development. Although coherent, this interpretation has been a target for international criticism and lack of trust between Brazil and the nuclear powers, especially when related to the issue of signing the NTP additional protocol, as debated in previous moment of this text.

In 2012, previous to the new reformulations of high level documents about defense and security, as the Policy for National Defense and the Defense White Book⁴, Brazilian Defense Minister, Celso Amorim gives us some clues about what is to came, and the nuclear debate is present. In a document called “Estratégia de Defesa do Brasil e da América do Sul” (Brazil Defense Strategy and South America) (AMORIM, 2012) the Minister makes even more clear the relation between nuclear technology, deterrence capabilities and energy needs. It also addresses the international constrains in research and development of nuclear research for civil and peaceful purposes.

The document is related to Celso Amorim speech for a Chilean Military School master class, were he stated Brazilian positions in defense topics and its relations to South and Latin America. Similar to official discursive strategy, Amorim starts by speaking of how important nuclear cooperation between Brazil and Argentina was important for peace in South America Southern Cone and for fostering broad regional regimes for control of nuclear technology and research. It also claims attention to Brazilian responsibility in the maintenance of South America as a Nuclear Weapons Free Zone, a basilar issue in Brazilian nuclear policy since 1996.

After speaking of positive developments in the field of nuclear politics in Latin America, Amorim (2012, p. 16) criticizes the absence of concrete advances in disarmament by nuclear powers. This is seen as a factor of instability in international system and a contradiction with the bargain towards non-proliferation. Vertical proliferation takes away confidence of horizontal non-proliferation policies and claims. In the document, Amorim goes further. It reverses the conventional wisdom that the main risks and threats to world peace come from states that do not haves nuclear weapons. Instability comes from the nuclear powers, and asymmetry is a strong cause.

Coherent to Brazilian traditions in Foreign Policy, Amorim also criticizes attempts for restricting research and use of nuclear technologies and power to peaceful use. It also sees as dangerous the risk of using or presence of extra-regional powers nuclear weapons in Latin America. His discourse reaches its

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⁴ To be launched in 2012.
peek when he concludes that this broad situation makes urgent for building capabilities for deterrence. By that, the Minister do not defend an offensive or revisionist behavior for Brazil, but it highlights the idea that “being peaceful does not mean to be unarmed” (AMORIM, 2012, p.17). The slow, but progressive change towards a deterrence posture and its relation to nuclear politics helps to understand Brazilian moves in the issue of the nuclear submarine and its diplomacy towards France and Iran.

For a better understanding of the evolution in the role of nuclear technology in Brazilian defense and strategy documents, we will discuss some military projects and international cooperation initiatives.

4. Brazilian Nuclear Powered Submarine Project and the Cooperation with France

Until entering in the realm of the nuclear politics about the new Brazilian submarine project it is important to make clear why the submarine is an issue itself. As stated above, Brazilian strategic orientation since 1996 is shifting more and more from a preemptive and defensive posture to a more deterrent capable orientation. In that sense, the role of the Navy is made more relevant, as it has the objective, and should have the means to project power overseas. From 1996 to 2008 was revived a geopolitical oriented understanding of the region (South America) and the strategic area, making clearer the areas that Brazil though important to its defense and national interest. As a product of this maturing process, South Atlantic Ocean was emphasized as a strategic area, first because of its communications lines with Africa, North America and Europe. Second, by the fact that Brazil’s economic heart and the bulk of population are located in or near the shore. Third, the South of the Atlantic Ocean is an area rich in natural resources and an area prone to conflict, as in 1982 in the Malvinas War and nowadays diplomatic tensions. In the second half of the 2000, Brazil found a huge underwater oil reserve, now called “Pré-Sal”.

The strategic reading of the South Atlantic came to the understanding of the region as “Amazônia Azul” (Blue Amazon). Cleared related to the traditional Green Amazon, rich in natural and valued resources, this portion of the Ocean is seen by Brazil as an extension of national territory, rich in scarce resources (as oil), that is of interest of extra-regional powers. These changes in strategic thinking produced a new valorization of the Navy in a country that in century valued the Army most (MACHADO, 2010).

The initial problem is that although new risks and vulnerabilities were detected, the country did not possess the necessary means to build its defense, especially lacking capabilities for deterrence. This point has brought the Navy to the center of the debate about technology and capability.

Traditionally, Brazilian Navy has as its main mission to secure communication lines, power projection overseas and denying the use of sea to opposite forces. In the National Defense Strategy (2008) the three main

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5 Previous moments of this paper has discussed the Iranian nuclear issue and its relation to Brazil.
missions of the Navy were kept, but the document gives priority to the capacity of the Navy to deny the use of the sea to not-friendly forces. To do so, deterrence is the main strategic posture. In this context, the debate over the naval military systems, especially a submarine with nuclear propulsion became central on the debate.

Since 1984, Brazil started achieving expertise for building submarines. In its first experience, it took part of the production of Tupi, built in Germany but with participation of Brazilian technicians and engineers. According to Corrêa (2011), other four submarines were built at the Naval Arsenal, at Rio de Janeiro. Products of Brazilian engineering and cooperation with Germany, the submarines were named Tamoio, Timbira, Tapajô and Tikuna, all with diesel-electric propulsion.

Although the country is able of building submarines, Brazil hasn't had the capability of building a hull fit to carry a nuclear propulsion system. That changed the scenario for cooperation with Germany, and that country lost space for France. It is relevant to reinforce that Brazil has a long standing strategic relation with France.

French relations with Brazil several strategic dimension. In a broader historical context, French military doctrine has been a present ideational force in the building of the Army strategic thinking. Since Mitterrand, French governments have shown a positive view and explicit support for Brazilian claims for recognition as an important country and an emergent power. More recently, French relations with Brazil are closer even when speaking of the European Union. In 2009 was celebrated the year of Brazil in France, a political and cultural window for Brazil in one of the most important European countries, and recognition of Brazilian importance in a changing world. This period also coincides with a more open French bargain in the FX-Program, in favor of the Dassault fighter, Rafale. In this sense, France-Brazil relations, especially in military cooperation and international security are related to a new geometry of power in international relations, probably pointing to the return of a multipolar world.

In the arms dynamic and military field, France and Brazil are very close in several ways. Brazilian aircraft carrier, NAE São Paulo, was purchased from France. The Carrier is seen as a symbol of prestige. Some of the most important Brazilian aircraft fighters, Mirage 2000-C, are French. French military equipment and supplies helps Brazil to counter dependence towards US armament. These Brazilian-French relations in the field of diplomacy and military airplane technology are also present in the naval area, specially related to Brazilian submarine program.

After the failure of negotiation between Brazil and Germany, DCNS, a French enterprise won the contract to provide Brazil with the necessary technological skills that the country lacked. It is needed to emphasize that to understand the relation between Brazil and France other important issue is related to the new focus on technology transfer. The National Defense Strategy made clear that the building of defense capabilities has to be attached to national development and technological progress. In that sense, the Force modernization and the role of nuclear technology and the

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6 Although the Navy is the most traditional armed force in Brazil, since the first republic, the Army rose as the main force and guided the strategic thinking between the military political and broader strategic thinking.
submarine were deeply embedded with this logic of defense and development.

Conclusion

Brazil has always expressed its interest in developing its own nuclear program. This means that the country has realized that it is necessary for its own development goals, bringing with it a growing number of policies which raised the country to a level of a peaceful producer nuclear energy. This is related to the fact that there always has been the intention to develop nuclear technology for peaceful purposes, with a small period at the end of the 1970s and the beginning of 1980, in which during the military regime, there was a venture of a parallel illegal and clandestine nuclear program, that did not had the expected success and lost its strategic purpose with the rapprochement with Argentina.

However, Brazil has sought a prominent position on the international scene with regard to the peaceful initiatives on arms control and denuclearization regimes. This is evidenced by the hyperactivity that the country has been demonstrating in international discussion contexts like debates of the UN and the Disarmament Commission and other schemes and mechanisms of negotiation during the past 15 years.

With regard to nuclear disarmament, we observed that the Brazilian Foreign Policy was guided by the different nuances, following a winding path, but since the Fernando Henrique Cardoso government a special continuity remains, a coherent and stable attitude: pacifism is non-negotiable. However, in previous years the defense of a technological autonomy seems to acquire more strength. In the current government of Dilma Rousseff, appears a critical direct to countries that do not comply with the agreements to dismantle the nuclear arsenal and remains the positioning of not to join the additional protocol to the NPT while the countries with nuclear arms technology reduce its military capabilities in minimal expression.

It is interesting the official position of the Brazilian State to express openly its complete renunciation for the development of nuclear weapons that occurs through the unconditional support to peaceful non-proliferation initiatives. At the same time, the country believes that it is necessary to maintain a consistent development of nuclear energy to ensure the needs of local energy demand, with the purpose of diversifying the national energy matrix. On the other hand, for Brazil it becomes fundamental utilize the peaceful technology to establish mechanisms for cooperation in technology among the countries that are considered as strategic, mainly the BRICS.

In the field of military and strategic realms, this paper shows that the Brazilian perspective about the use of nuclear technology for military purposes has changed significantly through the years. If during the military rule, nuclear policy was related to diplomacy and as a strategic asset for nuclear deterrence, nowadays, the meaning of nuclear for the armed forces has shifted to mean a necessary technology for improving conventional weapons systems. This change was discussed both by analyzing distinct
national policies and by discussing the Defense Minister ideas regarding this issue.

Other finding is in the relation between nuclear technology and deterrence capabilities. Seen as a valuable asset for energy purposes and for diplomacy, this kind of knowledge and technology is seen as fundamental for building capabilities towards the new strategic orientation, non-nuclear deterrence, but of conventional kind. Not meaning the desire of becoming a nuclear power, the nuclear policies developed by the military in Brazil is understood as a mean to an end, achieved by conventional weapons, such as submarines.

Finally, its necessary to emphasize on show the need of expertise and access to sensitive technologies for building a nuclear powered submarine led Brazil to strengthen its relations with France. Although holding vast connections in the fields of diplomacy and economy, it seems that cooperation has been elevated to other levels. We understand that the strategic orientation of their foreign policies points to objectives as fostering the emergency of a multipolar world, were Brazil and France can play important roles in the world politics. In a broader way, nuclear technology and politics is for Brazil a fundamental asset to its foreign policy goals and opens paths for playing a role on changing the global order in a sensitive and strategic area. For Brazil, the only BRIC country that does not possess nuclear weapons, this is an extremely important issue and strategy.

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