



Director of  
Central  
Intelligence

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NFB

SNIE 93-83

*addenda*

## Brazil's Changing Nuclear Goals: Motives and Constraints

Special National Intelligence Estimate  
Memorandum to Holders

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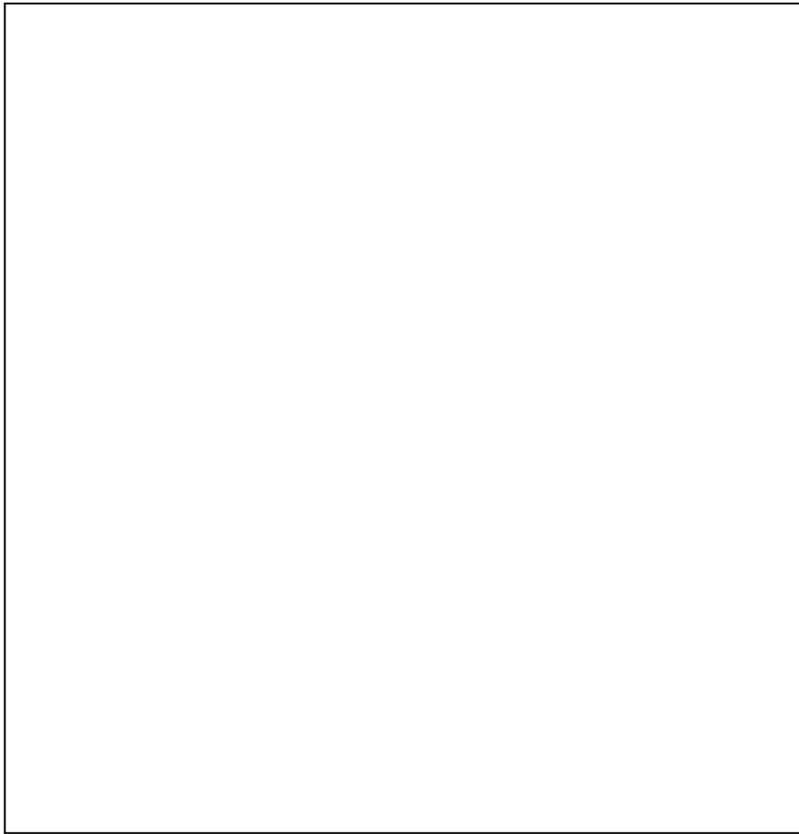
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SNIE 93-83  
December 1985

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Memorandum to Holders of SNIE 93-83

**BRAZIL'S CHANGING NUCLEAR GOALS:  
MOTIVES AND CONSTRAINTS**

Information available as of 5 December 1985 was used in the preparation of this Estimate, which was approved by the National Foreign Intelligence Board on that date.

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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS.

*The following intelligence organizations participated in the preparation of the Estimate:*

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, the Federal Bureau of Investigation, and the intelligence organizations of the Departments of State and Energy.

*Also Participating:*

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps

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## CONTENTS

	<i>Page</i>
KEY JUDGMENTS.....	1
DISCUSSION.....	3
Background on Nuclear Program Inherited by New Civilian Government.....	3
Retreat From Nuclear Power.....	3
The National Nuclear Program: New Emphasis.....	4
Military Nuclear Projects.....	4
Civilian Support.....	5
Weapons Potential and Weapons-Related R&D.....	6
Potential Delivery Systems.....	7
The Decisionmaking Environment.....	7
Implications for US Policy and Regional Stability.....	8

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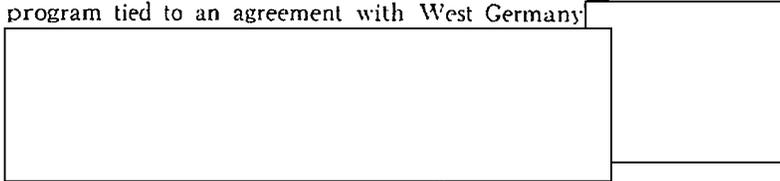
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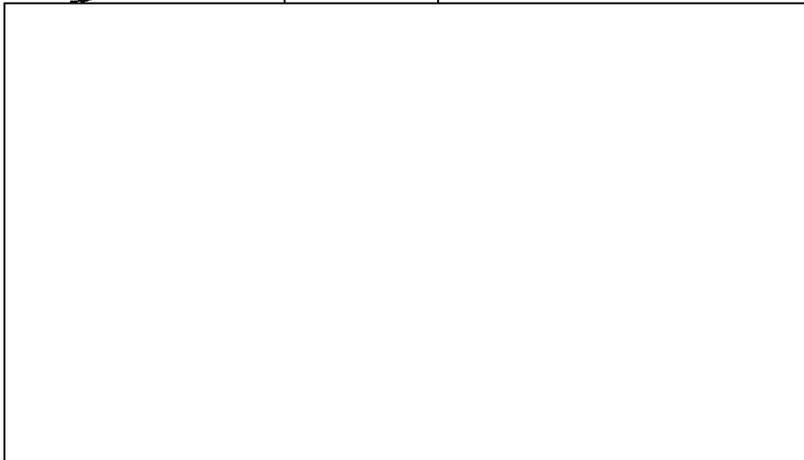


### KEY JUDGMENTS

Brazil's new civilian government, which came to power in March 1985, inherited both a major safeguarded nuclear power and fuel-cycle program tied to an agreement with West Germany.



Despite Brazil's dissatisfaction with the progress of the West German deal, we doubt that Brazil will actually cancel the accord, and we believe that Brazil will continue its efforts to master the nuclear fuel cycle irrespective of outside factors. This is reflective of its overall quest for major-nation status.



We judge that Argentina's surprise announcement in late 1983 of an enrichment capability has greatly spurred the Brazilians. Argentina's nuclear program is more advanced than Brazil's, and some military officers apparently believe that Buenos Aires has built, or can now build, nuclear weapons and that Argentina poses a potential military threat to Brazil.



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[redacted]  
[redacted] We believe that in the long run economic factors will not constrain the Brazilians if they are determined to pursue this indigenous program. [redacted]

We do not believe that the Brazilian Government has decided to produce nuclear weapons. [redacted]

[redacted]  
[redacted] We believe it would be at least 1990 before a nuclear explosive device could be ready for testing if the order to produce a weapon were given immediately. [redacted]

[redacted]

Brazil is a member of the International Atomic Energy Agency, (IAEA) and all nuclear cooperation agreements signed to date are subject to IAEA safeguards. We believe, however, that tension will persist between Brazil's limited acceptance of safeguards and compromises that may be necessary to ensure success in the indigenous program. [redacted]

Illustrative of the suspicion that characterizes Brazil's view of Argentina's nuclear aspirations has been the inability of Buenos Aires to interest Brasilia in reaching a substantive nuclear accord that would involve no-nuclear-weapons pledges and joint inspection of nuclear facilities [redacted]

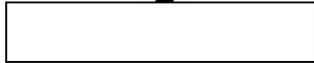
[redacted]  
If other countries in the region were to perceive that Brazil was intent on acquiring either plutonium or highly enriched uranium, it would have a detrimental impact on regional stability. We would expect Brazilian-Argentine relations, which, outside of the nuclear context, are currently quite good, to deteriorate quickly. The perception that an Argentine-Brazilian nuclear arms race was under way would probably exacerbate other regional rivalries. [redacted]

The current direction of Brazil's national nuclear program, and the prominent role of the military in it, presents a danger to US interests in Brazil. Brazil would almost certainly react negatively to any overt US moves designed to deter Brasilia from pursuing its nuclear objectives.

[redacted]

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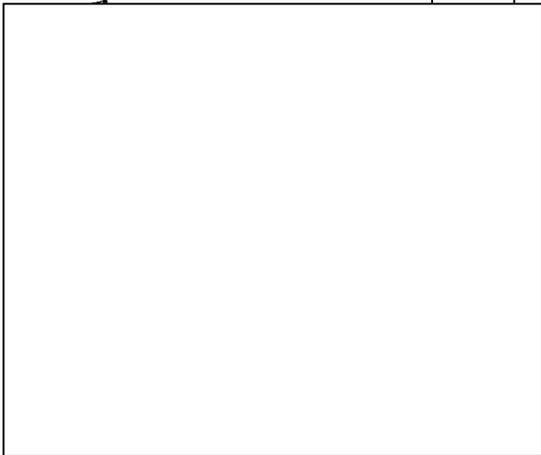
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### DISCUSSION

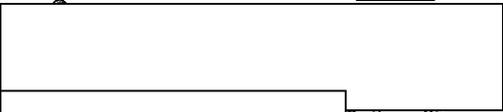
#### Background on Nuclear Program Inherited by New Civilian Government

1. Brazil's new civilian government, which came to power in March 1985, inherited both a major nuclear power and fuel-cycle program and a complex tapestry of indigenous, largely unsafeguarded, nuclear research efforts run by the military services and the Nuclear Energy Commission (CNEN). In 1975, Brazil entered into an agreement with West Germany to develop a nuclear power program to supply its growing demand for electrical energy and to reduce its dependence on imported oil. As originally envisioned, the agreement with West Germany called for the construction of up to eight power reactors, plus uranium enrichment and spent-fuel reprocessing facilities. The terms of the agreement also provided for a large measure of technology transfer from West Germany to Brazil. By the early 1980s, however, soaring development costs, reduced government revenues, technical problems, and lowered projections of future electrical energy needs have resulted in a general scaling down of the safeguarded nuclear power program, which was run by the government corporation NUCLEBRAS.



3. We believe Brazil's determination to master the fuel cycle is reflective of its overall quest for majoration status and is consistent with earlier drives to

develop auto, aviation, steel, petroleum, and computer industries. We also judge that Brazil wishes to develop the capabilities that would enable it to build nuclear weapons at some time in the future. We further believe the change from a military to a civilian government has not altered these goals.



to the military. one of the lessons of the Falklands war was that Brazil's geopolitical position does not make it immune from conflict. While Argentina remains the most likely potential rival with whom hostilities may erupt, Brazilian military officials speak more generally about the need to have defensive forces able to meet threats from outside of the area. Although nuclear weapons are not specifically mentioned as having a role to play in Brazil's defensive posture, the ministers of the services have all noted that, they feel Brazil should master the nuclear fuel cycle and that, then, only "a political decision" would be necessary to determine whether to develop nuclear weapons.

#### Retreat From Nuclear Power

5. Despite the initial enthusiasm, Brasilia began publicly acknowledging as early as 1979 that the nuclear power program would be reduced:

- Recent estimates place the cost of completing the original agreement at close to \$40 billion, over six times original estimates, while Brazil's ability to generate funds is restrained by economic austerity and its limited ability to borrow in overseas markets.
- According to Brazil's electric utility company ELECTROBRAS, growth rates for electricity demand have dropped sharply since the 1970s—and are likely to remain low through the 1990s—while supplies of cheap power from conventional sources are now coming on line.



[REDACTED]

6. Since taking office in March, the new civilian government has indicated both publicly and privately that the nuclear power program would be reexamined. The Minister of Mines and Energy has decided to limit future funding to the completion of the two power reactors currently under construction—in effect canceling six of the eight reactors.

[REDACTED]

8. Despite Brazil's dissatisfaction with the progress of the West German deal, we doubt that Brazil will actually cancel the accord. Both countries have too much at stake to completely sever nuclear relations. West German assistance will be needed to complete the work, albeit on a reduced scale, on the uranium enrichment facility.

[REDACTED] West Germany could also serve as a convenient source of equipment and materials for the indigenous nuclear program [REDACTED]

[REDACTED]

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[Redacted]

[Redacted]

Civilian Support

[Redacted]

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[REDACTED]

20. *Sarney's Intentions.* President Sarney plans to further increase the funding of the indigenous nuclear research programs, although it is not yet clear how much more money he is willing to provide. We believe the Brazilians fully intend to cutback NUCLEBRAS even more, thus making its personnel and technical support potentially available to expand the base of the indigenous program. This potential influx of personnel, many of whom have received extensive training from West Germany in reactor design and engineering, reprocessing, and uranium enrichment technologies, would strengthen Brazil's ability to pursue indigenous military and civilian nuclear programs.

[REDACTED]

**Weapons Potential and Weapons-Related R&D**

21. On balance, we do not believe that the Brazilian Government has decided to produce nuclear weapons.

[REDACTED]

[REDACTED]

25. There is no evidence of high-explosives (HE) work relevant to nuclear weapons development. Brazil operates several large high-explosives production plants that may have the potential for development of high-explosives technology applicable to nuclear weapons.

[REDACTED]

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26. Given the current absence of fissile material facilities, we believe it would be at least 1990 before a Brazilian nuclear device could be ready for testing if the order to produce a weapon were given immediately. Unless an enrichment facility or a plutonium production reactor and complementary reprocessing facility are built, Brazil will continue to face this four-to five-year gap. [redacted]

**Potential Delivery Systems**

27. **Missile Program.** Brazil has two potential future nuclear-capable missile systems. The first of these is the Sonda IV, which is a two-stage sounding rocket. This system, which has been flight-tested twice, is capable of launching a 500-kilogram payload to a range of about 600 kilometers. The other system will be a satellite launch vehicle (SLV) that will be made up of several Sonda IV first stages. This vehicle is in the planning stage, and the Brazilians have stated that they expect it to be ready for its first flight in the early 1990s. [redacted]

[redacted]

28. We believe the Sonda IV as configured could be used to carry a nuclear warhead. [redacted]

[redacted]

29. **Aircraft.** Brazil currently has over a dozen Mirage III-Es in its inventory. The French Air Force uses this plane to carry tactical nuclear weapons. The other planes in Brazil's current inventory are too small or lack ranges that would make them suitable platforms from which to drop nuclear weapons. Brazil will be adding the AMX attack plane, produced jointly with Italy, to its inventory in the late 1980s. Although

not specifically designed to carry nuclear weapons, this plane could perform this role if the weapon is designed to weigh no more than 1,000 kilograms. [redacted]

**The Decisionmaking Environment**

30. In our view, the preeminence of the indigenous nuclear research and development program is no longer a debated issue within the Brazilian establishment. The analysis of a number of trends leads us to this conclusion. NUCLEBRAS' decline has been an ongoing development since the late 1970s, along with the steadily growing realization that heavy dependence on foreign technology was unacceptable. In late 1982 the central government began the federalization of IPEN—formerly a Sao Paulo state entity. Though this has been contested on legal grounds, Brasilia has prevailed, and IPEN's formal subordination to CNEN is recognized. [redacted]

[redacted]

[redacted]

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[REDACTED]

the Sarney administration, reflecting a national consensus for mastering the nuclear fuel cycle as part of Brazil's drive to reach great-power status. There is no evidence of public opposition to the indigenous program. [REDACTED]

#### Implications for US Policy and Regional Stability

36. *International Posture.* As the Brazilian indigenous nuclear programs progress, the proliferation implications of the military's new facilities will probably become the subject of international speculation and criticism. To fend off this criticism, Brazilian foreign policy will increasingly have to focus on defending and justifying these programs in a world in which there is considerable antiproliferation sentiment. Additionally, Brazil would not welcome the prospect of being lumped with other suspected nuclear proliferants, such as South Africa and Israel. We judge, however, that Brazil will be willing to bear these political costs if indeed it ultimately decides to move toward nuclear weapons. [REDACTED]

37. *Nuclear Safeguards and International Obligations.* We note that Brazil, as a member of the International Atomic Energy Agency, has pledged to require IAEA safeguards on all its nuclear exports. The Minister of Mines and Energy publicly reiterated in October 1985 that all nuclear cooperation agreements signed to date—with West Germany and China, among others—are subject to IAEA safeguards. [REDACTED]

[REDACTED]

Brazil respects its joint commitments to the IAEA. Despite such pledges, it is our view that an inevitable and difficult tension is likely to persist between Brazil's limited acceptance of safeguards and the practical compromises that may be necessary to ensure success in the national program. [REDACTED]

34. We believe that, in the long run, economic factors will not constrain the Brazilians, if they are determined to pursue this indigenous program. Brazil's economy is the ninth largest in the world, and we do not believe that Brasilia will have difficulty finding the \$2-5 billion over the five to 10 years that probably would be required to bring the program to fruition. Only in the event of a radical shift to a highly populist regime—which we do not expect—would we foresee an effort to shift resources in ways that would seriously impede nuclear funding. [REDACTED]

35. As indicated above, Brazil's civilian leaders have increased support for the indigenous nuclear program. We believe this provides a mantle of legitimacy to the programs started under the military government. Moreover, we believe that political support for the indigenous program will continue under [REDACTED]

39. We believe the activities reported thus far would not in themselves dramatically advance Brazil's [REDACTED]

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efforts to master sensitive technologies such as reprocessing and enrichment. We also doubt that Brazil is now prepared to run the risks to its nuclear and other interests inherent in embarking on a series of unacknowledged violations for the sake of expediency. Nonetheless, we believe that when and if important aspects of the unsafeguarded program are perceived to be at stake, there will be pressures to violate safeguards on a selective basis. [redacted]

40. *Brazil and the Nonproliferation Regime.* Brazil is not a party to the NPT and continues to firmly resist exhortations to accede to the agreement. Brazil historically has complained that the NPT is discriminatory in that it recognizes two unequal orders of nations, the nuclear weapon states and the nonnuclear weapon states. In our view, there is virtually no room for movement in this position, and determined resistance to the NPT, and to the nuclear suppliers mechanisms which it spawned, will continue in Brasilia. [redacted]

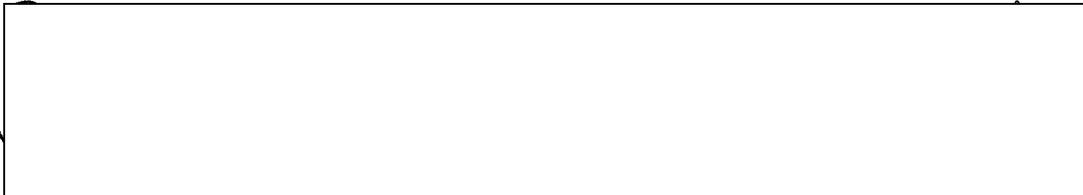
41. While eschewing the NPT and the adoption of full-scope international safeguards on all its nuclear activities, Brazil has signed and ratified the Treaty of Tlatelolco. Brasilia has said that it will not waive that accord into force until all Latin America states have done so. Chile, Argentina, and Cuba are the holdouts at this time. (u)

42. *Regional Stability.* Illustrative of the suspicion that characterizes Brazil's view of Argentina's nuclear aspirations has been the inability of Buenos Aires to interest Brasilia in reaching a substantive nuclear accord that would involve joint inspection of nuclear facilities, no-nuclear-weapons pledges, increased research and development efforts in the nuclear energy field, and cooperation in joint ventures to market nuclear equipment. [redacted]

45. If other countries in the region were to perceive that Brazil was intent on acquiring either plutonium or highly enriched uranium it would have a detrimental impact on regional stability. We would expect Brazilian-Argentine relations, which, outside of the nuclear context, are currently quite good, to quickly deteriorate. The perception that an Argentine-Brazilian nuclear arms race was under way would probably exacerbate other regional rivalries. [redacted]

46. *US Interests.* The failure of the international community in gaining Brazilian and Argentine adherence to the NPT does not bode well for future efforts directed at curtailing any efforts by these two rivals to build sensitive nuclear facilities and engage in nuclear weapons research. We believe that West Germany is likely to be accused of directly assisting both Brazil and Argentina in acquiring sensitive nuclear facilities or the technical expertise required to build and operate them. The source of this alleged responsibility is likely to be past West German assistance associated with Argentine and Brazilian nuclear power programs, which in both cases included some reprocessing capability and, in the Brazilian case, uranium enrichment. [redacted]

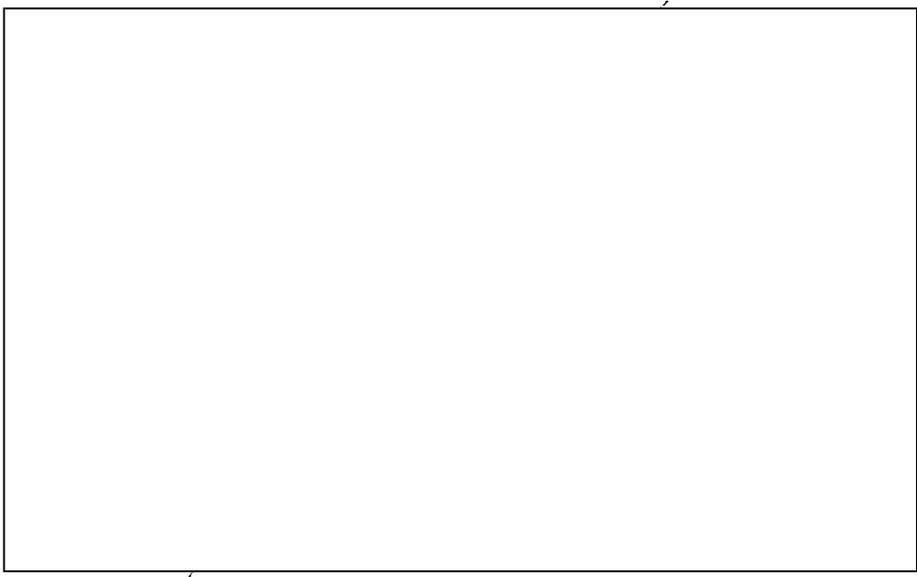
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