

Brazil Goes Nuclear

Article Summary

Brazil & The U.S. Sign Scientific Cooperation Agreement (Thursday, March 24, 1994)

Brazil appears to have won a months-long stare-down with the International Atomic Energy Agency (IAEA) regarding full access to its nuclear-energy program. IAEA inspectors arrived at a Brazilian nuclear-development site on Oct. 19 with the understanding that they would be permitted to see less than they had been bargaining for. Putting a best face on the limitation, an agency spokesperson in Vienna said the inspectors would not need total access.

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Lesson One

You are an advisor to the President of the United States who deals with issues of nuclear proliferation and advises the President to oppose or approve the development of nuclear programs in countries around the world. Part of the decision to oppose or support foreign nuclear programs depends on the choices made by previous administrations. You have decided to pick four countries that have developed or attempted to develop uranium enrichment programs in the last 15-20 years and determine whether the US opposed those programs or not, as well as why they opposed or allowed the programs to go ahead. Some examples you might research are India, Pakistan, Iran, Iraq, North Korea, Japan, and Egypt. Based the US's previous decisions to oppose or support the nuclear programs in the countries you researched, write a report that suggests that the President either support or challenge Brazil's efforts to enrich uranium, making sure to give

examples of the countries you researched.

Lesson One Content Links

[McGraw Hill](#)

Map of countries that possess nuclear weapons

[Wikipedia](#)

List of all nations with, or suspected to have, nuclear weapons

[Wikipedia](#)

Information about the Nuclear Non-Proliferation Treaty

[Union of Concerned Scientists](#)

Article that discusses the United States' policy toward its own nuclear arms

[Washington Post](#)

Article that discusses changing policies in the interest of nuclear non-proliferation

[World Nuclear Association](#)

President Eisenhower's "Atoms for Peace" speech to the UN General Assembly, 1953

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Article that weighs the US' role in the control of nuclear energy capability

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Data Center that provides a variety of information on countries with nuclear power capabilities

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Brief history of the nuclear program in the US and around the world

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Series of lesson plans related to nuclear proliferation

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Plan that centers around examining the Nuclear Non-Proliferation Treaty

[Ask Asia](#)

Activities that deal with the Indian and Pakistani acquisition of nuclear arms

[Lesson Planet](#)

Students write treaties between the world's nuclear powers

[NY Times](#)

Plan that discusses the process of nuclear disarmament and treaties

Lesson Two

You are a Brazilian nuclear scientist who has been asked to explain to the President of Brazil the basic process of uranium enrichment, which your country is developing now. Create a presentation with visual aids to help him understand the process. Also make sure to tell him what uses the final product of the enrichment process can be put to. The purpose of the presentation is to help the president better understand international support of or opposition to Brazil's nuclear program by helping him understand the scientific basis of uranium enrichment and the productive and dangerous uses it has.

Lesson Two Content Links

[*Uranium Enrichment Centre*](#)

Article that discusses the basic process of uranium enrichment

[*Nuclear Regulatory Commission*](#)

Explanation of the process of enriching uranium

[*Anawa*](#)

Very brief description of uranium enrichment, from the ground to finished product

[*Chemistry Case Studies*](#)

Description of the chemical processes involved in enrichment

[*ArmsControl.Org*](#)

Article that discusses the dilemma of uranium having both legitimate energy uses and dangerous military uses

[*NY Times*](#)

Students explore the influences of technology, focusing on the centrifuge used in uranium enrichment

[*CNN*](#)

Students explore the process of uranium enrichment from the point of view of inspectors

Lesson Three

You are a Brazilian diplomat assigned to talks with the IAEA. Your task is to develop an argument that will convince the IAEA that it should not oppose Brazil's development of a nuclear program. To do so, you must study the reasons the IAEA has given for opposing the development of a Brazilian nuclear program and be able to give counterarguments; you must also present arguments for why it is important for Brazil to have the capacity to enrich uranium. Put your oral argument together and present it to the IAEA.

Lesson Three Content Links

[*Consulate General of Brazil*](#)

Press release that States Brazil's official position on its nuclear program

[*Global Security Institute*](#)

A brief history of the Brazilian nuclear program, in relation to Argentina

[*IAEA*](#)

Homepage that outlines the IAEA's mission and purpose

[*Arms Control Association*](#)

Article about an agreement reached between the Brazilian government and the IAEA

[*MS NBC*](#)

News article outlining the conflict between the Brazilian government and the IAEA

[*NY Times*](#)

Lesson in which students simulate a hearing on the safety of nuclear power

Brazil Stands Firm On Inspections, IAEA Backs Down

ISSN: 1060-4189

LADB Article ID: 052246

Category/Department: General

Date: Friday, October 29, 2004

By: Patricia Hynds

Brazil appears to have won a months-long stare-down with the International Atomic Energy Agency (IAEA) regarding full access to its nuclear-energy program. IAEA inspectors arrived at a Brazilian nuclear-development site on Oct. 19 with the understanding that they would be permitted to see less than they had been bargaining for.

Putting a best face on the limitation, an agency spokesperson in Vienna said the inspectors would not need total access. The IAEA, in backing down, is treading a fine political line in giving Brazil some slack on much the same issue it is pressing Iran on. Brazil took the opportunity to emphasize its persuasive powers with official comments that the agency had become "more flexible." Seeking to offset the statement, IAEA spokesperson Melissa Fleming said, "We will not compromise on our fundamental technical requirements that will allow us to ensure there is no diversion of nuclear materials out of that plant."

Protecting industrial secrets Brazil's argument for resisting has been that it cannot allow the inspectors to see the hulls of centrifuges where uranium is purified because it has developed technology that is 30% more efficient and 25% more cost effective than that used in US enrichment plants. The issue is the risk that the Brazilian technology might be stolen. At the heart of the new technology is an electromagnetic technique that reduces friction. Thus, the three inspectors entered the Resende plant northwest of Rio de Janeiro under restrictions.

Far from being chastised for its attitude by the US, Brazil, an outspoken, though lately inconsistent, champion of nonproliferation, recently got a boost from US Secretary of State Colin Powell. On a visit to Brazil in early October, Powell said he is confident Brazil has no plans to develop nuclear weapons. At stake for Brazil is UN permission to begin operating the plant to enrich uranium. Powell softens threat from US right Powell's statement also somewhat mitigates previous statements from the US characterizing Brazil as part of a Latin "axis of evil," along with Cuba and Venezuela. Henry Hyde (R-IL), chair of the House International Relations Committee, used that phrase in describing President Luiz Inacio Lula da Silva as a "pro-Castro radical," while Constantine Menges, former US President Ronald Reagan's security director for Latin American affairs and former National Security Council member, said this "new axis" is linked to Iraq and Iran. The significance of Menges' statement is that holdovers from that administration, Otto Reich and Elliott Abrams, have had key roles in the current US administration's Latin American policy.

Science and Technology Minister Eduardo Campos said in an exclusive interview with Folha de Sao Paulo, "We want the IAEA safeguards. We want to facilitate their work, but we want to do so in an alternative manner something that wasn't in our previous proposal, nor full visual inspection." An unnamed Brazilian official said that Brazil proposed in September that the agency could inspect the tubes leading to and from the centrifuges, but that the machines themselves would be shielded from view by panels, approximately 2 meters in height, that surround them. The panels would be lowered slightly to reveal the tubes. Brazil's stated use for the plant is to enrich uranium to low less than weapons grade levels to produce electricity and free the country from the need to import the fuel for power generation.

Brazil is the world's fourth-largest producer of uranium, well able to supply its own needs and to export the refined product.

A world power needs nukes

But the country also has more far-reaching global aspirations. It is seeking a permanent seat on the UN Security Council, and officials have expressed the belief that being a potential nuclear power would strengthen their position. In January 2003, then minister of science and technology Roberto Amaral, Campos' predecessor, said Brazil could not afford to renounce any form of scientific knowledge, "whether the genome, DNA, or nuclear fission." The Lula administration distanced itself from the statement, but Lula had said, addressing the question just months before Amaral's statement, "If someone asks me to disarm and keep a slingshot while he comes at me with a cannon, what good does that do?" Brazil's 1988 Constitution forbids nuclear weapons, but that prohibition has not diminished speculation that a nuclear arsenal is in Brazil's future.

A recent Science Magazine article said that the Resende plant "will have the potential to produce enough 235U to make five to six implosion-type warheads per year. By 2010, as capacity rises, it could make enough every year for 26 to 31 and by 2014 enough for 53 to 63." The article claims that even if the plant produces only fuel-grade uranium (3.5%), more than half the work toward making the weapons-grade product (90%) will already have been done, giving Brazil the power to make nuclear weapons before the world can react. While acknowledging there is little evidence that Brazil actually intends to become a nuclear power, the article points out that, if Brazil is allowed to proceed, IAEA will have no grounds to deny equal treatment to Iran, to which the same dynamics apply. Under the terms of the Non-Proliferation Treaty (NPT) by which IAEA is bound, there is no legal ground for treating the two countries differently. Brazil responded energetically to the prestigious magazine article with a statement to the press that it would lodge a diplomatic complaint with the US regarding the assertion of nuclear capability.

Science Minister Campos also objected to another innuendo in the piece, that Brazil had not developed the technology at all but rather was trying to hide its origin. The article stated, "In 1996 Brazil arrested Karl-Heinz Schaab, a former employee of Germany's MAN Technologie AG, a firm that developed centrifuges for the European enrichment consortium called Urenco." It said that Germany wanted Schaab to prosecute him for selling centrifuge blueprints to Iraq and that there was evidence he was helping Brazil as well. "It follows that, if the IAEA inspectors were to see the Brazilian centrifuges, they might discover that Urenco's design data had been transferred," said the article. Brazil's Comissao Nacional de Energia Nuclear (CNEN) called the article "provocative, and with obscure purposes behind it." A statement from Industrias Nucleares do Brasil called the story "speculative." The speculation, however, was not altogether without some basis in fact.

The Brazilian navy has admitted that Schaab, who had lived for years in Brazil eluding German authorities, had worked on "ultrasecret" projects for the military. Nor was there anything particularly original in Science's analysis. Writing in The New York Times in June, Brent Scowcroft noted, "Once enrichment capability exists, a major barrier to producing a nuclear weapon virtually vanishes. The IAEA condemnation is an indication that the world may be on the verge of a major breakdown of the nonproliferation regime, to say nothing of a huge new source of instability in a critically important region."

Scowcroft was alluding to Iran as well as to Brazil with that observation, but on the specific issue of Brazil's nuclear efforts, he wrote, "Put simply, the way Brazil is dealt with could prove to be one of the keys to dealing with the Iranian nuclear problem, either by persuading Tehran to abandon its nuclear weapon ambitions or by rallying the international community to crack down on Iran if it does not. We

therefore should make the same offer to Brazil as to Iran and make clear the consequences if Brazil turns down that offer." It would appear from Brazil's recent success with the IAEA, that Latin America's most powerful country has grown beyond the fear of "consequences." Brasilia awaits the Agency's report to determine whether it has won a battle or a war.

[Sources: The New York Times, 07/20/90, 06/24/04; The San Francisco Examiner, 07/27/04; Xinhuanet, 10/18/04; Reuters, 10/05/04, 10/20/04; BBC News, 10/20/04; Associated Press, 10/18/04, 10/22/04; Science, 10/22/04; La Opinion (Los Angeles), Notimex, 10/25/04]

Standards

National Standards (McREL) <http://www.mcrel.org/>

- Civics - Standard 22 - [Understands how the world is organized politically into nation-states, how nation-states interact with one another, and issues surrounding U.S. foreign policy](#)
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- Language Arts - Standard 1 - [Uses the general skills and strategies of the writing process](#)
- Language Arts - Standard 2 - [Uses the stylistic and rhetorical aspects of writing](#)
- Language Arts - Standard 3 - [Uses grammatical and mechanical conventions in written compositions](#)
- Language Arts - Standard 4 - [Gathers and uses information for research purposes](#)
- Language Arts - Standard 7 - [Uses reading skills and strategies to understand and interpret a variety of informational texts](#)
- Language Arts - Standard 8 - [Uses listening and speaking strategies for different purposes](#)
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- Science - Standard 9 - [Understands the sources and properties of energy](#)
- Science - Standard 10 - [Understands forces and motion](#)
- Science - Standard 13 - [Understands the scientific enterprise](#)
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- US History - Standard 27 - [Understands how the Cold War and conflicts in Korean and Vietnam influenced domestic and international politics](#)
- US History - Standard 27 - [Understands developments in foreign policy and domestic politics between the Nixon and Clinton presidencies](#)
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