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BRAZIL: GOVERNMENT MOVES FORWARD ON NEW NUCLEAR PLANTS DESPITE OPPOSITION

By Jose Pedro Martins

A large coalition is being formed to oppose two nuclear-power plants that the Brazilian government plans to build in the northeast. At the same time, sectors of some states in the area are competing for the plants in the hope of generating income and jobs. Social and environmental organizations believe that the region, which has the greatest inequality in the country, cannot afford this project.

The announced construction of the two nuclear plants has renewed criticism of the Programa Nuclear Brasileiro, which oversaw construction of two nuclear facilities in the city of Angra dos Reis in Rio de Janeiro state. Angra 1 was built by US firm Westinghouse and Angra 2 was built by Siemens-KWE under the Acordo Nuclear Brasil-Alemanha, signed in the 1970s during the 1964-1985 military dictatorship (see [NotiSur, 2008-11-07](#)).

The Brazil-German agreement envisioned construction of eight nuclear-energy plants in Brazil, but only Angra 2 has been completed. The Angra-3 plant is under construction, with participation of the French group Areva. Angra 3 is scheduled to become operational in 2014, according to the Plano Decenal de Expansao de Energia (PDE) 2007-2016. Nevertheless, strong opposition from various sectors of civil society, as well as legal and technical questions, has caused delays.

Nuclear power and the need for alternative energy sources

Nuclear activity in Brazil, as throughout the world, suffered a serious setback following the April 26, 1986, accident at Chernobyl. Now, with the discussion of alternative-energy sources to combat global warming, the nuclear lobby has become very active in Brazil, as elsewhere, with the aim of increasing electricity generation through nuclear power.

Besides finishing Angra 3, the "new" Programa Nuclear Brasileiro, developed by the administration of President Luiz Inacio Lula da Silva, foresees launching a nuclear submarine in 2020 and expanding uranium production from the present 309,000 metric tons to 459,000 MT in 2012, including 50,000 MT in Caetite in the northeastern state of Bahia and 100 MT in Rio Cristal in southern Para state in the Amazon. Brazil has the sixth-largest uranium reserves in the world.

The Brazilian Navy has been developing the nuclear-submarine project for years, considered even more strategic since the discovery of huge oil reserves in the pre-salt layer off the Brazilian coast (see [NotiSur, 2009-01-09](#)).

In light of the prospect of Angra 3 becoming operational and another six 1,000-megawatt reactors completed by 2030, national yellowcake production is expected to increase from the present 400 MT a year to 2,100 MT.

The two nuclear plants in the northeast are part of the Plano Nacional de Energia (PNE) 2030, which calls for adding 4,000 MW of new nuclear-energy production by 2030, and output at the two plants could increase to 6,000 MW and 8,000 MW according to many optimistic scenarios.

Fierce competition for plant sites

The federal government's announcement that it would build two new plants set off intense competition, including among some local sectors, to be named as a site for the plants, whose cost is estimated at US\$7 billion each. The government contracted the federal nuclear-power company Eletronuclear and the Instituto Alberto Luiz Coimbra de Pos-Graduacao e Pesquisa de Engenharia (COPPE) of the Universidade Federal do Rio de Janeiro (UFRJ) to carry out technical studies to make a recommendation on the plants' locations.

The studies considered various criteria, including the proximity of an abundant source of water for reactor coolant. Given that fresh-water availability is scarce in the northeast, the studies leaned strongly toward locating the plants near the Atlantic Ocean. However, a site near a river in the northeast, such as the Sao Francisco, has not been dismissed.

To determine the effects of insertion into the electricity and energy-distribution system, among other factors, and the proximity to major centers of electricity consumption, two 350-km radius circles were drawn around the two largest cities in the northeast--Recife, capital of Pernambuco, and Salvador, capital of Bahia. The perimeter of the two circles crosses the states of Bahia, Alagoas, Sergipe, Paraiba, Pernambuco, and Rio Grande do Norte.

Other factors were used to rule out possible plant sites, such as population density, potential damage to the ecosystems, wind direction and force, earth vibrations, and others. A list of 20 possible plant sites was supposed to be announced at the end of 2009 but was postponed until March 2010.

Bahia became a fierce competitor. Gov. Jacques Wagner of President Lula's Partido dos Trabalhadores (PT) began earnestly campaigning in early February for his state to be the site for one of the plants. As one of his arguments, the governor cited the existence of Lagoa Real uranium mine in nearby Caetite.

Speaking of other energy sources and defending nuclear-energy expansion, Wagner said, "Heat releases contaminants into the air and water-generated plants produce flood zones. The potential for hydroelectric energy has been extensively explored." Eighty-five percent of Brazil's electrical power generation comes from water.

An obstacle to constructing the plant in Bahia is Article 226 of the state constitution, which prohibits locating nuclear power plants in the state. The state legislature would have to immediately amend the constitution. But Gov. Wagner seems willing to push his bid forward, as he told President Lula and Minister of Mines and Energy Edson Lobao in Brasilia in late February.

Opposition to new plants cites safety

Nevertheless, there is opposition to the idea in Bahia. Congressman Edson Duarte of the Partido Verde Bahia (PV-BA) criticized the governor's position and repeated his opposition to nuclear energy plants. Besides the high costs involved and the risk of nuclear accidents, the deputy pointed out that a safe way to dispose of nuclear waste has not been found anywhere in the world.

In Brazil, nuclear waste from the Angra 1 and 2 plants is held in a temporary deposit "with capacity at its limit," said Duarte, who requested information from the ministers of mines and energy and of science and technology regarding the criteria used to identify possible sites for the installation of nuclear plants in the northeast, the municipalities that meet those criteria, and how the waste would be disposed of.

Also in Bahia, environmentalists say that uranium exploration in Caetite shows that nuclear energy is not as "clean" as its defenders claim. Duarte said leaks have been detected at the Lagoa Real mine, with high levels of radioactivity.

In early 2010, the city of Caetite shut down the water supply for the local population because it said uranium levels exceeded Ministerio de Salud recommendations. Reports on the matter were drawn up by the Instituto de Gestao das Aguas e Clima (INGA), a government agency.

Uranium extracted from Caetite is exported to Canada and the Netherlands where it is enriched before being returned to the plants at Angra dos Reis. Greenpeace and the Grupo Ambiental da Bahia (GAMBA) are two of the organizations continually monitoring complaints of leaks at Caetite.

Nevertheless, the nuclear lobby in Brazil is growing stronger by the day. One important actor in the sector is the Associacao Brasileira para o Desenvolvimento de Actividades Nucleares (ABDAN), whose members include large construction firms and other energy-related industries. In August 2009, ABDAN hosted a seminar on nuclear energy in the northeast (Energia Nuclear No Nordeste) at a Recife hotel, in collaboration with Eletronuclear SA and private firms.

Other events are planned to coincide with the announcement of the possible sites for the new plants. In March, a course titled Key Issues in the World Nuclear Renaissance will be hosted in Rio de Janeiro by ABDAN, the Comissao Nacional de Energia Nuclear (CNEN), Eletronuclear, and the London-based World Nuclear University (WNU). In April, a forum on energy in the northeast will be held in Recife.

Sergio Dioletachi, an energy and climate consultant with the German Heinrich Boll Foundation, believes that civil-society opposition to the nuclear-energy projects in the northeast is growing. Dioletachi says that nuclear plants "do not serve the public interest as there are other alternative-energy sources that are much more efficient and really clean, such as wind energy, solar power, and biofuel."

Interestingly, Gov. Wagner's government announced in 2009 that the first industrial wind farm would be built in Caetite, Bahia, very close to a uranium mine operated by Industrias Nucleares do Brasil (INB). The facility will have the capacity to generate 700 MW of energy.

Many analysts say that nuclear energy will be a critical issue in the presidential campaign for the October 2010 elections. The PV candidate, Marina Silva, who was environment minister in the Lula administration for more than five years, has repeatedly expressed her opposition to new nuclear plants in Brazil. PT candidate Dilma Roussef, former minister of energy and mines, tends to support nuclear-energy expansion in Brazil. Sao Paulo Gov. Jose Serra, candidate for the Partido da Social Democracia Brasileira (PSDB), has not made his position clear.