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## Brazilian President Dilma Rousseff Proceeding with Nuclear Power despite Fukushima Accident

By Graziela Aronovich, Special to NotiEn

The disaster at the Fukushima Daiichi Nuclear Power Plant in Japan has increased pressure on the Brazilian government to justify the use of nuclear power, but there is little evidence that President Dilma Rousseff's administration plans to make any major changes to Brazil's nuclear-power program (*Programa Nuclear Brasileiro, PNB*). Rousseff has made no direct public comments about the PNB since the accident in Japan, but Secretary of Science and Technology Aloizio Mercadante reiterated the government's intention to continue the program, launched in 1985 with the inauguration of the Angra 1 power station during the administration of then President José Sarney (1985-1990).

"Nuclear energy is safe and clean, and Brazil will continue investing in this type of energy," said Mercadante, who reiterated that nuclear power plants are an integral element of the Plano Nacional de Energia (PNE 2030).

Rousseff's position on nuclear energy is similar to that of her predecessor, former President Luiz Inácio Lula da Silva (2003-2011). Rousseff, like Lula, views access to inexpensive energy as essential for modernization, and nuclear power is an important part of the mix. The introduction of nuclear energy in Brazil coincided with the end of military rule and a surge in economic development, which converted the South American country into one of the emerging economies along with China, Russia, and India.

Mercadante said his comments represent the official position of the Rousseff administration, which has declined to discuss the subject further with the press.

The Brazilian government's refusal to address the situation leaves many unanswered questions, including the safety of the Angra 1 and Angra 2 power stations. A major concern is the lack of a license for operating Angra 2.

Some revisions are taking place through the PNB, including efforts to bring plants into compliance with international standards. Internally, the appropriate government agencies are developing control and development directives for the national nuclear sector.

Amid these revisions, a great deal of uncertainty and fear remains in the wake of the Fukushima disaster. A major complication is that decisions regarding Brazil's nuclear policies are scattered throughout several agencies, and the general sentiment is that conditions are lacking

for a safe functioning of the nuclear facility in the city of Angra, site of Angra 1 and Angra 2 and future site of Angra 3.

### **Critics press government for answers**

Among those pressing the Rousseff government to answer questions are academics, environmentalists, and the specialized media, which continue to warn of the risks of nuclear power and push for transparency and a change in government policies. There have been a handful of protests and marches against nuclear power, some of which have been led by Greenpeace Brasil. The environmental organization is calling for an end to plans to build seven new plants and has asked the courts to block a license for the Angra 3 plant.

"Brazil does not need nuclear energy at all," said Dr. Luiz Pinguelli Rosa, a Brazilian nuclear physicist and a member of the faculty at the Universidade Federal do Rio de Janeiro (UFRJ). "Our country is not taking full advantage of alternative sources of clean energy, such as solar and wind power and sugar-based ethanol. We could be a global leader [in these types of energy]."

In an interview with NotiEn, Pinguelli Rosa, an expert on renewable energy, said nuclear energy currently supplies only 3% of Brazil's energy needs and could easily be phased out. "We do not need to run so many risks for so little," said the UFRJ professor, who also teaches at the Alberto Luiz Coimbra Institute (COPPE).

If Brazil insists on going forward with nuclear energy, Pinguelli Rosa said, authorities are going to have to urgently fix a number of serious flaws in the system, including inadequacies in evacuation plans in case of accidents and waste-disposal and storage issues.

"Nuclear energy is expensive and very dangerous, while renewable energy only needs government incentives to move forward," said Pinguelli Rosa.

The Japanese accident also caused some discomfort among Brazilian legislators, prompting the Senate to hold a special hearing to address both immediate and long-term concerns. The Senate appointed a special commission to study the safety of Brazil's nuclear power plants. As part of its first actions, the commission scheduled a visit to Angra. If any changes are to come to the PNB, it appears the impetus will come from the Senate and the Congress.

During discussion in the Senate, Sen. Lindbergh Farias of the Partido dos Trabalhadores (PT) expressed concerns about whether an adequate evacuation plan exists for residents of the community of Angra, home of the two existing nuclear power plants.

Sen. José Sarney, the former president (1985-1990) and now Senate president, stopped short of calling for comprehensive reforms but is pushing for an urgent discussion about nuclear energy after the accident in Japan. "If we didn't have any restrictions before, the situation in Japan will force us to give the matter a lot of thought," said Sarney, a member of the Partido do Movimento Democrático Brasileiro (PMDB).

Sarney is not certain that the accident will have a significant impact on the PNB and the existing facilities but anticipates closer scrutiny on future projects. He suggested that Brazilian

nuclear authorities would have to keep a close eye on the repercussions of the Japanese accident and include the results in a discussion with the scientific community. "It is clear that some actions will have to be taken to expand scrutiny of our nuclear system," said Sarney. "At the same time, the Brazilian nuclear authorities must analyze what happens in Japan and call on the scientists to debate it."

Eletronuclear--the state-owned company responsible for Angra 1, Angra 2, and the construction of Angra 3—is moving forward with several contingency plans and studies. The company is conducting a review of the terrain around the nuclear power stations, identifying options for escape routes, and developing more options for places to store deposits of deep nuclear waste.

In addition, Eletronuclear has contracted a foreign company to carry out a separate study to determine the risks in the area around the nuclear power plant. It has also proposed constructing piers for sea evacuation in case of an accident.

### **Brazil suffered nuclear emergency in 1987**

The Angra 1 and Angra 2 plants have not suffered any problems to date, at least none that have been made public. But Brazil suffered a nuclear emergency in September 1987, which forced authorities to take quick action. In a case that is listed among the worst nuclear disasters in history, a cesium-137 radioactive source was left in an abandoned clinic in the city of Goiânia, capital of the state of Goiás. Scavengers took the massive device and gouged out the iridium window, allowing high gamma radiation and a beautiful blue light to escape, and sold it to a junkyard owner.

"The blue glow of the small cylinder of cesium chloride that was inside the device made it appear very valuable, so it was broken into pieces and used for decorative or magical purposes, including rubbing on the skin. A six-year-old girl ingested some of it," said Marco Antônio Sperb Leite and L. David Roper in a study entitled *The Goiânia Radiation Incident: A Failure of Science and Society*.

The exposure to radioactive material resulted in four deaths. Another 245 people were found to have measurable traces of cesium chloride in their bodies and required treatment.

"The root cause of this incident appears to be lack of adequate accounting and inspection procedures for radioactive sources in Brazil; the organization charged with designing and executing such procedures is the same organization, which has close ties to the military that promotes the nuclear industry in Brazil. Also, deficiencies were evident in the handling of the incident," said the study.