

# EIR Science & Technology

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## Brazil's nuclear program: 'passport for the future'

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*Brazilian engineer Mario Sergio Paranhos de Lima Porto is interviewed by Marjorie Mazel Hecht, managing editor of '21st Century Science & Technology.'*

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*Mr. Paranhos, a naval engineer by training, joined the Brazilian nuclear program in 1975, working with Westinghouse in its joint venture with Brazil to build the Angra I nuclear plant. Before assuming his present job with the nuclear firm NUCLEN, he worked for a year on the nuclear submarine program. He now heads up NUCLEN's planning department, managing the scheduling of design and construction. NUCLEN is responsible for planning the construction of the nuclear power plants under the 1975 agreement with the West German government. Since September 1988, NUCLEN has been administered by Eletrobras, the state company responsible for planning all electrical installations in Brazil. The views he expresses here are his, and do not necessarily represent those of NUCLEN.*

**EIR:** Under an arrangement with Westinghouse, Brazil built one nuclear plant, Angra 1, and others are planned. What is the current situation?

**Paranhos:** We have the 620-megawatt Angra I in operation, a light water reactor, and there are two more plants under construction.

**EIR:** These new plants are part of an agreement with West Germany that Brazil made in 1975. What are the details of the agreement?

**Paranhos:** Originally, the West Germans were to provide Brazil with the means to complete the nuclear fuel cycle, including support for the design and construction of four power plants, with an option for four more. Also, they were to provide a plant for enrichment of uranium, a reprocessing plant for spent fuel, and a fuel fabrication plant. We do have

a big factory for building the reactor vessels, which is installed now and in operation, but it is doing work out of the nuclear field, since with only one power plant, there is not much work. This factory is doing submarine structures and I guess some work for Petrobras—the Brazilian petroleum company.

The agreement with the Germans was supposed to give us the complete transfer of technology for nuclear power plants. The company was KWU, now a division of Siemens.

**EIR:** When was Angra I built?

**Paranhos:** Construction started more or less in 1970, with the civil engineering work and the road to reach the site. With all the various delays, the plant did not get into operation until 1984. There were problems with the plant—problems with a steam generator design. There was a fire during the construction in the storage area where mainly the instrumentation was stored. That delayed the plant. And there were many other problems, for example, with the diesel engine, which is used for the plant's emergency power supply. After the plant was in operation, a section of the generator burned, which shut down the plant for almost one year. Then that was repaired and now the plant has been in operation for about two months.

Also, because of the various problems of Angra I, the construction of the two plants I am working on have had their budgets underfunded. The public started to joke about the plant, and the government was affected by that.

**EIR:** Are the new plants the same type of reactor?

**Paranhos:** Yes, but bigger—1,300 megawatts each plant.

**EIR:** That is about as big as they build nuclear plants.

**Paranhos:** The West German reference plant for our plants, is the Grafenheinfeld plant. But because of the delay in our construction, the design is not frozen; we are getting a lot of modifications. As time passes, there are some improvements in the design of the German plants, and they are proposing them to us. Some of them are accepted by the owner (Furnas), others have to be adopted because of licensing criteria.

**EIR:** What stage are the two 1,300-megawatt plants in?

**Paranhos:** Angra II is under construction, but on Angra III, we've only removed the rocks from the site—nothing more! The civil contractor is on site, but they are not doing much work. Although they have removed the rocks from the site, the government didn't decide on a budget for that plant. The last information that we have is that we have to postpone the start of Angra III for 18 months, which will make the completion date go to 1997. But II is under construction and is scheduled to be finished in mid-1994.

**EIR:** It's a very long time from 1975 to 1994!

**Paranhos:** Yes. And the 1994 date resulted from a study we did last October, assuming that certain conditions could be fulfilled. But *none* of those conditions has been fulfilled from the time of our study up to now! So this schedule that calls for completion of Angra II in July 1994 is not very firm.

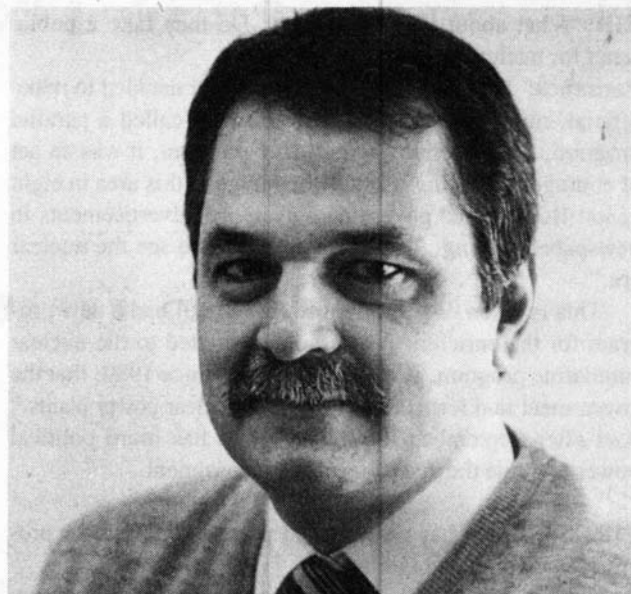
**EIR:** What is causing the delay?

**Paranhos:** The main reason for the delay is lack of money—especially the part that has to be given by the government. The part that is being financed through German banks is not suffering so much. Almost all the imported equipment for Angra II has been ordered or is in storage; these and the imported engineering have been financed through West German banks. But the part of this that has to be given by the Brazilian treasury has not been sufficient since 1982. So the plant is suffering delays because we are not able to buy equipment in the national market. We aren't able to put pressure on the subcontractor design company. We haven't been able up to now to hire the main building contractor—which is one of the biggest contracts, installing the pipes, and so on.

The idea is to have one building company to do the components, installation of pipes, and pipe construction. We can do this only when we have the money to pay. This was supposed to happen on Dec. 15 of last year, but this didn't happen.

**EIR:** No money?

**Paranhos:** No money. Also, the organizational situation changed last September, and we at NUCLEN are under a new holding company. And the owner, Furnas, is analyzing our previous bid evaluation for the construction contract and may do the bid again. This will give more delay.



*Mario Sergio Paranhos de Lima Porto*

**EIR:** What changed in 1982 to stop the funding and stop the program from proceeding at full speed?

**Paranhos:** This is related to the Third World situation with the International Monetary Fund. Since that year, we began to feel the effect of the IMF requirements and we have not had money for our development.

**EIR:** So, Brazil is paying its debt and there isn't enough money for nuclear plants.

**Paranhos:** Yes, and this is like a snowball. The population has received bad information about nuclear power. We have environmentalists, the greens, saying things in the press. As long as we didn't have an operating nuclear plant to show them—because Angra I had problems—it has been difficult for us. Also, the government is very timid. The attitude from the top down of the nuclear community is timid. They never said anything about nuclear power in a firm way, to show the people that there are arguments to counter the lies of the environmentalists.

And the active people who are against nuclear power get more and more and more media space. And today, the population is completely influenced by the media—completely against nuclear power plants.

**EIR:** There is a similar situation in this country. . . .

**Paranhos:** There is a lot of contact between students and some of the scientific community who are anti-nuclear. One or two of these guys is continually talking and writing things against nuclear power plants. And no one from the other side is doing any kind of counter-argumentation. So, these people are writing and saying things on television, and no one says anything to criticize their misinformation.

**EIR:** What about the government. Do they take a public stand for nuclear power?

**Paranhos:** In 1987, when the government decided to make official, more or less, what was normally called a parallel program, the Brazilian nuclear navy program, it was an act of courage! It was the first act of courage in this area in eight years! Because the government even put advertisements in newspapers saying, "Now, we are going to see the nuclear era."

This is when they announced that Brazil had a new program for the enrichment of uranium, related to the nuclear submarine program. It was the first time since 1980, that the government said formally, "We are for nuclear power plants." And after September 1987, this group has more political power to guide the decisions of the government.

**EIR:** So, Brazil has actually had two parallel nuclear programs—civilian and military?

**Paranhos:** Yes. Because there were two separate programs, the military program became known as "the parallel program." But since September 1988, what the government did was really to say, "We have a *Brazilian program*." This changed things, putting the full fuel cycle under the Brazilian Nuclear Commission, which is joined with the military program, and putting the power plants under the administration of Eletrobras, the government electrical company. By doing this, the government is saying, we no longer have two programs, but a Brazilian national nuclear program.

The new Nuclebras agency, called Industrias Nucleares Brasileiras (INB) comes under the Brazilian Nuclear Commission; but NUCLEN is not administered by that agency. We are regulated and licensed by the commission, but we now come under the administration of Eletrobras.

**EIR:** That sounds good—if the money is there to keep these things going. . . .

**Paranhos:** And if the people who are in the military program really think that we have to work as a whole, and not in isolated groups. Because now, with the Brazilian Nuclear Commission, they have the political power to steer the government into solutions of nuclear power. But it seems that they are not very much interested in what's going to happen with the power plants that fall under the West German agreement.

**EIR:** Who started the nuclear navy program?

**Paranhos:** Adm. Othor Luis Pinheiro da Silva took up this idea back in 1976. He went to the United States and got a degree in nuclear engineering. Then he returned and began work in the research center of the Air Force. He launched the idea of a nuclear navy and convinced an admiral or two of it (at that time he was not an admiral). They started with a very small group. I remember this because in 1981, I was working for Westinghouse in the construction of Angra I, not in the

German program. He invited me to join the parallel program. I worked for him for about 11 months. He is a very hard worker.

His ideas started with a small group, which got in touch with the Instituto de Pesquisas Nucleares (IPEN) in São Paulo. They got support from within the Navy and in the Nuclear Commission. Nobody knew exactly what they were doing, in fact until 1981. At that time, the Minister of the Navy said everything in a newspaper interview.

I think at that time, he was not supposed to do that. I remember, during those 11 months I was working for Othor, he asked me not to say very much about what I was doing. So when I saw a complete page in the Sunday newspaper about the submarine and other things, it was a surprise. I found out later on that they got a lot of criticism, because the program was not official. However, it was supported from 1981 until 1987, when they finally announced that they had achieved the enrichment of uranium. That was a proud day for everyone who worked in the nuclear industry. Even those of us who didn't work on that program saw that was a good thing—an achievement. The experience in this program will be shared for the benefit of the whole continent.

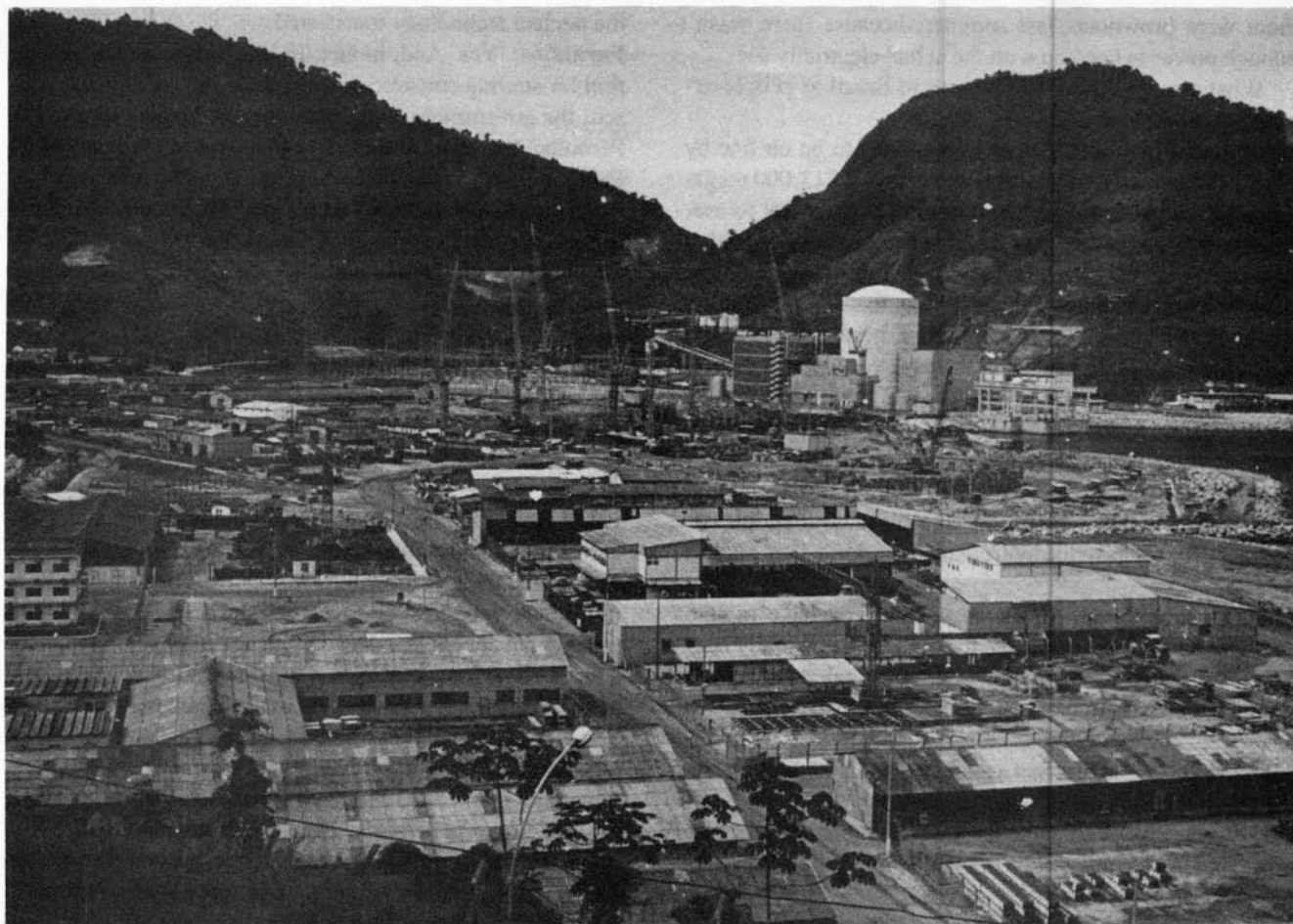
Othor began with a small group, and many people called him crazy. Now he has accomplished a great deal. I think he will succeed because he is a very good worker. He is a man that has really good intentions: His objective is to give to the nation that technology. He will succeed in that, I believe. But they have to bring the civilian and military programs together.

**EIR:** In this country, in the 1950s when Admiral Rickover began the Nuclear Navy, the program was secret. But it was out of the submarine program that the American civilian nuclear industry got its start. The first commercial nuclear plant ever built here was with the collaboration of the Atomic Energy Commission, which had previously done only the submarines and the military work. In Brazil, your civilian program began first, so you must have a whole corps of people who have worked on the civilian nuclear program since the 1970s.

**Paranhos:** Yes, there is a bunch of people, but since 1984-85, we have been losing many people. Our company really has a lack of people now, but because of all this financial trouble, we are not allowed to hire anybody. So we are running into difficulty in some areas, because we don't have sufficient technical people to do the work.

In some areas we have a complete lack of people. For example, if we received the whole budget to finish the plant in four years, we would run into a problem! Our estimate is that we will have to hire more than 100 people to finish this job—in the design and planning part alone.

**EIR:** What about in the military part of the program? Have they trained people?



Dennis Small

*The Angra I nuclear plant. But will there be an Angra II and III?*

**Paranhos:** I don't have much information about what's going on on the military side, because they are not saying very much about it. They established a company that is hiring people. Part of their budget is the navy budget and part, I think, is given through the national Nuclear Commission. They are not having problems with money, and they are not dependent on the IMF. However, they have less money than we have spent up to now in our program. Recently, some congressmen started to argue about how much is being spent. I don't know the exact amount.

**EIR:** In terms of the power needs of Brazil, if you have one 620-megawatt plant in operation, and have delayed the 2,600 megawatts that were planned, is there a power shortage?

**Paranhos:** We don't have one yet, but I think we are going to get into this in one or two years. It's expected. In fact, the last plan that Eletrobras made, which was called the Plano 2010, included those two plants, Angra II and Angra III, in the inventory for 1992! This means that Eletrobras calculated the power of Angra II and Angra III in the energy needs for 1992-93!

**EIR:** That's a lot of missing power.

**Paranhos:** Yes, we're going to miss 2,600 megawatts. And there is no other hydroplant scheduled to be ready in that time period.

**EIR:** Where are the sites for Angra I and II?

**Paranhos:** These plants are between Rio and São Paulo, 200 kilometers from Rio. Angra I, which has 620 megawatts now on line, alone represents 20% of the power in the city of Rio de Janeiro. So, I think we're going to have problems.

**EIR:** How fast is the rate of electricity demand growing in Brazil?

**Paranhos:** Last year, the growth in demand was 15.8%; in 1987 it was 8.2%; in 1986 it was 8.5%; and in 1985 it was 10%.

**EIR:** That's very high. In the United States, with post-industrialism, only a 2% growth rate was planned for the 1980s. But the actual demand here last year was a 4-5% growth rate in some areas; in New England and in the New York area,

there were brownouts last summer, because there wasn't enough power to keep up with the actual electricity use.

What do you expect will happen in Brazil as people experience power shortages?

**Paranhos:** There are a lot of hydroplants to be on line by 1995. We have a potential reserve in hydro of 213,000 megawatts. Of course, some of these are not economical to use, because they are in the Amazon. It is not very economical to send the energy up from there, and there is not much industry in the Amazon. And one of the plants that is now starting operation is getting a lot of discussion, because the density of energy per square kilometer is very, very low; it's comparable to solar energy! So, it's very inefficient. Further, by the beginning of the next century we are expecting not to have any more hydroplants.

Of course, nuclear power plants will have to be in operation to enable development to take place. But people are saying, "No, we have the hydroplants, we don't need nuclear energy."

Another problem, of course, is that you have to start planning for nuclear plants much earlier than you really need them on line, because you don't go to the nuclear power just like that—in two minutes!

**EIR:** So you are saying that a nuclear plant is actually cheaper than an inefficient hydroplant.

**Paranhos:** Yes. Although, because of our practical problem, of taking so many years to build Angra I, its cost is very high.

**EIR:** What is your view of the future of nuclear power in Brazil? Do you think you will overcome the political obstacles to proceeding with the German program? Is it simply a question of money, or now that you have begun this indigenous capability, do you think that the government doesn't want to complete the agreement?

**Paranhos:** I think that the government has not really made any decision on this. They have doubts; especially because of the situation with public opinion. Because of all these problems, the transfer of technology was not completely fulfilled; one plant is not even ready. The agreement that was supposed to give us the whole technology, the full fuel cycle. But if we don't build any other plants, this knowhow will not be totally transferred. In the first plant, much of the technology is wholly German. Some of the design, some of the systems of the nuclear part of the plant, are not completely transferred to us. The plant has about 120 systems; 90% of these systems are designed by us, but the main part—the nuclear island—is designed by Siemens. And this nuclear part was supposed to be transferred only after the fourth plant was built.

**EIR:** So that means that if you don't build all four plants in collaboration with the West Germans, you never get any of

the nuclear technology transferred.

**Paranhos:** Yes. And, in fact, in 1982, after the bid evaluation for starting construction was done and the site was chosen, the government completely canceled plants III and IV. Perouibe, the name of those two plants, is in the state of São Paulo, not very far from the Angra plants, 200 miles south of those plants. The factory I mentioned was supposed to build the steam generator, the main vessel, the reactor vessel, for the plant, but all this stopped.

**EIR:** That's a frustrating situation. . . .

**Paranhos:** A very frustrating situation. Because many of the people there are leaving the company, because they don't see a future for their work, and they are looking for other jobs.

**EIR:** How did the Carter nonproliferation act affect the agreement that Brazil had with West Germany?

**Paranhos:** Just at the beginning of the Carter administration, there was great pressure put on the Brazilian government to get the nuclear deal canceled. Carter started to make a lot of conditions, and even some threats. I have real reason to think that Carter posed to Brazil threats that the United States would put strong customs barriers against the import of Brazilian products—and even German products—in American markets. Other threats were to block export from the U.S. of products that Brazil and Germany needed; to block the access of Brazil to the international market; to stop the supply of enriched uranium that was already contracted with West Germany (our uranium was already contracted through the United States for Angra I). And there was a demagogic threat of taking the troops out of West Germany. This was just talk, to pressure cancellation of the project.

**EIR:** More recently, I think the World Bank has intervened.

**Paranhos:** Yes, the World Bank had promised \$500 million to help the financial problems of Electrobras. That money opened up the possibility of other money from other banks, in Japan, for instance. After the World Bank released that money, some other loans were supposed to be given to us to match that amount. This \$500 million was in discussion for a long time. And then when the nuclear program became the responsibility of Electrobras, the World Bank said that it would not give the money until they clarified this question. As a matter of fact, they were saying that during the week that was the final week to release the money. The president of Electrobras came here to the United States to discuss this problem. But it's not solved—at least it wasn't when I left Brazil.

**EIR:** Are they claiming they are not giving the money to Electrobras because of the nuclear plants?

**Paranhos:** Yes. They are afraid that Electrobras will use this money for nuclear power, and the money is not supposed

to be used for that!

**EIR:** Why not?

**Paranhos:** Because this was an agreement before Electrobras took over the nuclear program, and the money was supposed to solve some cash problems with equipment and transmission lines, and a lot of small cash problems that the electrical system in Brazil was having. Now, the World Bank said that they don't know if this money will be used for this purpose, and they want the facts about the nuclear plants in the economics of Electrobras's situation. There are a lot of questions about this.

**EIR:** So, they are really trying to stop the nuclear program.

**Paranhos:** They are trying to stop it. Because they were saying other things before the nuclear power issue in order not to release the money. For example, they said they wouldn't do it because of the situation in the Amazon, the people burning forests and things like that.

**EIR:** So, your only hope then is that the government will come through with the budget for the unfinished plants.

**Paranhos:** Yes, we have a hope this year that we are going to get the budget. The budget that is scheduled for us is something around \$300 million, to take the program through 1989—to move it forward. And this includes ordering of equipment, contracting the main building company, contracting the instrumentation company to do instrumentation work. Also, there is a lot of other equipment that has to be ordered in Germany and Brazil.

We have some hope, because in the budget that was voted in the Congress at the end of last year, it seems that our budget was passed. But there are two different things: one is to have a budget approved, and the other is to get the money. If we get that money that was approved in the congress, we can go ahead and finish Angra II.

**EIR:** And then, what about number three?

**Paranhos:** That's the big question. Angra III, they said, should be postponed for one and a half years. Which means that we finish it in 1997. When I left Brazil, we didn't have much information about the situation with Angra III. Nothing was allocated for it. And now, when the World Bank asked to make an economic study of Angra III, at first the government said that this was an interference in our sovereignty, and that it would not do any kind of work on this. But then the government decided to go ahead with the study. When I left Brazil in the middle of January, the study was almost ready to be sent to the World Bank.

Now perhaps the World Bank will not accept the plan, and ask for more explanations, and continue to delay.

**EIR:** But even if you complete II and then III of the Angra plan, the agreement with West Germany to complete the fuel

cycle means building an enrichment plant, a processing plant, a fuel fabrication plant.

**Paranhos:** This is one thing that is very complicated. Because in the decree that the government established in September 1988, they even eliminated the company that was supposed to do this enrichment. But as far as I know, this company is not finished yet—it's still alive. . . .

Also, the government decree said that it would privatize the company that makes the vessels. This big factory is under the National Nuclear Commission now, and the idea is that if any Brazilian company would be interested in running it, it would be privatized.

**EIR:** It seems to me that if Brazil is to progress as an industrial nation, that you would need more nuclear power.

**Paranhos:** For sure. Because nuclear power is not only for the supply of energy; it is a step up, a high technology that will open other branches of technology. Even in my area, as a study I did showed, the nuclear industry technologies and methods are affecting other industries—for example, the concepts of quality assurance. So, what the Brazilian government still doesn't realize is that nuclear power is more than just giving electricity to the people. This is like a passport for the future!

**EIR:** That's true. The nuclear program gives you the trained workforce and the research staff to work on new advanced technologies. If you don't do this, your industries will always be antiquated and more primitive than necessary.

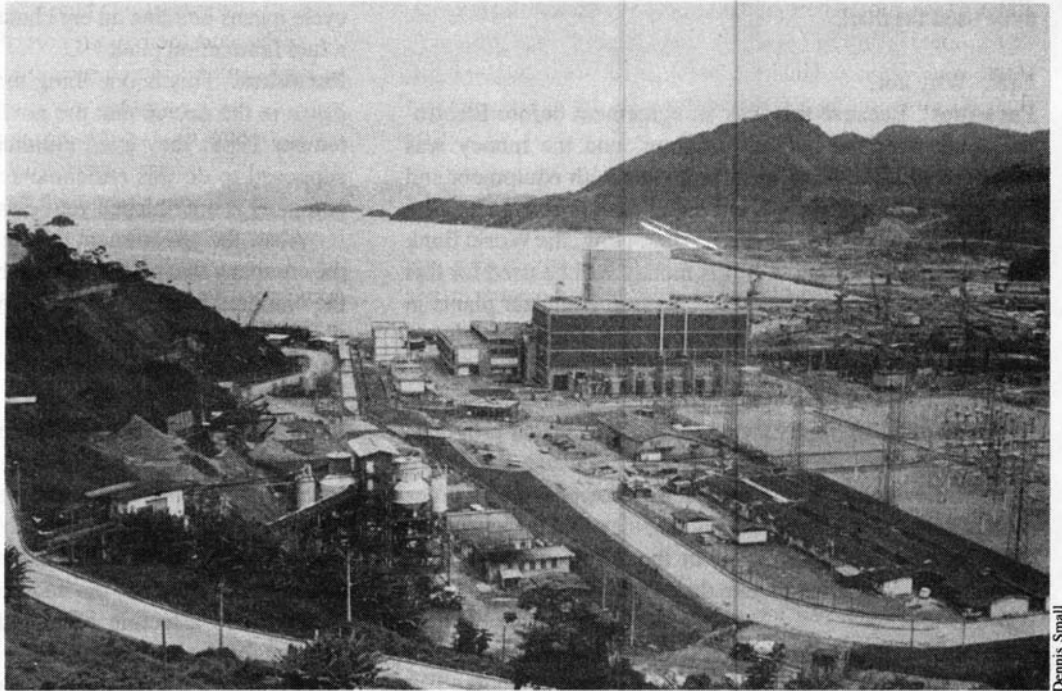
**Paranhos:** Yes, and there are many other applications in nuclear energy and research. For us, there is the very important field—food irradiation. The amount of fish protein that is eaten by the average Brazilian—by all Ibero-Americans—is very low. And with food irradiation technology, we could put this protein source in the middle of the country without needing any investment in refrigeration or refrigerated trucks.

**EIR:** And now, even in a country like Brazil, which has so much agriculture and potential, there are many who are going hungry.

**Paranhos:** We are exporting food in order to pay the debt! Part of the difficulty in preventing this is the anti-nuclear movement. I think you have heard of an accident we had in 1987 in Goiania.

**EIR:** Yes, it was front-page news. [A discarded X-ray machine was taken apart in a junk yard, and the irradiation source was passed around and eventually killed and injured people.]

**Paranhos:** That accident really goes to show how a lack of knowledge on the part of the technicians can do harm. But it is amazing that immediately after that incident, the media turned the discussion to the supposed danger of nuclear power plants. It is a very well organized campaign.



*Brazil's first nuclear plant, the Angra 1, which went into operation in 1984.*

Dennis Small

**EIR:** Who runs this campaign in Brazil—the environmentalist campaign?

**Paranhos:** Mainly the Greens—there is a Green Party that is growing. It is growing very fast.

**EIR:** Where is it based?

**Paranhos:** They start in the urban centers, mainly promoted by actors and actresses.

**EIR:** Jane Fondas.

**Paranhos:** Yes—like that. There is one actress that was in a very famous Brazilian movie based on a novel. This actress, Lucilia Santos, is very active, and she started to organize this movement. But today they are already in the rural areas. Even in the interior they are starting to build support.

**EIR:** Is there money supporting them from outside the country?

**Paranhos:** It might be, because of the way they are growing.

**EIR:** What do the people in your nuclear association do to try and counter the propaganda?

**Paranhos:** I think we are still very timid. The people are still afraid to say things clearly, but are just nibbling at the edges. In some cases these Greens have to be fought in a very clear arena. We have to say what they represent—what is behind them, and make polemics against them.

The Brazilian Nuclear Association is trying to change, and it seems that they will reach this point, but in a very slow process. They recognize that the public information concern-

ing nuclear power plants is very bad. But the strategy they have adopted is that they have to call people to discuss, show them that nuclear power is a good thing for society, and to have some kind of seminars, to contact the press—and not criticize the press. When something happens, they will write a letter to the editor trying to explain, but they don't want to make any polemics. Okay, there is something we think is bad in the press, then let's write a letter to explain the facts, but without polemicizing. I don't think this does any good. But anyway, I think that theirs is an honest effort and the only one being made. Although I have different opinions concerning the methods, I am supporting them and working with them.

**EIR:** In this country, nice "education" hasn't made much of an impact. Because unless you really fight and call the names. . . .

**Paranhos:** There is one name that has to be fought against in Brazil now. I am referring to Jose Goldemberg, the head of the University of São Paulo. He is one of the main opponents of nuclear power.

**EIR:** He is a physicist, isn't he?

**Paranhos:** Yes. I have an article of his from several years ago in which he even says that he would like not to be a physicist because of nuclear power plants, because of the way nuclear power is being used in the world. I don't know exactly what his objective is. But I do know that this man has become more popular since 1975-76, mainly because of his opposition to nuclear power.

**EIR:** He is quoted here in the U.S., in the scientific journals he is quoted.

**Paranhos:** Yes, and he has gained political ground with this flag, because this is a popular thing, to be against nuclear power. It seems to him that nobody wants it, so he is using that to gain politically. Goldemberg is the most important individual that we think we should fight—that we should argue with and polemicize against, and make him accountable for his statements—including his statements concerning this problem of the World Bank. He wrote a newspaper article saying that it is okay that the World Bank is withholding the \$500 million—because it is their money.

**EIR:** The World Bank meanwhile is killing people. . . . If the United States had built the number of nuclear plants planned in the Atoms for Peace period, at least 250 million people would still be alive today—these are people who died because their nation did not have the economic advantage that these nuclear power plants would have brought. . . .

**Paranhos:** There is an argument the anti-nuclear people use, which is really very easy to refute. They say, “You planned so many plants in 1975,” and they said that the problem was (as we say in Portuguese) megalomania, or too much bigness. And they say, “You planned such and such plants, you don’t have any of those plants—only one—and nothing has happened. Where is the lack of energy, where was the need for the energy of those plants?”

But they forgot a simple problem. What about the energy that doesn’t reach some regions of the country, and people are using wood and biomass, and what about the cultivation of food—it is taking place far away from the cities because of this lack of energy.

**EIR:** Yours is a rich country in terms of resources, so to have people in poverty, people burning biomass in the 20th century is really. . . .

**Paranhos:** Not to mention the gasohol problem. That is another big problem. Today they have big distilleries and big plants—they don’t know what to do with them.

**EIR:** What does Dr. Goldemberg say about the energy situation in Brazil?

**Paranhos:** Some years ago there was a meeting of the Brazilian Society for the Advancement of Science, of which Goldemberg was once the president. At that meeting, he said that “all this business about energy in Brazil is only because the big construction companies push it—because they need jobs. We don’t really need this energy, and we can solve all the problems of our lack of energy by conserving energy.”

If you pick up the things he says from 1975 until today, you will see clearly that he is going according to the way the wind is blowing. He always changes his speech a little according to the way the wind is blowing. In fact there is a Congresswoman that has all this written, and last November

some of our friends met her in Brasilia. Speaking of Goldemberg, she said she has a report of all his speeches from 1975 to 1988, and it’s incredible how he changes his mind. Including, she said, once in a conference in Europe, she and some of her friends took the Goldemberg record along and distributed it in three languages at the congress. It was very effective, and Goldemberg got a little demoralized.

**EIR:** What you need to do is counter their propaganda with some positive program, and what we spoke of before—the mass production of nuclear power plants. Perhaps slightly smaller plants that are grouped, so that you can build them indigenously and get them operating in some of these areas. Is that what you were thinking of?

**Paranhos:** We are thinking of holding a seminar on this subject in Brazil to bring this idea under discussion, spread it, and develop it, and to lay out all of the options for the nuclear industry in Brazil.

**EIR:** What about collaboration with the Argentines?

**Paranhos:** It is a must. In the President’s speech where he announced the enrichment of uranium through the military and the Instituto de Perquisas Nucleares, he proposed this. And it is really necessary because Brazil and Argentina have experience. They have to join together in a complementary force for this.

**EIR:** Because then—you have the trained people—you could go to the rest of the continent. . . .

**Paranhos:** In fact this collaboration is starting. There is a committee of Brazilian and Argentine industrial people. I am not really informed what is going on, but I know that some people in our company are participating on this committee. One of our directors, I think, is the representative of Brazil. Having meetings between Argentine industrial people and Brazilian industrial people to achieve this collaboration. And we must do *much* more than that. We must really develop cooperation between Argentina and Brazil and spread this to the other countries.

**EIR:** Peru has just opened a research reactor. I am sure that you can move the program out, throughout the continent.

**Paranhos:** Yes, I am working on a report that suggests the formation of a central Ibero-American nuclear institute in Brazil or Argentina, because we already have a basis for collaboration.

**EIR:** If the countries go with the Greens and the environmentalism that they have imported from the West, people will die—more and more people will die.

**Paranhos:** We import all bad ideas. The big problem is that the Greens support ideas that are sympathetic to the public, but their real objectives are hidden, and helped by the media, they go on to pursue their evil goals.