

# Brazil and the new nuclear boom: a lesson in 'Listian' economics

by Lorenzo Carrasco

Before an audience of 300 people attending the inaugural session of the Third General Congress of the Brazilian Nuclear Energy Association (ABEN), held in Rio de Janeiro on July 23-27, ABEN President Guilherme Camargo addressed the challenge which Brazil's nuclear energy sector faces in the 1990s and whether it can function "in the service of society."

Pointing to the dramatic changes in Eastern Europe, Camargo underscored that the "reunification of Germany opens the door to an anticipated new nuclear boom." He reported that new nuclear plants are already being planned, in the short term, for East Germany, and that large investments will be required in the Eastern European nations as well as the Soviet Union to modernize their obsolete nuclear plants.

Indicating that France and Germany will undoubtedly lead the way in capturing these new markets, Camargo explained that "these are the results reaped by those countries which invested in strengthening their physical economy, in brain power, in capital goods and infrastructure, as in the tradition of the French Ecole Polytechnique of Lazare Carnot in the 18th century, and Friedrich List's German school of economics in the 19th century."

Among those who heard Camargo's speech were members of Brazil's nuclear elite, including representatives of the Ministry of Infrastructure, the Secretariat of Strategic Affairs of the Presidency, as well as other high-level authorities from the nation's nuclear sector. The political significance of the speech was heightened by the fact that the government of President Fernando Collor de Mello is about to release the results of a special presidential commission established to outline new goals for the Brazilian nuclear program. The anti-nuclear lobby, led particularly by the U.S. State Department, has been exerting fierce pressures on Brazil, demanding that the government sign the Nuclear Non-Proliferation Treaty and limit the nation's technological development.

There were several intense moments during the discussions at the congress, whose theme was "Brazil in the 1990s: Nuclear Energy at the Service of Society." One such moment occurred during an analysis of the Collor government's approach to nuclear energy, when Mr. Aniello Puziello, director of FURNAS, Ibero-America's largest electricity-generating company, demanded that the government immediately

decide to invest in the resources necessary to finish construction of the Angra II and Angra III nuclear plants.

Another high point was the discussion of the use of advanced, small-scale reactors as a means of generating large blocs of energy, including in Brazil's Northeast—a program which could help integrate this region into the nation and solve its serious energy and development problems. Participating in this debate, too, were representatives of the São Paulo Research Institute (IPEN), which has made the major technical breakthroughs in nuclear fuel enrichment and small-scale plants, members of other high-level nuclear institutes, and foreign specialists in this kind of reactor.

The congress also examined the results of 15 years of the Brazil-Germany Nuclear Accord. Participants, including several Brazilian ministerial representatives and nuclear authorities, were emphatic on the agreement's crucial importance, adding, however, that it must return to its original inspiration as an instrument of North-South cooperation based on principles of respecting national sovereignty and assisting genuine development and technology transfer.

In sum, the Third General Nuclear Energy Congress, was a complete success, and as ABEN President Camargo said in closing, "despite all of the international and domestic pressures and intrigues, which oftentimes contaminate even the nuclear sector, nuclear energy could become a powerful instrument of redemption for the Brazilian people who detest poverty and social underdevelopment—a tool to install in the country an economic system based on social justice and defense of the inalienable rights and dignity of the individual."

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## Documentation

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*Excerpts of the speech given by Guilherme Camargo, president of the Brazilian Nuclear Energy Association (ABEN), at the opening of that organization's Third General Congress, held in Rio de Janeiro, July 23-27. Subheads have been added.*

. . . I would like to say a few words about the central theme of our Congress—"Brazil in the 1990s; Nuclear Energy at the

Service of Society”—which, rather than being an absolute certainty, is something which has to be asked about (or worried about) during the five days of this event.

However, before going into that, it is necessary to put into focus the world economic scenario and nuclear energy's participation within it. The world today is going through accentuated social, political, economic, and cultural transformations. On the political-economic plane, we observe an unprecedented crisis, marked by the decline of the traditional economic systems. On the one side, there is liberal capitalism inspired by Adam Smith, a system incapable of promoting the common good and social justice, and, on the other side, the Marxist-inspired statist economy, based on collectivism which inhibits creativity and individual freedom.

The decline of these economic systems has sparked profound political and social conflicts, some of them marked by explosions of violence like those which recently took place in China, Romania, Azerbaijan, and Panama, while others are carried out surprisingly spontaneously and naturally, such as the political changes in Czechoslovakia and East Germany.

New world economic forces, represented by Japan, West Germany, and France, are emerging [which are] immune to the economic and political crisis orchestrated by the two superpowers. On the other side, the poverty and marginalization of Third World peoples is intensifying. The developing nations struggle for their own survival under the unbearable weight of their foreign debts, subjected to enslavement and dehumanization by the big powers.

In other words, the world power balance is shifting. The East-West conflict ends and North-South polarization increases, or better said, the conflict between rich and poor nations—where the former try to maintain their hegemony over the rest.

### **Technology access is the key**

In this new geopolitical scenario, new instruments for affirmation of international power are being created. The first of those relevant to our analysis is access to state-of-the-art technologies and the most recent scientific breakthroughs. Superconductors and nuclear technology are becoming important allies in this dispute.

There is full recognition today that without access to these new technologies, no nation would be able to move up the steps in the direction of the First World.

Another important piece in this world chess game is the environmental question. The ecological question—extending far beyond the limits of just and natural concern with protecting and improving the human species—is taking on the attributes of a new ideology and even a religion.

In our opinion, we are dealing with a political-cultural phenomenon born in the womb of the counterculture, stemming from ideological disillusionment and the discrediting of science, which began in the early 1960s. Whether intentional

or not, the fact is that the world ecological movement has been backed with billions of dollars in investments from the industrialized countries for publicity campaigns and in multinational environmentalist organizations, becoming a powerful instrument for maintaining the international *status quo*.

Poverty is the factor which most contributes to the degradation of the environment. This was one of the main conclusions of the World Conference on Atmospheric Changes, held in Toronto in 1988. The energy question could readily prove that. Some African countries obtain up to 70% of their energy balances from burning firewood. If we deprived those peoples of firewood consumption—on the grounds of protecting the environment—millions of people would die. If, on the other hand, we provided these countries with other, less primitive energy options, development, with environmental protection, would take place.

The path taken by the developed nations was: high levels of industrialization, intense technological development, high per capita energy consumption and solid national infrastructures. Environmental protection is related to economic and social development. When, on the pretext of economic concerns, we are pressured not to exploit our mineral reserves, not to build roads or nuclear and hydroelectric plants; when we are pressured to remain as a big agrarian country, full of untouched virgin forests, we are giving in to the slogan: “Do as I say, not as I do.”

### **A new world order**

All these changes can still mean the beginning of a new world order characterized by the resumption of development. We do not think such optimism is unfounded.

The profound and overwhelming changes in Eastern Europe, notably German reunification, certainly will lead to a development surge on that continent, shown by massive investments in infrastructure and in training skilled personnel. In order to reestablish the socio-economic levels of the Eastern European countries, we can expect [thousands of] kilometers of modern railroads to be built, complete canal transport integration of Europe to be sought, and large investments in electricity generation and distribution systems to be necessary.

This will be the natural environment for a resurgence of worldwide nuclear activities.

The world is now living amidst energy stagnation, caused mainly by the economic crisis I spoke of. This stagnation also affects the world market for nuclear plants and nuclear fuel. The developed countries are, however, preparing themselves for an imminent revitalization of the international nuclear industry. Such a new nuclear boom would be marked by the launching of new products—among which we stress the so-called advanced reactors, which are more secure, more efficient and more available and easier to operate.

A broad movement of association of the large international nuclear suppliers is also under way. New companies,

mergers of companies, joint ventures, etc., are appearing in Europe as well as the United States, looking to gain advantages in conquering those markets.

The reunification of Germany opens the door for an anticipated new nuclear boom. New nuclear plants are being planned in the short term for East Germany. Massive investments will be necessary in Eastern Europe as well as in the Soviet Union, for the technological recovery and modernization of obsolete and outmoded nuclear plants. France and West Germany will certainly be in the lead [in capturing] these new and formidable markets. This is the result reaped by those nations which invested in strengthening their physical economy, in brain power, in capital goods and infrastructure, as in the tradition of the French Ecole Polytechnique of Lazare Carnot in the 18th century, and Friedrich List's German school of economics in the 19th century. . . .

Currently, close to 17% of all electrical energy produced in the world is generated by nuclear plants. In 1970, this participation was only 1.6%, which shows that nuclear energy is the most rapidly growing source in the world. Today, there are close to 430 nuclear plants operating in 26 countries, with an installed capacity of close to 310,000 MW. Ninety-four percent of this installed capacity is found in industrialized nations; 3% in developing and Eastern European nations; and only 3% in the remaining developing-sector nations. There is

growing international recognition that nuclear energy is the safest and most non-polluting source of energy. . . .

### A look at the Brazilian situation

And how are we doing in Brazil?

Without question, we face today a moment of decision regarding nuclear energy. If on the one hand we have been able to build up a reasonable level of infrastructure for our national nuclear energy program, on the other hand, the outlook for this program's success is uncertain, given the enormous international pressures and the growing difficulties of public acceptance, on top of a tremendous lack of material and financial resources imposed on the country. . . .

On the political level, we must reaffirm the essentially peaceful vocation of the Brazilian nation, seen in its respect for the sovereignty of nations, its search for regional integration, its rejection of any ambition for expansionism or hegemony, and its endorsement of negotiated solutions to international conflicts. . . .

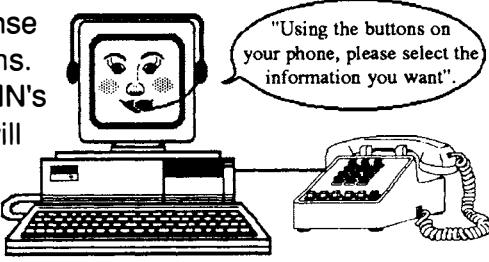
In the nuclear energy area, this orientation is clearly substantiated in the new Brazilian Constitution, which states that "all nuclear activity within the national territory will only be allowed for peaceful purposes and by the authority of the National Congress. . . ."

By statute, ABEN rejects any non-peaceful uses of nucle-

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ar energy. We also vehemently reject any type of international pressures against our national technological development. Within this principle, we defend Brazil's position of not signing the Nuclear Non-Proliferation Treaty, as we consider it to be a discriminatory, hegemonist, and armamentist document. . . .

International experience has plainly shown that a successful nuclear program represents a large-scale undertaking, on a national level. . . . The technological consolidation of these activities in Brazil will only occur through the creation of a large body of qualified personnel, which will allow us to reach the apex of research and development in new nuclear technologies. . . . In the nuclear sector, we stopped investing in the training of specialized technical personnel 10 years ago. . . .

Taking into account the country's current difficulties, we cannot give in to the pragmatism of starting new projects and programs without the backup of human resources in sufficient quantity and quality. In the end, investments in personnel training and development are those which give the largest and most rapid return. . . .

The decade of the '90s will certainly be a vital one for the future of our country.

Will we affirm ourselves as an informed, developed and sovereign nation, or will we descend into the depths of economic disorder, speculation, misery and social inequality?

I believe that the nuclear question is intimately linked to this question.

Will we continue to be an agrarian country, dominated by industries of extraction and basic transformation? Or will we be a technologically industrialized nation, in which the electronics, chemical, computer and highly sophisticated capital goods industries can flourish?

. . . If it wishes, Brazil can be a nuclearly developed nation by the year 2000. A clear decision by the government is required to attain this goal. To do so, we should accelerate our technological and scientific programs. We should seek international cooperation, primarily with our South American neighbors, like Argentina and Peru. A Latin American common market for [marketing] of nuclear and technological products, is possible today.

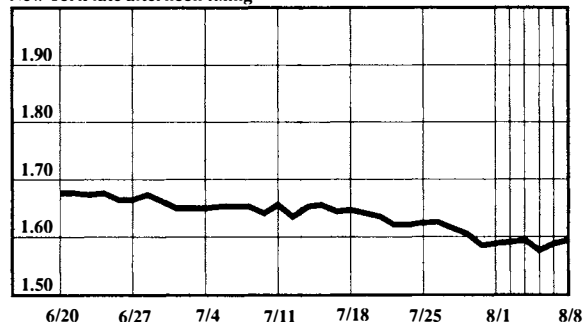
We believe that our country can overcome its temporary crisis; we are confident in the recovery of the economy and the resumption of development, in a program which could be the Latin American counterpart of Eastern Europe's recovery—a program which encourages investment in the physical economy, the building of railroads, highways, hospitals, mechanization of agriculture, rural integration and accelerated building of new hydroelectric, nuclear as well as conventional thermal plants.

In this then, we can remove the question mark and affirm with confidence "Brazil in the 1990s: Yes to nuclear energy in the service of society."

## Currency Rates

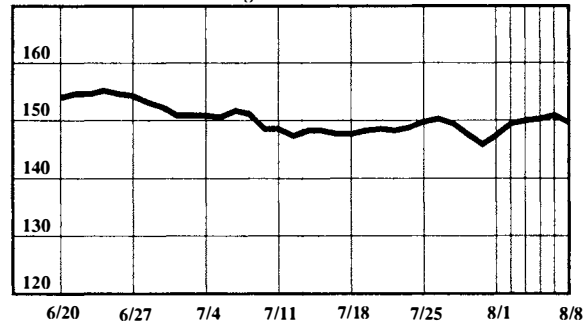
### The dollar in deutschemarks

New York late afternoon fixing



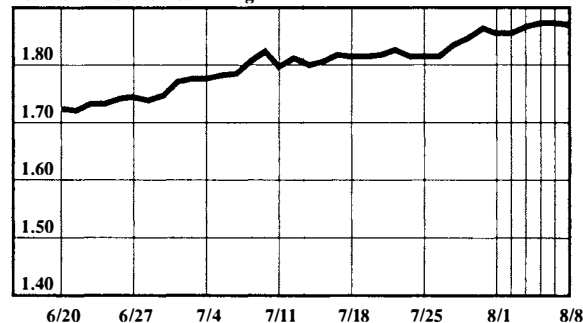
### The dollar in yen

New York late afternoon fixing



### The British pound in dollars

New York late afternoon fixing



### The dollar in Swiss francs

New York late afternoon fixing

