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2 November 1978

MEMORANDUM FOR: Mr. John Despres, NIO/NP

SUBJECT : The Brazil-FRG Nuclear Accord: A Current Assessment

Attached for transmittal to Assistant Secretary Pickering is the material he requested as a follow-up on his 27 October briefing. The memorandum was prepared by [redacted] and was coordinated with both (b)(3) (b)(6) the [redacted] analyst in ORPA. (b)(3)

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The Brazil-FRG Nuclear Accord: A Current Assessment

The framework nuclear cooperation agreement signed with West Germany in 1975 is in serious trouble. The accord, which called for Brazilian purchase of eight 1245 MW pressurized light water type reactors (PWRs) by 1990 and all facilities needed for a full nuclear fuel cycle, has become the victim of rising prices, uncertain technology, and growing disputes over what actually constitutes "technology transfer". As a result, all major components are significantly behind schedule and it now appears unlikely that Brazil will complete more than four of the nine reactors planned by 1990. Moreover, the key elements in the fuel cycle -- enrichment and reprocessing -- have been radically scaled back to 'demonstration' and 'pilot' scale plants with only vague commitments to commercial scale operations.

Despite the scale back in the Brazil-FRG nuclear program, prestige factors are preventing the Brazilians from passing up the fule-cycle project altogether. This attitude would be reenforced if the incoming administration perceived the United States as playing an active role in derailing the program,

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either through direct pressure on Brazil or indirect pressure on the FRG.

The Nuclear Accord

Germany first showed interest in the Brazilian nuclear program with the visit of Foreign Minister Brandt in June 1968 when, in a press conference, he said that the FRG would be willing to satisfy Brazilian requirements for nuclear equipment. This declaration was an acknowledgement of negotiations being carried on by Paulo Noqueira Batista (later chairman of Nuclebras) to reach a cooperation agreement with the FRG on scientific and technological research. That agreement was concluded in July 1969 and was a basic forerunner to the Nuclear Cooperation Agreement which was finally signed in 1975.

German interest in Brazil as a market for nuclear technology was based primarily on economic motives. Bonn considers the nuclear power field as one of the few major industrial growth areas open to Western Germany and has spent billions of dollars on research and development to enable Germany to develop state-of-the-art nuclear technology. The growing concern over environmental impact of nuclear power had led to increased regulation, delays, and political controversy for domestic nuclear facilities in Germany and elsewhere in Western Europe by the mid-1970s and had, together with escalating costs and expectations of slower growth in electricity demand, led to a major cutback in nuclear power construction plans. The prospect of a major sector facing unemployment and economic decline helped make potential export markets such as Brazil both attractive and politically acceptable.

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The Germans hoped that the Brazilian nuclear accord would bolster the sagging nuclear industry, and incidently gain Germany a firm technological and political edge in the Brazilian market for manufactured imports -- nuclear and non-nuclear alike. While Germany's share of the overall Brazilian import market has in fact declined from around 16 percent in 1972 to about 12 percent of the non-oil import market this year, prospects remain good for substantial exports of high technology goods in support of the nuclear program. Bonn undoubtedly hopes that nuclear exports will lead the way to increased trade in a broad range of industrial products.

Growing Disenchantment

There is a growing disenchantment in Brazil with the vaunted nuclear accord with West Germany and a general disappointment in political relations with that country. For some time problems have been growing in the nuclear deal. The Brazilians complain of high prices and reluctance to share promised know-how; the Germans complain of inefficiency and technical incompetence on the part of the Brazilians. Recent German press questioning of Brazil's technical competence and its ability to pay for the deal has alarmed officials in Brazil. They fear that Germany will greatly scale down or even pull out of the deal.

Aside from the problems in bilateral relations with Germany, the Brazilians have come to realize that there are major domestic reasons for them to cut back the scale of

the nuclear program. The high cost of the effort is probably the most important factor. The latest Brazilian estimate of the cost of the nuclear reactor program is now $15 billion, roughly three times the estimate in 1975 when the plans were formulated. Earlier estimates may have been kept low deliberately in order to promote the program. The completion of a full nuclear cycle and the rapid development of a nuclear equipment industry to support the program will probably add another $5 billion to the cost. Roughly $16 billion of the total would be in foreign exchange expenditures; at a time when Brazil has formidable balance of payments constraints. The state atomic agency, Nuclebras, has tried to cut expenses by keeping wages for skilled labor to noncompetitive levels, but this has produced chronic manpower shortages.

Beyond the economics of the program, including the fact that Brazilian electric power requirements through the year 2000 can be met without additional nuclear power projects, many Brazilian critics have attacked the execution of the program. Safety and costly design problems at the Angra dos Reis site that were once kept secret have now been the subject of prolonged and intensive public debate following revelations in Brazilian newspapers. Moreover, the Brazilian scientific community has still not forgiven the government for the high-handed and imperious manner

in which it undertook the current program. The private scientific community was not consulted in the critical planning stages and even now has only indirect input to the program through its continued challenges and questions of government officials involved in the various aspects of the nuclear program.

Against the background of growing domestic controversy over the plans and progress of the nuclear program, President elect Figueiredo has carefully avoided becoming involved or identified with the Brazil-FRG accord and the current program. His well-publicized expressions of interest in Brazil's vast hydeoelectric potential, for example, have prompted widespread speculation that he will deemphasize nuclear power. Perhaps more significantly, Figueiredo apparently takes counsel on nuclear matters from two Brazilian scientists who are well-known critics of current nuclear policies -- Jose Goldemberg, one of Brazil's most eminent physicists, and Jose Israel Vargas, scientific advisor to the man who will become vise president. Goldemberg has reportedly said that Vargas will occupy a top nuclear policy position in the new government and believes that his own influence will increase substantially once Figueiredo takes over. Already, Vargas has called for the creation of an independent Brazilian agency to monitor quality control standards on nuclear equipment and has emphasised the need

to keep such an agency independent of the Minister of Mines and Energy, and that the CENE (National Nuclear Energy Commission) should also be independent.

Outlook

Despite the probable reduction in fervor under the next administration, there is little chance that the Brazilians will give up their determination to have some nuclear reprocessing and enrichment capabilities -- even scaled down pilot facilities. From the Brazilian view point any attempts to renege completely on these projects would seriously impair their overall bi-lateral relationship with Germany. Thus, for example, Brazilians were greatly disappointed earlier this year when President Geisel, visiting Bonn, failed to elicit from the Germans any statement of broad political support for the Brazilians. Brasilia had hoped for such a development so as to solidify the nuclear deal and as a conspicuous sign to the United States that Brazil had alternatives for support among major nations.

Moreover, the Brazilians are as aware as anyone else of the potential benefits of the 'spinoff' effects of nuclear research and, as an increasingly competitive and ambitious economic power, Brazil hopes to use its eventual mastery of nuclear technology to prove to the rest of the world that it can also master any other advanced industrial technology.

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Moreover, Brazil's perennial rivalry with Argentina, the most advanced of the Latins in nuclear technology, cannot be ruled out as a motivating factor for Brazil. The national security-conscious regime would undoubtedly be viewed as irresponsible if it failed to try to catch up and then at least keep pace with nuclear developments in Argentina. If and when the Brazilian military regime gives up power, it will certainly keep a watchful eye on its civilian successors in this, as in other policy areas.

The chances that the United States can get the Brazilians to publicly forswear either enrichment or reprocessing are virtually nil. United States pressure probably would do no more than push Brazil into a stridently nationalistic defense of the plan since for Brazilians being able to join the 'nuclear club' is an integral part of becoming a 'great nation'. They appear sincere in saying they have no bellicose intentions but -- for purposes of contingency planning -- they clearly want to keep open the option of building weapons.

While German frustrations with the Brazilians over their apparent lack of quality control and the increasing debate in Brazil over the efficacy of the Brazil-FRG pact, we believe that Bonn also will try to preserve the essential elements in the accord despite deteriorating economics. The German nuclear industry still desperately

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needs the market and any German withdrawal would probably seriously set back Brazil-FRG relations. Germany is especially concerned over maintaining good relations because it looks to Brazil as a major potential supplier of a wide range of vital raw materials -- mineral and agricultural -- in the years ahead and views a strong relationship with Brazil as a key to its Latin American strategy.

Due to the confluence of interest between Germany and Brazil in preserving the accord, even if only in symbolic terms, it is extremely unlikely that the FRG would bow to United States pressure and withdraw its offer/ commitment to provide Brazil an independent enrichment and reprocessing capability. These elements of the program are viewed as essential by Brazil not only in terms of their energy program, but more basically in a national security, national self-sufficiency sense. If the FRG were to withdraw these elements Brazil would probably completely sever the nuclear bond and decide to go it alone for development of a full nuclear cycle. While this would certainly delay the attainment of nuclear autarky in Brazil it would also most likely eliminate any chance at even remote indirect influence on the Brazilian nuclear program. In fact, such a scenario would probably require substantial use of the national security arguement by the government as justification for a continued "go-alone" program. Such

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a program could easily develop support for a PNE capability, at least on a design and engineering basis.

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