

The Carajas project: Industrializing the Amazon

In the year 1980, the government of Brazil undertook one of the largest development projects on the face of the Earth: the Greater Carajás Project in the eastern Amazon. Slated to absorb over \$60 billion in investment in mining, agriculture, and related infrastructure, the project will center around the rich Carajás mountain, which has the world's largest and purest deposits of iron ore. Greater Carajás is the brainchild of Dr. Eliezer Batista, the president of the state mining company Companhia Vale do Rio Doce (CVRD). CVRD is one of the pillars of the Brazilian state sector, and is the world's largest exporter of iron ore.

An interministerial group headed by Planning Minister Delfim Neto has overall authority over Greater Carajás. Delfim's enthusiasm for Carajás cen-

ters around its usefulness to help pay off Brazil's huge foreign debt. Chase Manhattan Bank has estimated Carajás' total worth at \$333 billion; and when completed it will generate \$17 billion per year in export revenues—on top of the \$25 billion currently exported. But the thinking of Dr. Batista and others is different, emphasizing that Carajás is an integrated mineral, hydroelectric, agricultural, and forestry project, which will industrially transform the face of the inhospitable Amazon region as a whole, and open up an entire area of Brazilian territory for development. It will directly employ over 1 million Brazilians—despite the fact that the projects have correctly been designed on a capital- and energy-intensive basis in order to maximize productivity.

The principal elements of the Greater Carajás project include:

1) *Carajás mine*: Discovered in 1967, the Serra dos Carajás is estimated to have 18 billion tons of 66.18 percent pure iron ore—double the average U.S. purity. The CVRD iron mine will produce 35 million tons per year of ore. Other minerals found in commercial quantities include copper, gold, aluminum, manganese, nickel, and tin.

2) *Tucuruí Dam*: Large quantities of cheap energy will be provided for the Carajás mining and processing activities principally by the Tucuruí Dam, slated for start-up in 1983. Tucuruí will generate 4,000 MW of electricity in its first phase—making it the world's third largest hydroelectric facility (the first largest is also Brazilian, the Itaipú dam currently under construction on the Paraná River between Brazil and Paraguay). Construction of locks at Tucuruí will also allow river navigation on the Middle Tocantins River.

3) *São Luis Railroad*: A 550-mile railroad is being constructed from the Carajás Mountain to the Atlantic port city of São Luis, cutting through thick Amazon jungle.

4) *Port facilities*: Ocean and river port facilities are under construction in São Luis, Barcarena, and Itaquí.

5) *Highways*: In addition to the Trans-Amazon Highway, which traverses the Carajás region in an East-West direction, a North-South highway connects the port of Belém with the capital city of Brasília. This links the newly industrializing eastern Amazon with the center of the country.

6) *Forestry*: There is an enormous lumber potential in the eastern Amazon region, whose exploitation will be coupled with reforestation projects in order to maintain the ecological balance of the area.

7) *Agriculture and livestock*: Within a studied area of approximately 270 million acres, an area of about 170 million acres was determined adequate for agricultural and livestock activities. In the first stage of the project, 38 million acres are to be brought under cultivation, with 10 million acres of these to benefit from irrigation projects.

Investments and yields in the Greater Carajás Program

	Investments (in billions of current U.S. dollars)	Annual revenues	Population affected (in thousands)	Direct employment
Direct investments				
(sub-total)	39.2	17.0	5,600	1,022
Mining and metallurgy	28.1	9.2	380	67
Forestry	1.3	0.6	980	179
Agriculture	8.1	6.5	3,400	624
Livestock	1.7	0.7	840	152
Infrastructure investments				
(sub-total)	22.5	—	1,244	225
Housing	14.6	—	1,244	225
Other (ports, dams, roads)	7.9	—	NA	NA
Total	61.7	17.0	6,844	1,247