



**THE MAKING OF A STATE-OWNED CONGLOMERATE:
A BRAZILIAN CASE STUDY**

Silvia Raw

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Silvia Raw received her Ph.D. from the University of Massachusetts in 1985, and is currently Assistant Professor of Economics at Vassar College. In the spring semester of 1986 she was an invited fellow at the Kellogg Institute. The research for this paper was supported by a grant from the Social Science Research Council and the American Council of Learned Societies, and made possible by the cooperation of the Companhia Vale do Rio Doce. The author alone is responsible for all conclusions and errors.

ABSTRACT

This paper examines the making of a state-owned conglomerate in Brazil, as a case study in state enterprise autonomy. It shows that the process of vertical integration and diversification undertaken by the Companhia Vale do Rio Doce, rather than simply an expression of managers' aspirations, satisfied both commercial and government objectives. The company's lack of dependence on subsidies was not a source of autonomy, but instead a source of vulnerability to government direction.

RESUMO

Este trabalho examina a formação de um conglomerado estatal no Brasil, como estudo de caso do problema de autonomia de empresas públicas. Mostramos que o processo de diversificação das atividades da Companhia Vale do Rio Doce não correspondeu simplesmente as aspirações de seus dirigentes; ele agregou objetivos comerciais e públicos. A capacidade de auto-financiamento da companhia, ao invés de uma fonte de autonomia, tornou-a mais vulnerável a orientações governamentais.



INTRODUCTION

Less developed countries characterized by the existence of a weak domestic private sector have relied extensively on public ownership to promote faster growth and industrialization. In much of the Third World, state-owned enterprises (SOEs) have come to play a significant role in the provision of infrastructure (electricity, transportation, communications), the production of intermediate goods (steel, petrochemicals, fertilizers), and the exploitation of natural resources (petroleum, mining).¹ However, studies of SOE performance have raised questions about the effectiveness of government ownership as a substitute for private enterprise. The picture emerging from both aggregate and country-specific financial profitability studies has been summarized as "a rather dismal one" involving large and mostly persistent financial losses.² SOEs have required continuous subsidization, imposing a fiscal burden on many governments and absorbing resources which "could be put to better use in industries that contribute to economic growth."³ In light of such negative evaluations, the emerging international trend towards divestiture is hardly surprising.⁴

The performance of SOEs in Brazil over the last two decades presents a contrasting picture. On the basis of a comprehensive study of the Brazilian experience, Trebat concludes that "public enterprises in a developing country need not be adjuncts of public finance"⁵ and can indeed be "an effective substitute for private enterprise in stimulating rapid and sustained economic growth."⁶

An analysis of some of the unique characteristics of the Brazilian case supports the World Bank's contention that the key determinant of

efficiency is not the nature of ownership, but how the enterprise is managed.⁷ Many of the practices hampering SOE performance elsewhere in the Third World have been avoided through Brazil's long-standing concern with putting its enterprises on a commercial footing.⁸ According to Trebat,⁹ a policy of operating SOEs "as if" they were private, staffed by competent professionals, free from clientelistic practices, and insulated from political pressures, had already been recognized as desirable in the 1940s and 1950s,¹⁰ when today's major firms were just being established. Its implementation, however, varied widely across sectors, and was severely compromised during the turbulent early sixties, undermining the financial integrity of many enterprises.¹¹

The same policy was strongly reaffirmed and implemented after the 1964 coup d'état, as a means to increase the operational efficiency and profitability of SOEs, and thus both reduce their financial dependence on the Treasury and strengthen their capacity to contribute to development.¹² It found its most explicit formulation in the 1967 administrative reform decree, which assured SOEs identical conditions of operation as those enjoyed by private firms, while threatening those exhibiting recurrent deficits with elimination or incorporation into other units.¹³ Political and economic conditions over the late sixties and early seventies were particularly conducive to running SOEs as private firms: authoritarianism effectively buffered them from political pressures and, together with a favorable economic conjuncture, minimized demands for the implementation of macrosocial objectives.

The fact that SOEs were able to finance ambitious expansion plans with relatively little dependence on subsidies, attaining levels of self-finance comparable to those found in the private sector in the mid

seventies, attests to the success of this policy.¹⁴ However Martins, among others, has suggested that the price paid for its implementation was "an accentuation of the tendency for the state productive sector to develop its own policies, based on typically entrepreneurial criteria, not always in conformity or compatible with government policy."¹⁵ Similar claims were made by private sector spokesmen in the course of a campaign against the expansion of state ownership under military rule.¹⁶

Thus, it appears that Brazil too has been unable to successfully combine the two roles played by SOEs, as commercial firms and as policy instruments.¹⁷ Many LDCs have utilized SOEs to address a variety of problems, ranging from unemployment to regional and income inequalities;¹⁸ but their operation as public bureaucracies with ready access to subsidies has eroded incentives for their efficient performance as firms.¹⁹ The Brazilian case, on the other hand, has been described as one where the government's emphasis on efficiency and profitability encouraged managers to adopt a narrow commercial orientation rather than a broader public view of their responsibilities, an outlook reinforced by participation in the stock market and commercial borrowing.²⁰ Moreover, a number of authors have claimed that the very success obtained in reducing SOE dependence on Treasury resources further frustrated their use as policy instruments, for it removed an important mechanism of government control over their activities. Though SOEs were not envisioned as policy-making organs, a role assigned to the ministries to which they were subordinated, their ability to mobilize resources afforded them a high degree of decision-making autonomy.²¹ In fact, those companies least dependent on government resources, the iron ore producer and exporter Companhia Vale do Rio Doce (CVRD) and the state oil monopoly Petrobrás,

have been described as subjects of government policy rather than its objects.²²

The transformation of CVRD and Petrobrás into diversified conglomerates, marked by their entry into sectors previously under the domain of private firms, has been viewed as a manifestation of both their decision-making autonomy and narrow commercial orientation. According to Trebat:

Profitability was the key to a high degree of autonomy in both cases. Large profits allowed both firms to stay free of dependence on government subsidies and to invest and diversify according to criteria devised by company management rather than those imposed by the Ministry of Mines and Energy.²³

These criteria have been identified as the search for profits,²⁴ as well as the pursuit of growth²⁵ and the maximization of managers' power,²⁶ typical of modern capitalist enterprises characterized by the separation of ownership and control. According to this line of reasoning, the post-1964 expansion of state ownership has been quite unlike that taking place in previous periods or in other LDCs. Rather than a government-directed process motivated by market failures or political and ideological considerations, it has been viewed as the product of a dynamic of expansion of SOEs as capitalist firms,²⁷ reflecting managers' aspirations and violating the military regime's professed commitment to support private initiative.²⁸

Although such claims have found widespread support, there have been few attempts to distinguish managers' initiatives from those of the government,²⁹ or to evaluate the extent to which such initiatives, even when undertaken by SOE managers and apparently motivated by entrepreneurial considerations, ran counter to government policy. Specifically, although there is no doubt that Brazilian SOEs have enjoyed

a high degree of managerial autonomy, defined as the ability to implement government policies without external interference,³⁰ it is unclear whether they have also exercised managerial discretion, the ability to formulate and pursue objectives and strategies different from those of their owner.³¹

This paper undertakes a case study of CVRD, an enterprise simultaneously praised for its lack of dependence on subsidies, and criticized for the expansion into new areas made possible by its ability to generate resources.³² It seeks to identify the locus of decision-making power, the criteria informing the company's policies, and their conformity with government objectives, in order to assess the validity of the claims discussed above.

It is important to note that CVRD is not representative of Brazilian SOEs. It produces primarily for the export market, while for the most part Brazilian SOEs depend heavily on internal market sales³³ and enjoy monopolistic positions.³⁴ However, precisely because of these unique characteristics, CVRD constitutes a crucial case for the hypotheses presented.³⁵ In addition to its profitability, both its limited domestic impact and the need to ensure its survival in a competitive market have been identified as sources of autonomy, in that they discouraged government intervention in its activities.³⁶ Not surprisingly, CVRD has been described as the least "public" of all Brazilian SOEs.³⁷ Moreover, diversification, formation of joint ventures, and internationalization of operations, the very strategies followed by the company, have also been identified in the theoretical literature as additional sources of autonomy. According to Aharoni, ventures with private partners, like competition, constrain external interference, while operations abroad and

the internalization of transactions resulting from diversification place some of the firm's activities beyond the reach of government.³⁸ Thus, unless it can be demonstrated that CVRD's managers enjoyed a high degree of autonomy, it is unlikely that managers of other Brazilian SOEs did so.

THE COMPANHIA VALE DO RIO DOCE:
HISTORICAL OVERVIEW

The Companhia Vale do Rio Doce (CVRD) is one of the largest firms in Brazil, the 7th in terms of sales in 1985.³⁹ In the international iron ore market, it ranks as one of the world's largest exporters and acts as the price leader in conjunction with European steelmakers.⁴⁰ In addition to its main activity as an iron ore producer, its investments through subsidiaries and associated companies span the fields of shipping, pulp, aluminum, and fertilizers, among others. But neither its commercial success nor its ambitious diversification could have been forecast from its difficult early years of operation.

CVRD's creation was a by-product of a more general struggle for the industrialization of Brazil and, more specifically, for the establishment of large-scale integrated steel production.⁴¹ Since the early 1900s, different segments of the Brazilian elite manifested a desire to modernize and expand the country's small steel industry, and to control the presence of foreign capital in the mining sector. For over thirty years various attempts were made to find a simultaneous solution to both problems, by making concessions for large-scale ore exports conditional on the construction of modern steelworks. But when a solution to both problems was found in the context of the Second World War, two separate enterprises were created, disassembling the iron ore-steel linkage. The Companhia Siderúrgica Nacional was established in 1941, with financial

support from the U.S. government, as an integrated, state-owned steel plant in Volta Redonda, Rio de Janeiro. In the following year, an accord negotiated with the U.S. and Britain in Washington provided for the nationalization of British-owned mines in the Rio Doce region of the state of Minas Gerais and the adjoining Vitória to Minas railroad, establishing CVRD.

The separate resolution of the iron ore and steel problems had important consequences for CVRD's subsequent development. First, the production of steel was the government's, and especially the Army's, primary concern; this meant that large expenditures were made for the establishment of the Companhia Siderúrgica Nacional, while CVRD received inadequate support. The company required massive initial investments, for at the time of nationalization the mines were still operated entirely by manual processes, the railroad did not yet reach the ore deposits, and a special terminal had to be constructed in the port of Vitória.⁴² Yet CVRD's second president noted that as late as 1946 "in all sectors of government we observed a lack of understanding of the problem of Vale do Rio Doce and an accentuated lack of interest in granting it aid for the conclusion of this large undertaking."⁴³ As a result, in this period the scarcity of funds constantly threatened the continuity of projects. CVRD did receive an initial US\$14 million loan from the U.S. Export-Import Bank, conditional on Bank representation in its board of directors, as provided in the Washington Accords. But until 1950, when this participation was eliminated, severe conflicts between Brazilian and American directors over conditions attached to additional credits further hampered the company's ability to cope with its initial difficulties.⁴⁴

Second, since the Companhia Siderúrgica Nacional was conceived as an

TABLE 1
World Trade in Iron Ore and CVRD Share,
Selected Years

Year	World Trade ^a / World Consumption	Seaborne Trade/ World Trade	CVRD/ Seaborne Trade
1950	18%	67%	2%
1960	31	65	4
1970	42	77	9
1973	45	79	13

SOURCES: World Trade, World Consumption and Seaborne Trade: Richard Frederick Strasser, "The State-Controlled Enterprise in Economic Development: A Brazilian Case Study (B.A. thesis, Harvard University, 1981), Table III.3, p. 30; CVRD Exports: Relatório da Diretoria, various issues.

^a Includes trade within the EEC.

integrated steel operation, CVRD remained a non-captive producer. The Washington Accords had included American and British commitments to purchase up to 750,000 long tons each a year at agreed upon prices, to be renegotiated every three years until the end of the war.⁴⁵ But, at that time, their interest in Brazilian ore declined, and the company had to face conditions which were decidedly unfavorable to independent producers. As Table 1 shows, as late as 1950, international trade supplied only 18% of the world consumption of iron ore, for steel companies obtained this input primarily from captive mines located within their own countries.⁴⁶ CVRD's problems in commercializing its output were further aggravated by its reliance on brokers and intermediaries, operating as "a provincial firm, making its deals in the Rio de Janeiro

office, . . . while the more fundamental decisions for its entrepreneurial future were made in the United States and Europe."⁴⁷

CVRD's first decade of operations was thus marked by serious production, managerial, financial, and commercial difficulties.⁴⁸ Its output consisted entirely of lump ore, transported by steam rail to the modest terminal of Atalaia, and shipped mostly to the U.S. market.⁴⁹ Losses were incurred until 1948, and only in 1950 were profits large enough to cover accumulated deficits.⁵⁰

The turning point came in 1951 when, following the presidential elections which returned Getúlio Vargas to power, Colonel Juracy Magalhães was appointed to the presidency of CVRD. The choice of Magalhães, an opposition politician, reflected, in part, Vargas' concern with the efficient administration of the public sector. Magalhães' achievements at CVRD would later earn him the post of first president of the state oil monopoly Petrobrás.⁵¹ In his own words:

Vargas had been clear: I want you to recover Vale. I did not want to disappoint the President. I assembled my staff and we began what we could call 'CVRD's great battle.'⁵²

Taking advantage of the boom generated by the Korean War, Magalhães adopted an aggressive commercial strategy. He unilaterally raised prices from US\$8 to US\$14 per ton, the actual price received by intermediaries, and refused to sign any contracts at a lower one. He held out for three months, a period in which the Brazilian government was subjected to intense pressures from steelmakers and CVRD's main creditor, the U.S. Export-Import Bank. The company's commercial director resigned, but Magalhães resisted all pressures and, after long negotiations, signed a contract with Republic Steel at US\$14.⁵³ In his view, "this contract represented the first big step for Vale abroad and our first big victory

in the international arena."⁵⁴ It was followed by a contract with Poland at US\$18.50 per ton, strongly opposed by the U.S. government which accused Brazil of selling strategic raw materials to the enemy in violation of existing accords.⁵⁵ Buoyed by these victories, the company proceeded to resolve its initial difficulties and carry out much needed improvements in the mine-railroad-port complex.⁵⁶

The strategies followed by CVRD in its second decade of operations reflected the introduction of a new orientation in its administration. In its 1951 annual report, Magalhães expressed his conviction that SOEs should be managed "with the same mentality employed in the management of private enterprises."⁵⁷ In the coming years, increased attention was devoted to the recruitment, training, and full utilization of highly qualified engineers and managers.⁵⁸ And if in its early years CVRD clamored for privileges, it now sought to distance itself from the government. The emphasis was on administrative continuity, requiring the development of "a solid and autonomous structure, relatively independent of possible sudden changes of government and government orientations."⁵⁹ In fact, in a period of import substitution industrialization, marked by a neglect of exports, the federal government continued to show little interest in CVRD's activities.

The consolidation of CVRD's entrepreneurial identity proved crucial to its survival and subsequent transformation into a large exporter. It enabled the firm to adapt to important changes taking place in the international market for iron ore over the 1950s and 1960s which, while creating new opportunities, also presented challenges to its survival.⁶⁰

On the one hand, the era of dominance of integrated steel companies was coming to an end, with the depletion of high grade ore reserves of

traditional producers, and the emergence of Japan, lacking ore supplies, as a major steel producer. As Table 1 shows, the share of world consumption supplied through international trade increased from 18 to 29% between 1950 and 1960, reaching 42% by 1970. Seaborne trade in particular became viable as a result of a dramatic decline in shipping costs, brought about by an increase in ship capacity and falling construction costs.⁶¹ These changes boded well for independent companies located far from major steel producing countries, such as CVRD.

On the other hand, the end of the Korean War boom brought on an era of falling ore prices,⁶² a tendency aggravated by the entry of new suppliers in the market. Another challenge came as changes in steel technology led to decreased demand for lump ore, the only type produced by CVRD, in favor of sinter fines, and later pellets.⁶³

Once its initial problems were overcome, CVRD began to adapt to these new conditions.⁶⁴ On the commercial front, the diversification of markets was imperative for survival. CVRD's belief in the potential of the U.S. market persisted until the mid fifties but, almost in spite of its policies, Western Europe became its major customer.⁶⁵ In 1958, it finally acknowledged the potential of the Japanese market, and by 1963, its customers were located in sixteen countries. But competitive pressures also required participation in CIF sales in order to reduce freight costs and thus compensate for Brazil's great distance from Japan relative to Australia, its chief competitor.⁶⁶ In response, CVRD's first major subsidiary,⁶⁷ the shipping firm Vale do Rio Doce Navegação (DOCENAVE), was established in 1962. CVRD also took steps to develop closer ties with its customers. It overcame its traditional dependence on intermediaries, contracting exclusive sales agents in 1954, and then establishing its own

European-based marketing subsidiary, Itabira Eisenerz, in 1963.⁶⁸ The previous year, CVRD had begun negotiations for long-term contracts with Japanese and West German steelmakers. The sales assurance provided by these contracts would then allow it to raise funds for the construction of the new port of Tubarão, eliminating a critical bottleneck preventing the expansion of sales. On the production front, in addition to an increase in capacity to 6 million tons by 1962 and plans for future expansion to 20 million tons, stricter processes of quality control were adopted in response to customer complaints. So as to meet changes in the structure of demand, production of fines began in 1958, and viability studies for the construction of a pelletizing mill at Tubarão were initiated in 1963. Finally, in order to plan future projects and coordinate their execution, a development division was established in 1962.⁶⁹

During CVRD's second decade of operations, its survival in an increasingly competitive market required, above all, growth to compensate for lower prices. Its success in meeting this challenge is attested by an almost fivefold increase in export volume between 1951 and 1963.⁷⁰ But, beyond this, CVRD initiated measures which would lead to its transformation into one of the world's largest exporters, as well as a diversified conglomerate. In 1974 CVRD's president attributed the company's commercial success to its integrated mine-railroad-port system, the construction of the port of Tubarão, its entrepreneurial mentality, and employee dedication.⁷¹ The groundwork for its future success had been largely established by 1963.

The 1964 coup d'état did not constitute an important turning point for CVRD as it did for other SOEs, especially Petrobrás, which suffered extensive purges. Though CVRD's president was replaced, its annual report noted that "in spite of the grave events which shook the country in the first trimester of 1964 . . . , the normal activities of the company did not suffer the least shock or loss of continuity."⁷² In fact, it is more accurate to claim that CVRD had entered a new phase in 1963, when its newly created development division formulated a plan to change the scale of operations.

CVRD did benefit, however, from government policies undertaken in the years immediately following the coup, which created a more favorable environment for mining activities. The new government identified a lack of knowledge of the country's mineral resources and the unsatisfactory exploitation of known reserves as the main barriers to the expansion of the mining sector, a potentially important source of foreign exchange revenues. These problems were, in turn, blamed on "statist policies," which discouraged private investment.⁷³ Between 1964 and 1968, a number of measures were undertaken to reverse this orientation, including the reorganization of public organs in charge of policy-making and support activities, the formulation of a ten-year Master Plan for the sector, and the enactment of a new mining code, which eliminated a series of regulations perceived to hinder investment.⁷⁴

Though these measures were designed to stimulate both national and foreign private initiative, direct state participation was not ruled out. Rather, an increase in production by existing SOEs was envisioned.⁷⁵ In the case of iron ore, a mineral identified as one of the easiest to increase output and exports in the short run, government support was

pledged to the development of both the Paraopeba valley deposits, largely controlled by Minerações Brasileiras Reunidas, a private enterprise, and the deposits of the Rio Doce valley, controlled by CVRD and smaller private producers.⁷⁶ Pragmatism prevailed over the free market ideology espoused by the new regime; CVRD was identified as an important government instrument to increase foreign exchange revenues and prevent the monopolization of the sector by a private concern.⁷⁷

In this favorable climate, CVRD executed the first phase of its expansion plan between 1964 and 1967. It included an increase in capacity to 20 million tons, the construction of the first part of the port of Tubarão, inaugurated in 1966, and the beginning of the construction of the first pelletizing mill.⁷⁸ The process of vertical integration initiated earlier was also carried forward in this period. DOCENAVE, the shipping firm established in 1962, was strengthened by a 1966 agreement with Petrobrás and the state-owned steel producer USIMINAS, under which it would transport crude oil and coal on return trips. This allowed the firm, which had been operating chartered ships until then, to begin building its own fleet.⁷⁹ Two additional shipping firms and a Bahamas-based commercial agent to serve the North American market were established.⁸⁰ Finally, in 1967 CVRD entered a sector completely unrelated to iron ore when it established a forestation company in its region of influence, taking advantage of government incentives granted to this activity.⁸¹

In sum, between 1964 and 1967, CVRD continued to implement the measures required for survival in the international market. The establishment of a new government which on the surface appeared to be hostile to state ownership did not hinder the expansion of CVRD, but in

fact stimulated it, by reversing earlier policies of neglect of mineral export activities.

THE BOOM YEARS: 1969-73

The change in the scale of CVRD's operations, accomplished under the first phase of its expansion plan, was continued under the second, executed between 1968 and 1970. In addition to raising capacity to 30 million tons, this phase covered the modernization of installations, and improvement and diversification of ore types.⁸²

These measures, coupled with the vertical integration of activities initiated in the early sixties, placed CVRD in a solid competitive position to take advantage of a highly favorable international conjuncture. Between 1968 and 1973, world steel production increased at an average rate of 5.9% a year.⁸³ This translated into increased demand for ore from non-captive sources, as the international trends discussed earlier--the progressive exhaustion of high grade reserves of traditional producers, the emergence of Japan as a major ore buyer, and the decline in shipping costs--were consolidated. In this context, CVRD's sales expanded rapidly, aided by the Brazilian government's export-promoting policy of mini-devaluations adopted in 1968. As Table 2 shows, CVRD's exports increased more than threefold between 1968 and 1973, and had quadrupled by 1974. Internal market sales also doubled in this period, but remained modest in comparison.⁸⁴

The growth in sales volume was accompanied by rising prices, especially after 1970 when the company entered the higher priced pellet market with the completion of its first pelletizing mill. Rising revenues, combined with cost reductions afforded by economies of scale

TABLE Z

CVRD: Sales, 1964-1981
(million tons)

Year	Exports ^a	Internal Market ^b	Sales to Pellet Joint Ventures	Total Sales
1964	7.1	-	-	7.1
1965	8.9	.6	-	9.5
1966	9.1	.9	-	10.0
1967	10.8	.9	-	11.7
1968	11.5	.9	-	12.4
1969	16.1	1.0	-	17.1
1970	21.8	1.2	-	23.0
1971	25.3	1.3	-	26.6
1972	26.2	1.9	-	28.1
1973	37.5	2.0	-	39.5
1974	46.2	2.0	-	48.2
1975	47.3	2.5	-	49.8
1976	47.3	2.7	-	50.0
1977	39.8	3.6	2.1	45.5
1978	41.9	4.1	5.1	51.1
1979	47.8	5.3	9.7	62.8
1980	44.5	6.4	11.4	62.3
1981	45.9	4.5	10.9	61.3

SOURCES: CVRD, Relatório Anual, various issues, and data provided by CVRD, Department of Planning Coordination (COPAN).

^a Excludes exports on behalf of third parties.

^b Excludes iron ore sales to associated pellet joint ventures.

and partial exemption from income taxes,⁸⁵ translated into high levels of self-financing. Thus, CVRD was able to remain practically independent of direct government funding, despite the large investment effort undertaken in this period.

As Table 3 indicates, internally generated resources constituted the company's main source of funds. Though they accounted for a smaller

TABLE 3

CVRD: Pattern of Finance, 1964-81^a
(percentage of total resources)

Year	1964-68	1969-73	1974-76	1977-81
Self-Finance ^b	78.8%	65.1%	49.3%	53.5%
Equity	1.4	12.8	5.3	.7
Loans	16.1	21.8	44.4	35.7
Other ^c	3.7	.3	1.0	10.1
Total	100.0	100.0	100.0	100.0

SOURCES: Calculated from data provided by CVRD, Superintendence of Control, and CVRD, Relatório Anual, various issues. Figures were deflated using General Price Index (Internal Availability).

^a As a result of changes in accounting practices in 1974 (Decree-Laws 1302 of 1973 and 1338 of 1974) and in 1978 (Law 6404 of 1976), figures are not strictly comparable. The 1974 changes appear to underestimate profits in relation to previous years. The 1978 changes produce the opposite effect, an overestimation of profits and self-financing and underestimation of loans in comparison to previous years, although it produces a more accurate picture.

^b Primarily profits and depreciation. After 1978, exchange rate variations included here.

^c Includes all values listed as "other" by the company, without further elaboration. In addition, in 1974, transfer of mining rights to associated company AMZA included here. In 1977, change of long term government bonds to short term included. In 1979, proceeds from sale of shares in associated companies included. In 1980, surplus of foreign loans transferred to CVRD by subsidiaries and associated companies for deposit in the Bank of Brazil included. In 1981, dividends received from subsidiaries and associated companies included here.

share of total funds than in the previous five-year period, in absolute terms their level was vastly superior, reflecting CVRD's impressive growth. The volume of resources mobilized by the company remained fairly

TABLE 4

CVRD: Sources of Long-Term Loans, 1969-1981
(percentage of balance at end of year)

Year	Domestic	Foreign
1969	11.6%	88.4%
1970	4.8	95.2
1971	13.4	86.6
1972	2.6	97.4
1973	4.4	95.6
1974	6.7	93.3
1975	7.5	92.5
1976	5.4	93.6
1977	11.7	88.3
1978	9.6	90.4
1979	5.3	94.7
1980	6.9	93.1
1981	10.3	89.7

SOURCE: CVRD, Relatório Anual, various issues.

constant between 1964 and 1968, but it increased at an average annual rate of 28% between 1968 and 1973, with internally generated funds growing at the only slightly lower rate of 26.2%.

Loans constituted the second most important source of funds. In the early sixties, CVRD had already recognized that it could no longer afford to rely exclusively on internal funds to finance its expansion plans.⁸⁶ Neither could it count on government resources, in light of the austerity measures implemented after the coup, and the new regime's goal of reducing SOE dependence on the Treasury. CVRD thus resorted to large scale borrowing to finance its growth. In view of the small size of the domestic banking sector as a source of long term credits, Table 4 shows that loans were overwhelmingly foreign. CVRD's main creditors were public

and multilateral lending institutions, including the Inter-American Development Bank, the U.S. Export-Import Bank and the German government's Kreditanstalt Für Wiederaufbau.⁸⁷

New equity, provided primarily by the Treasury, constituted the third major source of funds. With the end of austerity measures in 1967, its share of CVRD's resources increased significantly, but it still accounted for less than 13% of the total over the period under investigation.⁸⁸

Resources were devoted both to increases in productive capacity and new initiatives. The second phase of CVRD's expansion plan had been predicated on the expectation of exporting 25 million tons by 1974. The rapid growth of exports, greatly exceeding forecasts, led to the reformulation of the next phase, now aimed at raising export capacity to over 50 million tons and encompassing the construction of a second pelletizing mill.⁸⁹ Table 5 shows that between 1968 and 1972, investment increased at an average annual growth rate of 38.5%, decreasing by 6.7% in 1973 as the expansion plan neared completion.

The consolidation of CVRD as a large exporter was accompanied by new initiatives in iron ore and other sectors. Though investment figures are not available prior to 1973, Table 6 shows that a number of new subsidiaries and associations were formed during this period.⁹⁰

In iron ore, the creation of Amazônia Mineração (AMZA), the result of an association with U.S. Steel to exploit the Carajás deposits located in the Eastern Amazon, was of great importance to CVRD's future in light of the progressive exhaustion of its mines.⁹¹ The company also formed the first of three joint ventures in pellet production in this period, this one with the Italian steelmaker Finsider. The partnership agreement, like those that followed with Japanese and Spanish producers,

TABLE 5

CVRD: Investment, 1964-1981
(constant 1965-67 Cr\$ millions)

Year	Investment in Company	% change	Investment in System ^a	% change	Total Investment	% change
1964	34.7	-				
1965	69.2	99.4				
1966	72.1	4.2				
1967	111.7	54.9				
1968	99.4	(11.0)				
1969	104.7	5.3				
1970	182.6	74.4				
1971	254.2	39.2				
1972	365.7	43.9				
1973	341.3	(6.7)	83.1	-	424.4	-
1974	286.9	(15.9)	124.8	50.2	411.7	(3.0)
1975	217.3	(24.3)	123.6	(.1)	340.9	(17.2)
1976	282.1	29.8	260.1	110.4	542.2	59.0
1977	263.1	(6.7)	185.1	(28.8)	448.2	(17.3)
1978	238.7	(9.3)	131.8	(28.8)	370.5	(17.3)
1979	131.6	(44.9)	106.0	(19.6)	237.6	(35.9)
1980	155.7	18.3	184.7	74.2	340.4	43.3
1981 ^b	235.6	51.3	35.4	(80.8)	271.0	20.4

SOURCES: CVRD, Relatório Anual, various issues, and data provided by CVRD, Department of Planning Coordination (COPAN). Figures were deflated using General Price Index (Internal Availability).

^a Investment in subsidiaries and associated companies not available prior to 1973.

^b In 1981, investment in Carajás project included in "Investment in Company" as subsidiary AMZA, responsible for the project, was incorporated into CVRD's structure.

guaranteed a captive market for a substantial share of the output, representing an attempt to minimize the impact of cyclical fluctuations in the international market.⁹²

During the early seventies CVRD also began to apply the expertise acquired in iron ore production and export to the development of other

TABLE 6

CVRD: Subsidiaries and Associated Companies by Period of Establishment

Sector	Pre-1964	1964-1968	1969-1973	1974-1976	1977-1981
Shipping	DOCEVAE	Seamar Shipping Nippon-Brazil Bulk Carriers ^d	Navegação Rio Doce ^c		
Marketing	Itabira Eisenerz	ITACO		RDEE RDIF	RCA Rio Doce Ltd. FERVOR ^f
Forestation, Wood and Pulp		Florestas Rio Doce	DOCEVADES CENIBRA	FLONIBRA ^h	
Mining and Prospecting			ANZA ^f DOCEGEO 29 mining cos. ^j	Carapa ⁱ Itavale ^f Minas D'EL Rey Dom Pedro Urucum Minas da Serra Geral	
Pellets			ITABRASCO	NIBRASCO HISPANOBRA ^s	

TABLE 6 - Continued

Sector	Pre-1964	1964-1968	1969-1973	1974-1976	1977-1981
Engineering			RDEPF VALUECK Valenorte 1		
Fertilizers			TITANSA	VALEPM VALEFERTIL ⁿ	FOSFÉRTIL
Bauxite, Alumina and Aluminum				Mineração Rio do Norte ALBRAS ALNORTE Valesul	
Other	Siderúrgica Vatuí (steel) BENITA ^f (ore processing)			Siderúrgica de Tubarão ^o (steel) PORTOCEL (port construction) INTERVALE ^f (rail-road construction) FERVAG (iron oxide and barium ferrite)	

SOURCES: CVRD, Relatório Anual, various issues, and Secretaria de Controle de Empresas Estatais, Cadastros das Empresas Estatais, various issues.

a Classified by date of establishment if new company, or by date when it becomes part of the CVRD conglomerate if previously existing firm. Empresa Hidroelétrica Lutzow and Mineração Vera Cruz were not included, as year of establishment could not be determined. Lutzow, a hydroelectric company, became part of the CVRD conglomerate before 1970; Vera Cruz, a joint venture in bauxite mining, was established after 1974.

b Control transferred to DOCENAVE in 1968.

c Control transferred to DOCENAVE in 1984.

d DOCENAVE associated company.

e Replaced Itabira Eisenerz.

f Incorporated into CVRD's structure or abolished, and thus no longer in existence.

g Incorporated by Florestas Rio Doce in 1974.

h Incorporated by CENIBRA in 1984, which then constituted CENIBRA Florestal.

i Incorporated by DOCEGEO in 1981.

j "Paper companies" set up to conform to mining code regulations.

k Now VALEC, a marketing company.

l Now aluminum holding company.

m Replaced TITANSA. VALEP was incorporated by FOSFÉRTIL, a company of the Petrobrás group, in 1980.

n VALEFÉRTIL was incorporated by FOSFÉRTIL in 1978.

o CVRD has withdrawn from this project, an association between the state-owned steel holding company Siderbrás, Kawasaki Steel, and Finsider.

mineral resources. The groundwork for its future expansion in this sector was laid in 1971, with the creation of Rio Doce Geologia e Mineração (DOCEGEO), a geological prospecting and research firm concentrating on non-ferrous minerals. In addition, CVRD acquired control of a firm holding the concession to titanium and phosphate deposits in Minas Gerais, a project which would lead to its entry in the fertilizer sector, and initiated negotiations with Alcan and Japanese aluminum producers to exploit bauxite deposits in the Eastern Amazon.⁹³

Outside the mining sector, CVRD set up a second forestation company in its region of influence, later incorporated by the previously established Florestas Rio Doce. It then initiated a process of vertical integration with the formation of Celulose Nipo-Brasileira (CENIBRA), a joint venture with a consortium of Japanese paper producers to produce pulp using wood supplied by Florestas Rio Doce. This association, like those in pellet production, had the assurance of a captive market for part of the output.⁹⁴

Thus, by the early seventies CVRD was well on its way to becoming a diversified conglomerate. The company foresaw investments on the order of US\$2.3 billion for diversification projects over the decade, as well as an equal sum to be invested in activities related to iron ore, including the development of the Carajás reserves, pellet production, and shipping.⁹⁵ In view of the multiplicity and complexity of studies required for further expansion and diversification, CVRD established its own consulting and engineering subsidiary, Rio Doce Engenharia e Planejamento (RDEP).⁹⁶

The market was the key determinant of CVRD's behavior and performance in this period, as had been the case since the 1950s. Given stiff

competition in its main field of activity, the company had no choice but to grow to survive. Taking advantage of a favorable international conjuncture, it emerged as one of the world's largest iron ore exporters, accounting for 13% of seaborne trade by 1973 (see Table 1). Moreover, it could be argued that the instability of the ore market, characterized by wide cyclical fluctuations, created incentives for diversification in order to reduce dependence on a single product. The company itself adopted this view, stating that diversification was "a necessity imposed by economic security."⁹⁷

That CVRD responded to market conditions much like any private enterprise is not surprising, in light of the Brazilian government's policy of running its SOEs as if they were private. In the case of CVRD, this policy had been implemented since the 1950s, when it was recognized that its survival in the market required independence from changes in government policy, and the implementation of an aggressive commercial strategy. And, in any case, the company's small domestic impact, whether in terms of sales or employment, protected it from the types of political pressures to which other SOEs were subjected.

But can we also conclude, as asserted by Trebat, Martins, and others, that CVRD's growth and diversification were the result of autonomous initiatives devised by company management in the pursuit of profits and power? Our investigation finds that although CVRD enjoyed a substantial degree of flexibility in implementing its stated objective of generating foreign exchange revenues, and its lack of dependence on government funding potentially assured it a high degree of decision-making autonomy, it is in fact difficult to separate management's initiatives from those of its supervisory organ, the Ministry of Mines and Energy. However,

there is little evidence that CVRD's expansion was at odds with government policy; in fact, the opposite appears to be the case. The company's policies of growth and diversification appear to have successfully satisfied both its own commercial interests and stated government objectives. Its expansion contributed to the diversification of exports, fuller knowledge of the country's mineral deposits and exploitation of known reserves and, above all, to the generation of foreign exchange revenues. Between 1969 and 1973, CVRD accounted for 5.3% of Brazil's export earnings as an iron ore exporter, and 5.8% as a diversified conglomerate.⁹⁸

The reason it is difficult to identify the locus of decision-making power is that during this period the post of Minister of Mines and Energy was held by a former company president, Antônio Dias Leite, characterizing a situation CVRD's managers have described as one of "joint administration" of the company.⁹⁹ But Dias Leite, rather than company management, was in fact responsible for at least two of CVRD's major initiatives: its entry into the Carajás project and into bauxite exploitation. Though in both instances the Minister could be viewed as an advocate of the company's commercial interests--the assurance of new ore reserves in the first case, and reduced dependence on a single product in the second--these decisions also responded to broader policy concerns. In particular, CVRD was used as a government instrument to counteract the power of multinational corporations.

The Carajás ore deposits had been discovered by a U.S. Steel subsidiary in the mid sixties. The company then began to submit a large number of research requests to the National Department of Mineral Production, an organ of the Ministry of Mines and Energy, resorting to

the use of employee names to circumvent mining code regulations limiting the area to be exploited by a single firm. This aroused the Department's suspicion, and approval of the project was stalled until U.S. Steel agreed to accept CVRD as a partner.¹⁰⁰ Alcan was responsible for the discovery of bauxite deposits in the Eastern Amazon, but in this case the company itself stalled the development of the reserves, alleging an unfavorable international conjuncture. The government, dissatisfied with this decision, began to negotiate CVRD's entry into the project. The company's participation was viewed as a catalyst to attract other investors, making the project viable while retaining national control of an important resource. An additional motivation was the government's desire to promote the industrialization of bauxite before export, preventing the formation of a mineral enclave.¹⁰¹ Thus, despite CVRD's apparent autonomy and commercial orientation, in at least two important instances its actions were guided by the government in conformity with broader policy objectives. CVRD's involvement in government-negotiated joint ventures would become increasingly important after 1974.

CVRD AS AN AGENT OF DEVELOPMENT: 1974-76

The Brazilian economy, which had grown at an average annual rate of over 11% a year between 1967 and 1973, began to face serious problems in 1974. But in spite of a slowdown in growth, rising inflation, and balance of payments' difficulties, the incoming Geisel administration's view of the country's future prospects was highly optimistic. Its analysis emphasized the strengths of the Brazilian economy, including its size, high rate of investment, diversified structure of exports with respect to both products and markets, and "intermediate position" among oil

importers, in contrast to a prediction of slow growth for developed countries and the "non-viability" of many LDCs. In this spirit, the Second National Development Plan was conceived, designed to pave the way for Brazil's transformation into a world power.¹⁰²

The Plan's strategy entailed the initiation of a new cycle of import substitution, centered on the production of intermediate and capital goods. SOEs, which had acquired a growing weight in the economy during the previous expansion, were to play a leading role in the implementation of this strategy, as a source of demand for locally produced capital goods and as direct producers of intermediate goods. CVRD, under a new president appointed from outside the firm's ranks, was actively engaged in the effort. Its role as a policy instrument was no longer limited to the generation of foreign exchange, but more broadly conceived as that of an agent of development.

In the area of capital goods, CVRD, like other Brazilian public and private firms, had been heavily dependent on imports. Delays in the delivery of foreign supplies had often forced it to make emergency purchases in the internal market, and had motivated some attempts to substitute imports of smaller equipment and spare parts.¹⁰³ But it was only after 1974, when the government began to direct SOEs to place their orders in the internal market,¹⁰⁴ that a major effort in this direction was launched. SOEs' opposition to this policy has been cited as evidence of their narrow commercial orientation and insubordination to government directives.¹⁰⁵ Though CVRD, like other SOEs, voiced complaints about the costs and unreliable delivery dates of domestic equipment,¹⁰⁶ Table 7 shows a marked increase in the share of purchases made in the internal market, indicating compliance with government policy.

TABLE 7

CVRD: Equipment Purchases in Internal Market,
Selected Periods

Years	Internal Market Share
1970-73	38.5%
1974-75	73.3
1977-81	85.0

SOURCES: Calculated from CVRD, "Modelos de Organização de Empresa Pública no Setor de Mineração," paper presented at the First International Seminar on Public Enterprises in Economic Development, Brasília, 28 July 1981, p. 53, and Idem, Relatório Anual, 1981. Figures were deflated using General Price Index (Internal Availability).

But CVRD's key role in the implementation of the Second National Development Plan was as a producer of intermediate goods, leading to a new wave of diversification. Table 5 shows that while CVRD's investments in its own activities declined sharply in 1974-75, applications in the conglomerate increased by 50.2% in 1974, remained at this high level in 1975, and doubled in 1976. By 1975 CVRD was already involved in projects valued at US\$10 billion.¹⁰⁷ Table 6 confirms the fact that this was the period of greatest expansion of the conglomerate.

The dramatic acceleration of CVRD's process of diversification corresponded in part to the implementation of previous plans, as in the case of the formation of two additional joint ventures in pellet production. But, more important, both the scale and objectives of previously formulated projects underwent alterations in light of the

Second National Development Plan.

CVRD's expansion in the fertilizer sector provides the clearest example of this. In 1971 CVRD had acquired control of TITANSA,¹⁰⁸ a firm holding concessions to titanium and phosphate deposits in Minas Gerais. Its initial goal was to produce titanium concentrate for export, with an investment of only US\$6 million.¹⁰⁹ But in 1974 the objectives of the project were changed from titanium to phosphate exploitation, and from export production to import substitution. CVRD bought out one of its partners and reorganized TITANSA as Mineração Vale do Parnaíba (VALEP). A downstream firm, VALEFÉRTIL, was set up to process the phosphate, while titanium, vermiculite, and niobium processing companies were planned for the future.¹¹⁰ By 1975, total investment was estimated at US\$360 million, sixty times the original amount.¹¹¹

The reformulation of the project responded to the government's perception of an urgent need to substitute phosphatic fertilizer imports in light of rising international prices. VALEFÉRTIL's initial production was planned at a level compatible with the fertilizer deficit forecast for the center-south region at the end of the decade.¹¹² The government's ultimate aim was the attainment of self-sufficiency, and thus the Minister of Mines and Energy instructed CVRD to implement the project with urgency.¹¹³

Aluminum was another input given priority in the Second National Development Plan. CVRD's expansion in this sector, involving projects valued at over US\$3 billion,¹¹⁴ took place through joint-ventures, in a government attempt to engage multinational corporations in the execution of the new national objectives. The choice of location of these projects also incorporated two other goals of the Plan: national integration and

industrial decentralization.

The association with ALCAN to exploit bauxite deposits in the Eastern Amazon, discussed in the previous section, was formally constituted in 1974.¹¹⁵ Though one of the reasons for CVRD's entry into the project was the government's desire to promote the industrialization of bauxite prior to export, this is fact did not take place in this context. Previous negotiations with a Japanese firm to collaborate in the production of alumina were also abandoned in 1974 in favor of a more extensive undertaking: an alumina/aluminum complex in the Eastern Amazon, in association with another Japanese group congregating that country's leading producers of aluminum.¹¹⁶ The initial project, aimed at both the internal and international markets, was gigantic: planned aluminum capacity alone was five times the total Brazilian output in 1974, requiring an investment of US\$2.5 billion.¹¹⁷ This plan was rejected as unprofitable however, and had to be scaled down. But the crucial change was a commitment by the Brazilian government to make the project viable, in light of its desire to transform the country into a net exporter of aluminum. It exempted ALUNORTE/ALBRÁS from any financial responsibility for the construction of a hydroelectric mill in the area, and agreed to provide much of the other required infrastructure, subsidize electricity prices, and guarantee foreign loans.¹¹⁸ The agreement to launch the project was signed during President Geisel's visit to Japan in 1976.¹¹⁹

In addition to these projects in the Eastern Amazon, CVRD was also engaged in the establishment of Valesul, an aluminum firm in Rio de Janeiro, to supply the internal market. This project was formulated as a catalyst to other investments in the newly created state, which lacked an extensive industrial base.¹²⁰

CVRD's expansion in pulp production also illustrates the company's growing involvement in large scale projects for the production of basic inputs in consonance with the goals of the Second National Development Plan. CENIBRA, the joint venture formed in 1973, had entailed an investment of US\$240 million, and was an export oriented project with a captive market for a substantial part of the output.¹²¹ Empreendimentos Florestais (FLONIBRA), an association with the same group of Japanese paper producers, was a far more ambitious undertaking. Launched in 1974, the project was formulated in light of both the Second National Development Plan and the National Program for Paper and Wood Pulp, combining import substitution and export production. Total investment was estimated at US\$870 million, almost four times that of CENIBRA, and planned pulp capacity represented over 80% of Brazil's total production in 1973.¹²²

The examples of CVRD's involvement in projects for the production of fertilizers, aluminum, and pulp indicate that CVRD's lack of dependence on subsidies, rather than a source of managerial discretion and autonomy, was a source of vulnerability to government direction. It was precisely the company's profitability and, increasingly, its ability to obtain loans in the Eurodollar market,¹²³ which led to its utilization as an agent of development. Its financial resources and solid entrepreneurial structure were harnessed to promote an investment program declared to be of "national interest" by President Geisel,¹²⁴ aimed at reducing the country's dependence on imports of basic inputs and diversifying exports. In the words of a CVRD manager, referring to one of the aluminum projects, "Vale was chosen as the victim because it had money."¹²⁵

This ambitious investment effort, coupled with the rapid increase in

indebtedness required to finance it, would increase CVRD's vulnerability to a downturn in the international market in the mid seventies.

THE CRISIS YEARS: 1977-80

CVRD role as an agent of development was eventually curtailed under the adverse international and domestic economic conjuncture of the mid to late 1970s. On the one hand, CVRD's ability to generate resources, the basis of its role in the execution of the Second National Development Plan, was undermined by a decline in steel production in the advanced countries. On the other hand, the grandiose objectives set forth in the Plan were themselves abandoned, as their implementation came into conflict with policies designed to deal with the pressing problems of inflation and current account deficits.¹²⁶

After a long period of continuous expansion, CVRD's export volume failed to grow in 1976, and declined by 16% in 1977 (see Table 2). An aggressive sales effort was required to cope with the downturn in the international market. Long-term contracts, crucial to the company's growth in the previous period, failed to provide the necessary protection from adverse conditions. Japanese producers, for example, came to regard such contracts as "statements of intentions" rather than binding agreements, and CVRD was forced to accept the introduction of recession clauses, allowing for unilateral cutbacks of 20-30% of contracted volume.¹²⁷

In response, CVRD adopted a number of strategies to increase exports. As Brazil's largest iron ore exporter, it led the country's refusal to participate in an international producers' cartel formed in 1975. CVRD feared a possible attempt by the Association of Iron Ore Exporting

Countries to restrict output in order to raise prices, while its goal was to expand the volume of sales.¹²⁸ It then embarked on the conquest of new markets, especially in less developed countries to which steel production had been shifting. New customers acquired since the mid 1970s included Mexico, Argentina, South Korea, Iraq, Iran, and the Philippines.¹²⁹ Sales to Eastern European countries, effected through bilateral deals negotiated with government support, were also expanded. Eastern Europe's share of CVRD's exports increased from 3.8% in 1975 to over 12% in 1980.¹³⁰

These and other efforts allowed CVRD to weather the downturn and retain its position as one of the world's largest exporters. Growth in export volume was resumed in 1978-79, but in 1981 sales remained below the 1976 level, and at half of the 91.5 million ton target set then.¹³¹

Adverse market conditions, coupled with rising debt service expenditures, led to a marked decline in profitability,¹³² precisely at a time when CVRD required increased resources to finance the large set of investment projects launched earlier. Table 3 shows that the share of internally generated funds in total resources fell from 65.1% in the period 1969-73 to 53.5% for 1977-80, a decline underestimated by a change in accounting practices after 1978. This decline in self-financing capacity was not matched by an increase in equity. Rather, in this period the government reduced its financial support of SOEs, inducing them to borrow abroad to ease balance of payments difficulties.¹³³ Though CVRD has stressed its cautious attitude toward foreign borrowing,¹³⁴ its long term foreign debt increased from US\$410.5 million in 1977 to US\$920.5 million in 1981,¹³⁵ representing 35.7% of total resources over the period. Moreover, the counterpart of an overestimation of self-financing

capacity after 1978 is an underestimation of the share of loans.

The unfavorable conditions faced by CVRD also led to a deceleration of its investment program. Table 5 shows that investment in its own activities as well as those in the conglomerate decreased between 1977 and 1979. Table 6 shows that only four new companies were established after 1977. Three of these were in the field of marketing, demonstrating the firm's efforts to expand iron ore exports at the expense of new diversification initiatives.¹³⁶ The fourth, FOSFÉRTIL, is an SOE belonging to the Petrobrás group in which CVRD acquired a minority share after selling its two fertilizer companies to the petroleum conglomerate. Their sale was motivated by CVRD's desire to divest itself from some of the import substitution activities initiated under the Second National Development Plan, which constituted a drain of resources.¹³⁷

Two additional factors imposed constraints on CVRD's expansion in this period. First, a private sector campaign against state intervention, itself a response to the change in economic priorities embodied in the Plan,¹³⁸ met with success. It led to the withdrawal of certain SOE privileges such as exemption from income taxes,¹³⁹ and, more importantly, it undermined the legitimacy of further expansion of the state productive sector. In the course of this campaign CVRD was widely attacked for its "megalomania" and "irresponsible diversification,"¹⁴⁰ and its consulting and engineering subsidiary RDEP became a casualty. Initially established to conduct studies for the CVRD conglomerate, it also began to provide services for a variety of government agencies, exposing it to criticisms from competing private firms. A decision to abolish it was made in 1978.¹⁴¹

Second, the international recession led several of CVRD's joint

venture partners to reevaluate their commitment to on-going projects. Such was the case with FLONIBRA, one of the two associations with Japanese paper producers to manufacture pulp, whose activities became restricted to reforestation.¹⁴² Reynolds relinquished its share in Valesul, the aluminum plant in Rio de Janeiro, though it remained the supplier of technology to the project.¹⁴³ The alumina/aluminum complex in the Eastern Amazon suffered numerous delays as the Japanese partners pressured the Brazilian government for more and more concessions.¹⁴⁴

But the most serious threat to CVRD's expansion was U.S. Steel's withdrawal from the Carajás iron ore project in 1977. The project's implementation was crucial to CVRD in light of the progressive exhaustion of the Minas Gerais deposits, but the search for alternative partners would not prove fruitful in the midst of the world steel downturn. As international iron ore experts declared in 1979:

So long as circumstances continue to stand as they now are, CVRD can hardly look forward to participation by Japanese and European steelmakers, and the progress of the project appears likely to be delayed considerably.¹⁴⁵

In response to the failure to find new foreign partners CVRD scaled down and extended the execution timetable of the Carajás project, while reducing its commitments in other areas in order to devote greater resources to it. Financial support from the Brazilian government and foreign lenders were also required to go it alone. Both were obtained with the elaboration of a catalogue of possible investment opportunities in mining, industrial, forestation, and agricultural activities in the region. By emphasizing the potential for exports, import substitution, employment creation, and dilution of required infrastructural investments, CVRD was able to obtain government backing for the iron ore

project, presented as the backbone of the entire package.¹⁴⁶ In 1980, the Council of Economic Development recommended the concession of foreign loan guarantees, official credits, fiscal incentives, and import licenses to CVRD.¹⁴⁷ Government support, coupled with successful negotiations for advance long term contracts for ore sales, allowed the company to obtain foreign loans and issue debentures in Brazil and abroad to finance the undertaking.¹⁴⁸

With the launching of the Carajás project, CVRD's investments resumed growth in 1980 (see Table 5). Production began in 1985, and is expected to reach 35 million tons by 1987. The firm's goal is to rely increasingly on the Amazon deposits for export, reserving the output of the Minas Gerais mines for the internal market.¹⁴⁹

In sum, the most notable feature of the late 1970s was CVRD's renewed concentration on its primary field of activity, iron ore exports. The difficulties faced by the company in this period led to a change in management in 1978, followed by the appointment of Eliézer Batista da Silva as president in 1979. Having begun his career as a CVRD engineer, he had risen to the post of company president and Minister of Mines and Energy prior to the 1964 coup when he was purged.¹⁵⁰ Regarded as highly competent within the mining sector, and enjoying the respect of CVRD's staff, many of whom had resented the previous administration appointed from the outside and the orientation given the company under the Second National Development Plan,¹⁵¹ Batista da Silva's appointment reflected the government's commitment to the firm's survival as a major exporter.

There is no evidence that CVRD will return to a position of being solely a mining company, as some have predicted.¹⁵² In fact, in recent years CVRD has stressed how its diversified structure has allowed it to

weather a new downturn in the international iron ore market.¹⁵³ But a more cautious attitude toward diversification can be expected in the future. As its current president declared in 1986:

We need to stop a little and straighten out the house,... alleviate pressures, in sum, manage our reality so that we can have the courage for large undertakings.¹⁵⁴

CONCLUSION

Successive Brazilian governments, especially since 1964, have sought to manage SOEs "as if" they were private firms, a policy designed to increase their operational efficiency and minimize their dependence on subsidies. Though the policy was largely successful in meeting these objectives during the 1970s, it has been suggested that an unintended consequence was a loss of government control over these policy instruments. According to this line of reasoning, the very success obtained in reducing SOE dependence on the Treasury removed an important mechanism of government control over their activities. This hypothesis finds support in studies of the government-SOE relationship in other countries. Posner and Woolf's examination of the Italian experience, for example, leads them to conclude that

... it can be stated fairly confidently as a general law that the degree of autonomy achieved by an [enterprise] increases in direct proportion to the profits it makes.¹⁵⁵

It has been further argued that, free to determine their own policies, SOE managers adopted a narrow commercial orientation rather than a broader public view of their responsibilities, an outlook prompted by the government's own emphasis on efficiency and profitability.

The Companhia Vale do Rio Doce has been widely identified as the most autonomous and "least public" of all Brazilian SOEs. First, as early as

the 1950s it was recognized that the firm's survival in a competitive international market required independence from changes in regime and in government policy, discouraging intervention in its activities. Second, CVRD's limited domestic impact has largely exempted it from many of the political pressures and "social subsidization" requirements¹⁵⁶ to which SOEs have usually been subjected. Thus, CVRD, more than any other Brazilian SOE, has been managed like a private firm, enjoying a substantial degree of autonomy. But our study showed that the firm's commercial objectives have in fact been compatible with its stated public role of earning foreign exchange. The processes of vertical integration and diversification undertaken since the 1960s have combined both sets of objectives. On the one hand, vertical integration increased CVRD's competitiveness in the international market, while diversification served to reduce its dependence on a product characterized by unstable demand. On the other hand, the same processes contributed to the growth and diversification of Brazilian exports.

CVRD's successful operation in the international market for iron ore allowed it to remain free from dependence on subsidies. But its profitability, rather than a source of autonomy, made it vulnerable to external directives. After 1974, the company's resources were harnessed to promote investments in areas deemed to be of national interest, in consonance with the objectives of the Second National Development Plan. Rather than an expression of managers' pursuit of profits and power, the rapid diversification of the company between 1974 and 1976 was a government-directed process, implemented by a new administration appointed from outside its ranks.

The fact that CVRD's role came to be more broadly conceived as that

of a producer of intermediate goods and source of demand for locally produced capital goods, rather than simply a foreign exchange earner, is not surprising. One of the central findings of the extensive literature on SOEs is that the goals they are expected to implement tend to multiply over time. As a result, they are saddled with several often conflicting objectives.¹⁵⁷

Such was the case with CVRD. Its new role as an agent of development could not be sustained following a downturn in the international market for iron ore, which undermined its ability to generate resources. CVRD was thus forced to curb its commitment in other areas in order to refocus its energies on its main field of activity, iron ore exports. The effect of the firm's declining profitability was not, as Abranches argues, to reduce its autonomy,¹⁵⁸ for this had already been curtailed, but to render the Second National Development's goals unfeasible.

CVRD's diversification has exposed it to much public criticism. In particular, its management has been attacked for penetrating areas traditionally under the domain of private firms, in violation of the government's professed commitment to support private initiative. However such actions should not be attributed to the lack of government controls, but rather to government policies which in effect privileged SOEs and multinational corporations at the expense of domestic private groups.

NOTES

1. A variety of historical, political, ideological, and economic factors account for the creation of SOEs in LDCs. However, regularities in the size and structure of the public enterprise sector across countries suggest that economic determinants have been paramount. See Leroy P. Jones and Edward S. Mason, "Role of Economic Factors in Determining the Size and Structure of the Public-Enterprise Sector in Less-Developed Countries with Mixed Economies," in Jones, ed., Public Enterprise in Less-Developed Countries (Cambridge: Cambridge University Press, 1982), pp. 17-47. Among the economic reasons for public ownership, the weak capacity for financial mobilization and risk averse behavior exhibited by domestic entrepreneurs have been emphasized. Drawing on Gerschenkron's pioneering analysis, many authors suggest that in the context of "late late" industrialization the state undertakes those activities the private sector is unable or unwilling to carry out. This argument accounts for a significant state presence in those sectors characterized by large capital requirements, long maturation periods, and low returns, which lie beyond the financial capacity or interest of private entrepreneurs. In the Brazilian case, this argument has been employed by João Carlos Torres, "Referências Teóricas para a Análise da Questão da Estatização," in Carlos Estevam Martins, ed., Estado e Capitalismo no Brasil (São Paulo: Editora Hucitec-Cebrap, 1977), pp. 241-60, among others. For an excellent critique of Gerschenkron's argument and its application to the Mexican experience, see Douglas Bennett and Kenneth Sharpe, "The State as Banker and Entrepreneur: The Last-Resort Character of the Mexican State's Economic Intervention, 1917-76," Comparative Politics 12 (January 1980): 165-89.

2. Armeane M. Choksi, "State Intervention in the Industrialization of Developing Countries: Selected Issues," World Bank Staff Working Paper no. 341 (Washington, D.C., July 1979), p. 12. For a discussion of the limitations of the use of financial profitability as a measure of performance, see pp. 44-49.

3. Ibid., pp. iv-v.

4. See World Bank, World Development Report, 1983, pp. 85-86, and "Selling State Fossils," The Economist, 23 February 1985, pp. 11-12.

5. Thomas J. Trebat, Brazil's State-Owned Enterprises: A Case Study of the State as Entrepreneur (Cambridge: Cambridge University Press, 1983), p. 232. For an analysis of the pattern of finance of Brazilian SOEs, see pp. 205-24.

6. Ibid., p. 241. For an analysis of the contribution of Brazilian SOEs to economic growth, see pp. 119-52.

7. World Bank, World Development Report, 1983, p. 50.

8. Trebat, Brazil's State-Owned Enterprises, p. 241. Choksi identifies the following as the major causes of poor financial performance by SOEs in the Third World: (1) inadequate planning and poor project feasibility studies; (2) scarcity of skilled managers; (3)

centralized decision-making; (4) excessive government intervention in operations; (5) unclear and multiple objectives; and (6) political patronage. See Choksi, "State Intervention in the Industrialization of Developing Countries," p. iv.

9. The following discussion draws extensively on Trebat, Brazil's State-Owned Enterprises, pp. 80-86.

10. Abranches and Dain argue that it was during the early 1950s that the concept of running SOEs "as if" they were private began to be disseminated. At that time the government expressed its concern with the unsatisfactory conditions prevailing in the public sector by appointing a special commission to propose measures for increasing the efficiency of state organs involved in directly productive activities. Its recommendations included the transformation of autonomous agencies into public corporations, in order to allow for greater administrative continuity and the adoption of managerial methods followed in the private sector, and the creation of sectoral holding companies to coordinate the activities of individual firms. See Sérgio Henrique Abranches and Sulamis Dain, "A Empresa Estatal no Brasil: Padrões Estruturais e Estratégias de Ação," Rio de Janeiro, FINEP, 1978, pp. 104-8.

11. As Trebat briefly notes, during the Goulart regime the performance of SOEs was hampered by accelerating inflation, price controls, the hiring of redundant workers to counter rising unemployment, and the politicization of management and trade unions. See Trebat, Brazil's State-Owned Enterprises, p. 85. For an excellent discussion of these problems, especially the latter, in the case of the state oil monopoly, see Getúlio Carvalho, Petrobrás: Do Monopólio aos Contratos de Risco (Rio de Janeiro: Forense-Universitária, 1977), pp. 127-56.

12. The new government identified inflation as the most pressing economic problem faced by the country, and large budget deficits as one of its major causes. Between 1964 and 1967 a number of measures were undertaken to reduce SOE dependence on subsidies. These included the contraction of payrolls, rationalization of inventories, and, most important, price increases in excess of inflation. The latter became known as a policy of "corrective inflation"; while in the short-run such readjustments would feed the inflationary spiral, it was believed that, over time, an increase in the self-financing capacity of SOEs would contribute to a decrease in the budget deficit, through a reduction in the need for subsidies. See Trebat, Brazil's State-Owned Enterprises, pp. 85-86, and Luciano G. Coutinho and Henri-Philippe Reichstul, "O Setor Produtivo Estatal e o Ciclo," in Martins, ed., Estado e Capitalismo no Brasil, pp. 71-72.

13. Decree-Law 200, 25 February 1967, articles 27 and 178. Martins was perhaps the first author to call attention to the importance of this decree in his widely circulated 1977 manuscript, "A Expansão Recente do Estado no Brasil: Seus Problemas e Seus Atores," published in 1985. See Luciano Martins, Estado Capitalista e Burocracia no Brasil Pós-64 (Rio de Janeiro: Paz e Terra, 1985), pp. 75-76.

14. See Trebat, Brazil's State-Owned Enterprises, Tables 8.4, p. 211,

and 8.5, p. 214. Though public resources financed an average of 22.5% of SOE investment in 1974 and 20.3% in 1978, Trebat notes that these were primarily channeled to smaller SOEs, rather those undertaking the largest expansion plans. Ibid., p. 210.

15. Martins, Estado Capitalista e Burocracia, p. 80. See also, Luiz Gonzaga de Mello Belluzzo, "A Intervenção do Estado no Período Recente," São Paulo, FUNDAP, n.d., and Coutinho and Reichstul, "Setor Produtivo Estatal e o Ciclo."

16. See, for example, Federação das Indústrias do Estado de São Paulo (FIESP), "O Processo de Estatização da Economia Brasileira: O Problema do Acesso aos Recursos para Investimentos," Gazeta Mercantil, 4 September 1975.

17. The difficulty governments face in imparting a commercial dynamic to SOEs while simultaneously ensuring responsiveness to broader policy objectives and public accountability is one of the long-standing themes of the literature on state ownership. See, C. D. Drake, "The Public Corporation as an Organ of Government Policy," in W. G. Friedmann and J. F. Garner, eds., Government Enterprise: A Comparative Perspective (New York: Columbia University Press, 1970), pp. 26-52; W. A. Robson, "Ministerial Control of the Nationalized Industries," in Friedmann and Garner, eds., Government Enterprise, pp. 79-90; William G. Shepherd, "Objectives, Types and Accountability," In Shepherd, ed., Public Enterprise: Economic Analysis of Theory and Practice (Lexington, Mass., D. C. Heath & Co., 1976), pp. 33-47; Sabino Cassese, "Public Control and Corporate Efficiency," in Raymond Vernon and Yair Aharoni, eds., State-Owned Enterprise in the Western Economies (New York: St. Martin's Press, 1981), pp. 145-56. For an excellent theoretical discussion of this issue, with specific references to the Brazilian case, see Sérgio Henrique Abranches, "A Empresa Pública como Agente de Políticas do Estado: Fundamentos Teóricos do Seu Papel, Inclusive em Face de Nossas Relações com o Exterior," in S. H. Abranches et al, A Empresa Pública no Brasil: Uma Abordagem Multidisciplinar (Brasília: IPEA, 1980), pp. 5-32.

18. A partial list of various objectives SOEs have been expected to accomplish is presented in Choksi, "State Intervention in the Industrialization of Developing Countries," p. 8.

19. World Bank, World Development Report, 1983, p. 50.

20. Belluzzo, "Intervenção do Estado," pp. 5-7; Martins, Estado Capitalista e Burocracia, pp. 70-71; Trebat, Brazil's State-Owned Enterprises, p. 204.

21. Martins, Estado Capitalista e Burocracia, pp. 76-79; Trebat, Brazil's State-Owned Enterprises, pp. 86-88 and p. 202. The claim that profitability and access to commercial loans undermined government control over SOEs finds support in the extensive theoretical and empirical literature on state ownership. See Abranches, "Empresa Pública," pp. 18-20; Yair Aharoni, "Managerial Discretion," in Vernon and Aharoni, eds., State-Owned Enterprise in the Western Economies, p. 189; N. W. Posner and S. J. Woolf, Italian Public Enterprise (Cambridge:

Harvard University Press, 1967), p. 125. In addition to the ability to mobilize financial resources, both Martins and Trebat call attention to the deficiencies of the system of ministerial supervision as a determinant of SOE autonomy. For a fuller discussion of the structures and mechanisms of government control over SOEs in Brazil, see Beatriz Wahrlich, "Controle Político das Empresas Estatais Federais no Brasil - Uma Contribuição ao Seu Estudo," Revista de Administração Pública 14 (April-June 1980): 5-37.

22. Abranches, "Empresa Pública," pp. 17-18.

23. Trebat, Brazil's State-Owned Enterprises, p. 102.

24. Martins, Estado Capitalista e Burocracia, pp. 67-71; Belluzzo, "Intervenção do Estado," p. 6; Coutinho and Reichstul, "Setor Produtivo Estatal e o Ciclo," p. 86.

25. Trebat, Brazil's State-Owned Enterprises, pp. 33-34 and p. 50; Werner Baer, Richard Newfarmer and Thomas Trebat, "On State Capitalism in Brazil: Some New Issues and Questions," Inter-American Economic Affairs 30 (Winter 1976): 87-88; Werner Baer, The Brazilian Economy: Its Growth and Development (Columbus, Ohio: Grid Publishing, 1979), p. 158. These authors tentatively suggest that SOE growth may be necessary to maintain efficiency, if only a dynamic firm can hope to retain and attract a first-rate staff.

26. Baer et al argue that further research "might establish that much of the recent expansion of state firms may be due to the power-maximizing behavior of these technocrats." See Baer, Newfarmer and Trebat, "State Capitalism in Brazil," p. 88, or Baer, The Brazilian Economy, p. 158.

27. According to Trebat, SOE managers might be expected to behave like their private sector counterparts, employing profits to integrate and diversify the enterprises' operations. He adds this "dynamic public managers hypothesis" to the existence of a weak private sector, economies of scale, external economies, natural resource rents, and political-historical factors, as a reason for the creation of SOEs. See Trebat, Brazil's State-Owned Enterprises, pp. 31-35.

28. FIESP, "Processo de Estatização da Economia Brasileira," p. 3.

29. Martins specifically calls for such an analysis, identifying only one study in existence that does so. See Martins, Estado Capitalista e Burocracia, p. 68.

30. Abranches, "Empresa Pública," p. 16.

31. The definition is Williamson's, applied by Aharoni to the case of SOEs. See Aharoni, "Managerial Discretion," in Vernon and Aharoni, eds., State-Owned Enterprise in the Western Economies, p. 184.

32. FIESP, "Processo de Estatização da Economia Brasileira," p. 3.

33. Exports by the largest SOEs represented 11.5% of their total

sales in 1972, a figure which is itself heavily influenced by the inclusion of CVRD in the sample. See Carlos Von Doellinger and Leonardo C. Cavalcanti, Empresas Multinacionais na Economia Brasileira, Coleção Relatórios de Pesquisa no. 29 (Rio de Janeiro: IPEA, 1975), cited by Baer, The Brazilian Economy, Table 36, p. 152.

34. This is the case of Petrobrás, as well as firms in the electricity and telecommunications sectors, but not steel producers.

35. The concept of crucial case studies is discussed in Harry Eckstein, "Case Study and Theory in Political Science," in Fred I. Greenstein and Nelson W. Polsby, eds., Handbook of Political Science, vol. 7 (Reading, Mass.: Addison-Wesley Publishing Co., 1975), pp. 117-20.

36. Trebat, Brazil's State-Owned Enterprises, pp. 103-5.

37. Sulamis Dain, "Empresa Estatal e Política Econômica no Brasil," in Martins, ed., Estado e Capitalismo no Brasil, p. 149.

38. Aharoni, "Managerial Discretion," pp. 190-91.

39. "Quem é Quem na Economia Brasileira," Visão, 31 August 1986, p. 356.

40. Tex Report Co., Iron Ore Manual, 1979, p. 19. In the last three years, however, its position as a price leader has been challenged by Canadian suppliers. See Juergen Franz, Bo Stenberg, and John Strongman, Iron Ore: Global Prospects for the Industry, 1985-95, Industry and Finance Studies, vol. 12 (Washington, D.C.: World Bank, 1986), p. 32.

41. The history of the creation of CVRD is discussed in Abranches and Dain, "Empresa Estatal no Brasil," pp. 33-41; John D. Wirth, The Politics of Brazilian Development, 1930-1954 (Stanford: Stanford University Press, 1970), pp. 71-129; and Dermeval José Pimenta, A Vale do Rio Doce e Sua História (Belo Horizonte: Editora Vega, 1981), pp. 23-104.

42. Pimenta, Vale do Rio Doce, p. 108.

43. Ibid., p. 125. Pimenta was CVRD's president between 1946 and early 1951.

44. For a first-hand account of these conflicts, see *ibid.*, pp. 149-51, 163-90, 231-70, and 282-91.

45. Such targets were in fact not met, in view of the precarious state of CVRD's mine-railroad-port complex. Between 1943 and 1945, the company exported only 287,221 long tons. See CVRD, Relatório da Diretoria Correspondente ao Ano de 1951 (Rio de Janeiro, 1952), p. 10.

46. Raymond Vernon and Brian Levy, "State-Owned Enterprises in the World Economy: The Case of Iron Ore," in Jones, ed., Public Enterprise in Less-Developed Countries, p. 170.

47. Abranches and Dain, "Empresa Estatal no Brasil," p. 63.

48. For further details of the difficulties faced by the company during this period, see *ibid.*, pp. 32-51, as well as Pimenta's first-hand account, Vale do Rio Doce.

49. CVRD, "Modelos de Organização de Empresa Pública no Setor de Mineração - Caso CVRD," paper presented at the First International Seminar on Public Enterprises in Economic Development, Brasilia, 28 July 1981, p. 4.

50. Abranches and Dain, "Empresa Estatal no Brasil," p. 48.

51. Carvalho, Petrobrás, p. 78.

52. Quoted in "A Grande Batalha da CVRD," O Jornal da Vale, July 1975, p. 2.

53. *Ibid.*; Abranches and Dain, "Empresa Estatal no Brasil," pp. 60-61.

54. Quoted in "A Grande Batalha da CVRD," p. 2.

55. Abranches and Dain, "Empresa Estatal no Brasil," pp. 61-62.

56. See *ibid.*, pp. 54-59, for a detailed description of the measures undertaken in this period.

57. Quoted in *ibid.*, p. 51.

58. *Ibid.*, p. 64.

59. Interview with former president of company, quoted in *ibid.*, p. 65.

60. The changes taking place in the international market over the 1950s and 1960s are described in Vernon and Levy, "State-Owned Enterprises in the World Economy," pp. 170-72; Abranches and Dain, "Empresa Estatal no Brasil," pp. 69-75; and Richard Frederick Strasser, "The State-Controlled Enterprise in Economic Development: A Brazilian Case Study," (B.A. thesis, Harvard University, 1981), pp. 25-29.

61. Transportation costs for ore shipped from Vitória to Rotterdam, for example, declined from US\$10-17 in 1955 to US\$5.50 in 1960. See Strasser, "State-Controlled Enterprise in Economic Development," p. 27.

62. The average price received by CVRD reached a high in 1953, at US\$16.92 per ton (FOB); by 1963, it had fallen to US\$8.06 per ton. Information provided by CVRD, Department of Planning Coordination (COPAN).

63. Lump ore accounted for 77% of world iron ore consumption in 1950, but only 35% by 1965. See Strasser, "State-Controlled Enterprise in Economic Development," Table III.5, p. 34.

64. CVRD's actions in response to changes in the international market

are described in Abranches and Dain, "Empresa Estatal no Brasil," pp. 45-48, 67-69, and 75-78; Strasser, "State-Controlled Enterprise in Economic Development, pp. 45-52; Orlando Rangel, "A Cia. Vale do Rio Doce e o Mercado Internacional de Minério de Ferro," lecture given at the Centro de Estudos Augusto Barbosa, Escola de Minas de Ouro Preto, Minas Gerais, 1 July 1966, pp. 18-23; and CVRD, Relatório da Diretoria, various issues.

65. In 1950, the United States absorbed 81.5% of CVRD's exports and Western Europe, 8.2%. By 1963, Western Europe's share had risen to 66.6% and the United States' fallen to 9.2%. See Abranches and Dain, "Empresa Estatal no Brasil," p. 46, for the composition of exports in 1950, and CVRD, Relatório da Diretoria, 1964, p. 12, for 1963 data.

66. The distance between Tubarão and Japan covers 24,300 km, compared to the one between Dampier (Australia) and Japan of 6,700 km. See CVRD, "Modelos de Organização," p. 98.

67. By this time, CVRD had already established two ore processing subsidiaries: Companhia Siderúrgica Vatu in 1960, and Beneficiamento de Itabirito (BENITA) in 1961. Little information is available on either of them, and they have since been abolished.

68. Itabira Eisenerz was later renamed Rio Doce Europa (RDE).

69. The creation of the development division was part of an administrative reorganization of the company, designed to increase its ability to respond effectively to changing international conditions. See CVRD, Divisão do Desenvolvimento, "Relatório Decenal 1962/1972," O Minério, Special Issue, May 1973, p. 5.

70. CVRD, Relatório da Diretoria, various issues.

71. Fernando Roquette Reis, quoted in "Os Segredos da Confiabilidade," O Jornal da Vale, October 1974, p. 3.

72. CVRD, Relatório da Diretoria, 1964, p. 5.

73. Ministério das Minas e Energia, Três Anos de Revolução no Ministério das Minas e Energia, (Brasília, 1967), pp. 80-81.

74. For a discussion of these measures, see *ibid.*, pp. 17-20, 40, 85-91, and *idem*, Relatório das Atividades de 1968 e Programa para 1969, pp. 147-48. For further discussion of the 1967 mining code, see "Aspectos do Código de Mineração," Conjuntura Econômica 27 (March 1973): 62-64.

75. Ministério das Minas e Energia, Três Anos de Revolução, p. 83.

76. Decree 55282, 22 December 1964, articles 4 and 5.

77. Complementary Instructions for the Execution of Decree 55282, item 2.1(a).

78. CVRD, Divisão do Desenvolvimento, "Relatório Decenal," pp. 6-8.

79. DOCENAVE, n.d.; Abranches and Dain, "Empresa Estatal no Brasil," p. 83.

80. CVRD, Relatório da Diretoria, various issues. The firms discussed are Seamar Shipping Corporation, Nippon-Brazil Bulk Carriers, and Itabira International Company (ITACO). Nippon-Brazil Bulk Carriers is an association between DOCENAVE and Japanese groups. Seamar Shipping's control was transferred by CVRD to DOCENAVE in 1968.

81. "Florestas Rio Doce: 9 Milhões de Árvores em 3 Anos," O Minério, August-September 1970, p. 2. Government incentives, in the form of tax breaks, covered the bulk of CVRD's investments in this field between 1967 and 1972:

	1967-68	1969	1970	1971	1972
Fiscal Incentives/ Total Investment	60.0%	95.9%	96.1%	44.9%	47.2%

SOURCE: CVRD, Relatório da Diretoria, 1972.

82. CVRD, Divisão do Desenvolvimento, "Relatório Decenal," p. 8.

83. Calculated from Instituto Brasileiro de Siderurgia, Anuário Estatístico, various issues.

84. CVRD's lack of interest in promoting domestic sales was undoubtedly explained by the lower prices fetched in the internal market. Its chief customer was the state enterprise USIMINAS, located near the mines.

85. Mixed economy corporations (sociedades de economia mista) such as CVRD, in which the government owns the majority of voting stock, were exempt from income taxes on the share of profits attributed to the government until 1975. In the early seventies, the Treasury controlled on the order of 80.5% of CVRD's total shares.

86. CVRD, Divisão do Desenvolvimento, "Relatório Decenal," p. 5.

87. CVRD, Relatório da Diretoria, various issues.

88. Private equity was practically insignificant as a source of funds, representing less than 2% of the total volume of resources mobilized by the company in this period. But it is interesting to note that trade in the company's stock, as in that of other SOEs, had a substantial impact on the market. In 1973, for example, CVRD shares accounted for 6.9% of total trading in the stock exchange. See Walter L. Ness Jr., "A Empresa Estatal no Mercado de Capitais," Revista Brasileira de Mercado de Capitais (September-December 1978): 364.

89. CVRD, Relatório da Diretoria, 1970 and 1971.

90. Details on these companies can be found in CVRD, Divisão do Desenvolvimento, "Relatório Decenal," pp. 11-40, and CVRD, Relatório da Diretoria, various issues.

91. In 1972 both companies also formed VALUEC, an engineering company to coordinate the viability studies for the project.

92. Further information on ITABRASCO, NIBRASCO, and HISPANOBRÁS can be found in CVRD, "Modelos de Organização," pp. 42-43; Strasser, "State-Controlled Enterprise in Economic Development," pp. 55-56; Paulo César de Sá, "CVRD - Minério de Ferro: Análise de uma Empresa Líder," Rio de Janeiro, Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), 1981, pp. 85-89; and the CVRD pamphlet, "Complexo de Pelotização da Ponta de Tubarão/Pelletizing Complex of Ponta de Tubarão," n.d.

93. CVRD's expansion in the fertilizer and aluminum sectors is discussed in more detail in the next section.

94. Further information on CENIBRA can be found in CVRD, "Modelos de Organização," p. 10; O Jornal da Vale, July 1974, p. 2; and the CVRD pamphlet "Reflorestamento e Celulose/Reforestation and Wood Pulp," n.d.

95. CVRD, Divisão do Desenvolvimento, "Relatório Decenal," p. 12.

96. CVRD, Relatório da Diretoria, 1971.

97. "A Grande Expansão da Década de 70," O Minério, August-September 1970, p. 5.

98. Calculated from data provided by CVRD, Department of Planning Coordination (COPAN) and Conjuntura Econômica, various issues.

99. Interviews, CVRD, Rio de Janeiro, November 1981.

100. Lúcio Flávio Pinto, Carajás, O Ataque ao Coração da Amazônia (Rio de Janeiro: Editora Marco Zero, 1982), p. 73; Paulo César Ramos de Oliveira Sá, "Grande Carajás: Tema para Reflexão," Revista Brasileira de Tecnologia 13 (January-March 1982): 32-33.

101. Sá, "Grande Carajás," p. 37; Peter Evans, Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil (Princeton: Princeton University Press, 1979), pp. 250-51; CVRD, Relatório da Diretoria, 1972.

102. For a brilliant analysis of the Plan's conception and execution, see Carlos Lessa, "A Estratégia de Desenvolvimento, 1974-1976: Sonho e Fracasso," Rio de Janeiro, UFRJ, 1978.

103. Interview, CVRD, Rio de Janeiro, 11 November 1981.

104. The Council of Economic Development's "Exposição de Motivos no. 6/74," of 20 May 1974, directed SOEs to give preference to national equipment, in an effort to tie planned investment projects in the area of intermediate goods to the development of the capital goods sector. In mid-1975, the Council recognized the need to go beyond this recommendation, actively encouraging closer interaction between SOEs and capital goods producers. It proposed the creation of "nuclei of articulation with industry" within SOEs, designed to make possible better

coordination between the future equipment needs of the firms and the technical capabilities of local suppliers. The creation of the nuclei was enacted into law by Decree 76409 of 9 October 1975. Decrees 76406 and 76407, enacted on the same date, set the legal basis for limiting the value of public sector imports in the coming years, and forbade imports for which domestic equivalents existed.

105. Belluzzo, "Intervenção do Estado," p. 7; Martins, Estado Capitalista e Burocracia, p. 80.

106. CVRD, Relatório Anual, 1977, and Interview, CVRD, Rio de Janeiro, 11 November 1981.

107. CVRD, Relatório Anual, 1975.

108. Although the acronym TITANSA was maintained, the firm's name was changed from Titanio Internacional to Rio Doce Titanio in 1971.

109. CVRD, Divisão do Desenvolvimento, Relatório Decenal, pp. 23-24.

110. Rio Doce Engenharia e Planejamento, "Mineração Vale do Parnaíba S.A., VALEP, Projeto Fosfato - Estudo de Viabilidade," Rio de Janeiro, 1975, pp. 1-3.

111. O Jornal da Vale, February 1975, p. 7.

112. Rio Doce Engenharia e Planejamento, "VALEP, Projeto Fosfato," p. 3.

113. O Jornal da Vale, May 1975, p. 4.

114. Estimated value of CVRD's projects in bauxite, alumina, and aluminum (US\$ millions):

Mineração Rio do Norte (bauxite; first phase only)	403
Mineração Vera Cruz (bauxite)	300
ALUNORTE (alumina)	585
ALBRÁS (aluminum)	1,542
Valesul (aluminum)	327

3,157

SOURCES: CVRD, "Bauxita, Alumina e Alumínio/Bauxite, Alumina and Aluminium," n.d.; Idem, Relatório Anual, 1981.

115. In addition to CVRD, with a 46% share, and Alcan, with a 19% share, the leading Brazilian producer of aluminum and five Norwegian, Dutch, American, and Spanish firms participate in Mineração Rio do Norte. See CVRD, "Bauxita, Alumina e Alumínio/Bauxite, Alumina and Aluminium," n.d.

116. Rio Doce Engenharia e Planejamento, "Projeto Alumina/Alumínio -

Pré-Viabilidade," Rio de Janeiro, April 1975, pp. 2/1-2/2.

117. "Alumínio, O Futuro da Amazônia," O Jornal da Vale, September 1974, p. 3. Brazilian production in 1974 taken from Departamento Nacional da Produção Mineral, Balanco Mineral Brasileiro, 2 vols., 1980, 1:43.

118. ALBRÁS, "Projeto Alumínio - Relatório de Viabilidade," Rio de Janeiro, June 1976, p. 6; ALUNORTE, "Projeto Alumina - Relatório de Viabilidade," Rio de Janeiro, August 1976, pp. 9-10.

119. CVRD, Relatório Anual, 1976.

120. Interview, CVRD, Rio de Janeiro, 1 October 1981.

121. CVRD, "Reflorestamento e Celulose/Reforestation and Wood Pulp," n.d.

122. Idem, Relatório Anual, 1974. Brazilian production in 1973 taken from Bank of Brazil, Monthly Letter, June 1982, p. 4.

123. The increased share of loans in the company's total resources is documented in Table 3. By the end of 1976, CVRD's long term foreign debt stood at US\$595.2 million, 76.5% of it from commercial sources. See CVRD, Relatório Anual, 1976.

124. Ibid.

125. Interview, CVRD, Rio de Janeiro, 1 October 1981.

126. For a discussion of the Plan's failure, see Lessa, "Estratégia de Desenvolvimento," pp. 129-78.

127. Strasser, "State-Controlled Enterprise in Economic Development," pp. 52-54.

128. Details on the formation and operation of the cartel can be found in Tex Report Co., Iron Ore Manual, 1979, pp. 90-97.

129. CVRD, Relatório Anual, 1977.

130. Idem, Relatório Anual, various issues.

131. The 1976 estimates are available in Tex Report Co., Iron Ore Manual, 1979, p. 64.

132. Net profit/net assets declined from 19.6% in 1976 to 2% in 1979, rising to 17.3% in 1980. See "Quem é Quem na Economia Brasileira," Visão, 29 August 1981, p. 28.

133. For a discussion of the growing indebtedness of SOEs during this period, see Paulo Davidoff Cruz, "Notas Sobre o Endividamento Externo Brasileiro nos Anos Setenta," in Luiz Gonzaga M. Belluzzo and Renata Coutinho, eds., Desenvolvimento Capitalista no Brasil, 2 vols. (São Paulo: Editora Brasiliense, 1982-83), 2: 59-106.

134. Interview, CVRD, Rio de Janeiro, 3 November 1981.

135. CVRD, Relatório Anual, various issues.

136. Rio Doce America (RDA) and Rio Doce Ltd. were set up in 1978, based in New York, in an effort to capture a larger share of the North American market. Little information is available on FERNOR, which has since been abolished.

137. Interview, CVRD, Rio de Janeiro, 25 November 1981.

138. Fernando Henrique Cardoso, "Estatização e Autoritarismo Esclarecido: Tendências e Limites," Estudos CEBRAP no. 15 (1976), pp. 18-19. For distinct interpretations of the campaign, see Evans, Dependent Development, pp. 268-73, and the various contributions in Martins, ed., Estado e Capitalismo no Brasil.

139. Law 6264, 18 November 1975. Profits earned on activities carried out under a legal monopoly remained exempt from income taxes.

140. Editorials, Jornal do Brasil, 28 May 1978, and Estado de São Paulo, 17 September 1978, quoted in Trebat, Brazil's State-Owned Enterprises, p. 263, note 45.

141. Rio Doce Engenharia e Planejamento, Relatório, various issues. The business periodical Visão, one of the leading organs of the campaign, was highly critical of the vertical integration of SOEs and their failure to contract out for services in the elaboration and implementation of investment projects. This is not surprising, for Visão is owned by the same group as Hidroservice, one of the leading private consulting and engineering firms. For an example of Visão's views, see "Brasil: Capitalismo de Estado?" Visão, 25 May 1975, pp. 75-89.

142. Interview, CVRD, Rio de Janeiro, 5 November 1981. FLONIBRA was finally incorporated by CENIBRA in 1984.

143. "The Second Thoughts of CVRD's Partners," Business Week, 22 August 1977, p. 38.

144. ALBRÁS, the aluminum plant, began operations in 1985, but the full capacity of 320,000 tons will not be reached until 1989. The import substitution content of the project has been virtually eliminated at the insistence of the Japanese partners. ALUNORTE, the alumina plant, has suffered more delays, and is not scheduled to begin operations until 1989. In the meantime, ALBRÁS is operating with imported alumina. CVRD's joint venture partners have continued to manifest a desire to withdraw from these projects. For information on the various setbacks suffered in the implementation of ALBRÁS/ALUNORTE since the mid 1970s, see: "Mais Projetos," Veja, 28 May 1980; "Projeto ALBRÁS-ALUNORTE Reflete Também a Crise Interna Japonesa," Folha de São Paulo, 3 May 1981; "Painel Econômico," Folha de São Paulo, 10 November 1982; "Projeto ALBRÁS Inicia Operações, Após Seis Anos de Implantação," Folha de São Paulo, 23 July 1985; "Retirada," Folha de São Paulo, 24 July 1985, "Japão Quer Sair do Projeto Alumínio," Veja, 25 June 1986; "Com a ALBRÁS, Mais 38% de

Alumínio," Balanco Anual 1986, p. 225.

145. Tex Report Co., Iron Ore Manual, 1979, p. 59.

146. Sá, "Grande Carajás," p. 33. The so called "Grande Carajás Program" became Brazil's major regional development and export promotion project in the early 1980s, with CVRD being responsible for much of the infrastructure to make it viable. There is now an extensive literature on the Program. An annotated bibliography is available in Léa Diniz, Maria Bernardete Martins Alves, and Rose-Mary da Silva Sá, Carajás: Informações Documentais (Belém: Museu Paraense Emilio Goeldi, 1982).

147. Conselho de Desenvolvimento Econômico, Exposição de Motivos no. 50, 15 October 1980.

148. By the end of 1981, long term sales contracts for 25 million tons per year had been signed, and all arrangements for external financing were being finalized. See CVRD, Relatório Anual, 1981.

149. O Jornal da Vale, November-December 1980, p. 1.

150. On Batista da Silva's career see O Jornal da Vale, March 1979, pp. 1-5, and "Mining for Profits in the Jungles of Brazil," New York Times, 19 May 1985.

151. Interviews, CVRD, Rio de Janeiro, November 1981.

152. Sá, "Grande Carajás," p. 36.

153. CVRD, Relatório Anual, 1983 and 1984.

154. Raymundo Mascarenhas, quoted in "Aposta no Oriente," Senhor, 26 August 1986, p. 53.

155. Posner and Woolf, Italian Public Enterprise, quoted in Trebat, Brazil's State-Owned Enterprises, p. 78.

156. The expression is Janet Kelly Escobar's, defined as actions to benefit some groups taken under external compulsion. Examples of social subsidization include domestic price minimization, subsidization of employment, take-over of sick firms. See Janet Kelly Escobar, "Comparing State Enterprises Across International Boundaries: the Corporación Venezolana de Guayana and the Companhia Vale do Rio Doce," in Jones, ed., Public Enterprise in Less-Developed Countries, pp. 109-11.

157. See Raymond Vernon, "Introduction," in Vernon and Aharoni, eds., State-Owned Enterprise in Western Economies, pp. 11-12.

158. Abranches, "Empresa Pública," p. 25.

