Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No. P-2470-BR

REPORT AND RECOMMENDATION
OF THE
PRESIDENT OF THE
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
TO THE
EXECUTIVE DIRECTORS
ON A
PROPOSED LOAN
TO
VALESUL ALUMINIO S.A.
WITH THE GUARANTEE OF
THE FEDERATIVE REPUBLIC OF BRAZIL
FOR AN
ALUMINUM PROJECT

February 22, 1979

CURRENCY EQUIVALENTS

		Calendar 1978	January 25, 1979
Currency Unit	-	Cruzeiro (Cr$)	Cr$
US$1	-	Cr$18.3	21.79
Cr$1	-	US$0.055	0.046

ABBREVIATIONS AND ACRONYMS

ALBRAS	-	Aluminio Brasileiro S.A.
ALUNORTE	-	Aluminio do Norte S.A.
BD-Rio	-	Banco de Desenvolvimento do Estado de Rio de Janeiro
BNDE	-	Banco Nacional de Desenvolvimento Economico
CACEX	-	Carteira do Comercio Exterior do Banco do Brasil S.A.
CIE	-	Companhia Internacional de Engenharia
CIP	-	Conselho Interministerial dos Precos
CVRD	-	Companhia Vale do Rio Doce
FINAME	-	Agencia Especial de Financiamento Industrial
Reynolds	-	Reynolds International, Inc., a subsidiary of Reynolds Metals (U.S.)
Shell	-	Shell Brasil S.A.
TPY	-	Tons per Year (metric)
VALESUL	-	Valesul Aluminio S.A.

FISCAL YEAR

January 1 - December 31

The exchange rate used in the Staff Appraisal Report (US$1 = Cr$ 19.64) correspond to the exchange rate as of November 24, 1978.

BRAZIL

VALESUL ALUMINUM PROJECT

LOAN AND PROJECT SUMMARY

Borrower: Valesul Aluminio S.A. - VALESUL

Guarantor: Federative Republic of Brazil

Amount: US$98.0 million equivalent

Terms: Repayment in 15 years, including three years of grace at 7.0% per annum.

Guarantee Fee: VALESUL would pay a 3% per annum guarantee fee to the Government. If the cost of the loan to VALESUL, in US dollar terms, would exceed 10% per annum, this guarantee fee would be reduced correspondingly.

Project Description: VALESUL would substitute aluminum imports with domestic production which would rely on Brazil's abundant hydroelectric resources for power and ample reserves of bauxite for raw material. Also, it would serve as a training ground to prepare the skilled management and manpower needed to develop the aluminum industry in the Amazon region, which has enormous potential. Moreover, it would introduce to Brazil an advanced aluminum reduction technology. At full production, the project's output would reach 86,500 tons per year and substitute imports with an estimated yearly value of US$145 million. The main project components would be: a carbon plant to provide anodes, a rectifying substation to supply direct current, a potline of electrolytic cells for the reduction process, and a cast house to cast billets, slabs and ingots. The project faces no major risks. On the financial side, the Government, which controls the price of primary aluminum, would take all pricing actions which may be required to ensure VALESUL a reasonable return on investment . On the technical side, the presence of foreign partners, in particular Reynolds International Inc., should ensure a successful execution of the project and operation of the aluminum smelter plant.

Estimated Cost:

	US$ Millions Local	Foreign	Total	% of Base Cost
Land	1.0	-	1.0	0.8
Equipment (including freight and spares)	44.2	81.9	126.1	34.4
Civil Works, Erection and Installation	40.0	18.4	58.4	31.2
Engineering, Technology and Project Management	22.6	12.9	35.5	19.6
Total Fixed Assets	107.8	113.2	221.0	86.0
Preoperating Expenses	18.0	-	18.0	14.0
Total Base Cost Estimate	125.8	113.2	239.0	100.0
Physical Contingencies	10.1	10.2	20.3	8.5
Price Escalation	19.9	17.9	37.8	15.8
Total Installed Cost	155.8	141.3	297.1	124.3
Working Capital	19.6	20.7	40.3	16.9
Interest during Construction	9.1	23.6	32.7	13.7
Total Financing Required	184.5	185.6	370.1	154.9

Financing Plan:

	US$ Millions
Equity	
Companhia Vale do Rio Doce	89.2
Shell Brasil S.A.	51.8
Reynolds International Inc.	6.0
Banco de Desenvolvimento do Estado de Rio de Janeiro	1.0
Total Equity	148.0
Loans	
Local Suppliers Credits	34.1
Chase Manhattan Bank N.A. (agent)	90.0
IBRD	98.0
Total Long-term Debt	222.1
Total Financing	370.1

Estimated Disbursements:		US$ Millions		
		Bank FY80	FY81	FY82
	Annual	34.4	47.5	16.1
	Cumulative	34.4	81.9	98.0

Rate of Return: The economic internal rate of return for the project has been estimated at 20.4%, and the financial internal rate of return at 10.8%.

Appraisal Report: Report No. 2007-BR, dated February 20, 1979

REPORT AND RECOMMENDATION OF THE PRESIDENT
OF THE IBRD TO THE EXECUTIVE DIRECTORS
ON A PROPOSED LOAN TO VALESUL ALUMINIO S.A. -
FOR AN ALUMINUM PROJECT

1. I submit the following report and recommendation on a proposed loan to Valesul Aluminio S.A. - VALESUL with the guarantee of the Federative Republic of Brazil for the equivalent of US$98 million to help finance an aluminum project in the state of Rio de Janeiro. The loan would have a term of 15 years, including three years of grace with interest at 7.0% per annum. VALESUL would pay a guarantee fee to the Government.

PART I - THE ECONOMY 1/

2. On October 15, 1978, Brazil's electoral college elected General Joao Baptista Figueiredo as Brazil's new president for a six year term, replacing President Ernesto Geisel. The new administration will assume office on March 15, 1979.

3. A report, entitled "Economic Memorandum on Brazil" (1665a-BR), dated October 13, 1977, was distributed to the Executive Directors on October 21, 1977. An economic mission visited Brazil in April 1978. A new economic report to be issued shortly is being prepared. The following paragraphs as well as the country data sheets attached as Annex I to this report reflect the findings and projections of that mission.

Recent Economic Performance

4. During the late 1960s and early 1970s, Brazil achieved very rapid economic growth together with much reduced inflation rates and a good balance-of-payments performance. Net capital inflows fluctuated between 1 and 2.5% of GDP. The petroleum crisis of late 1973 and the ensuing world recession cum inflation produced a sharp deterioration in the balance of payments and inflation accelerated. Brazil's response was more successful than that of most LDCs, even though, with 80% of its petroleum imported, it was particularly hard hit. The growth rates of the economy and of prices were:

	GDP	General Price Index
1973	14.0	15.1
1974	9.8	28.7
1975	5.6	27.7
1976	9.2	41.3
1977	4.7	42.7

1/ This section has been substantially reprinted from the President's Report on the Sites and Services and Low-Cost Housing Project (P-2442-BR), dated January 10, 1979.

The maintenance of high rates of growth after 1973 required large amounts of external financing. Gross capital inflows averaged $9 billion in 1974-77, compared to $6 billion in 1973. Government policies were to keep imports approximately constant through a combination of import restrictions and import substitution; to maintain investment levels; and to continue to stimulate non-traditional exports.

5. The major problem facing Brazil after the onset of the petroleum crisis was the merchandise trade balance, which turned into a large deficit in 1974, as a result of a doubling in the value of imports. Since then, under the influence of the policies described below, the trade balance gradually improved, and turned again into a small surplus in 1977, helped in part by the favorable trend of coffee and soy export prices in 1976 and in the first half of 1977. In 1978, on the other hand, agricultural exports have been adversely affected by falling commodity prices and have suffered the impact of a severe drought in Brazil's most important agricultural states. As a result, primary product exports are estimated to have fallen by more than $1 billion. This shortfall has been largely offset by increased manufactured exports which are rising very rapidly. Total exports, thus, are estimated to have remained at about the same level as in 1977. The merchandise trade account has shown a deficit of about US$1 billion because of increasing imports. Borrowing requirements will continue to be high because of rising debt service payments.

6. During 1977, at the same time as the balance of payments was improving, the Government began to make some headway in the fight against inflation, by placing more rigid limitations on credit expansion and more effective restraints on public sector investment. By May 1978, the annual rate of inflation, which had accelerated sharply in 1976, was reduced to 35%, as compared to 47% a year earlier. The restrictions on public investment played a major role in the program to control aggregate demand. The overall size of the public investment program leveled off in real terms in 1977, after a decade of strong growth which had, in recent years, come to place a significant amount of strain on available resources. In 1977, in addition, ceilings were placed on the lending programs of the National Economic Development Bank, the National Housing Bank, and other official credit agencies. These measures reinforced the impact of increasingly stringent policies in other areas, including increases in bank reserve requirements and continued curbs on consumer and real estate credit designed to dampen speculative demand and reverse inflationary expectations. The anti-inflationary program induced a slowdown in the rate of growth of GDP, from 9.2% in 1976 to 4.7% in 1977. The growth of manufacturing industry dropped to 2.3%, reflecting a slackening of both consumer demand and gross fixed investment.

7. While information on economic trends during 1978 is still preliminary, it appears that a recovery of industrial activity has taken place, with a growth rate of about 8%, as compared with about 4% in 1977. Agricultural output, on the other hand, declined by about 2% because of widespread crop failures caused by the drought. The overall rate of growth of the economy is believed to have been around 6%. The Government has maintained its anti-inflationary monetary and fiscal policies. Credit policy remained tight and public sector investment plans did not call for a significant increase in investment in real terms, except in the priority sectors of petroleum,

electric power and steel. The overall increase in public investment has probably not exceeded 5%. However, a number of factors contributed to continuing inflationary pressures in 1978. In the first place, inflation was affected by the drought, as the decline in food production put pressure on the cost of living. Moreover, on the wage front some industrial workers in the state of Sao Paulo were able in May-June 1978 to negotiate increases significantly above the annual inflation adjustment and the slight real increase authorized by the official guidelines. Finally, as the Government has continued to take advantage of favorable conditions in the international financial markets to borrow in excess of requirements and build up exchange reserves, there has been a large inflow of external capital into the economy. Although steps were taken to minimize the domestic impact of this inflow by sterilizing the funds temporarily at the Central Bank, the pace of inflation continued at approximately 41% a year.

Poverty Programs

8. Brazil is a country with great income inequalities and extensive poverty. While the debate on income distribution goes on, and the statistical evidence remains inconclusive, in recent years the Brazilian Government has made serious efforts towards the relief of poverty. During the Administration of President Geisel social programs have increasingly been designed to meet the needs of the lower income groups. Although the provision of basic social services such as health, education and housing is still very inadequate, there has been significant progress in many areas. The coverage of the social security program has been expanded in the urban areas and extended to rural populations in the early 1970s. The urban public health care system now covers more than 70% of the urban population. In the rural sector, a system of cash transfer to poorer old persons has been established. By 1978 virtually all rural persons over 65 years of age received the equivalent of US$30 per month per household--a very substantial income supplement equal to almost twice the average per capita expenditure in the rural Northeast and a much higher proportion for the poorer rural recipients. A similar program covers the urban population over 70. Literacy of the population aged 10 and over has increased from 48% in 1950 to 67% in 1970, and between 1970 and 1974 the adult literacy program (MOBRAL) enrolled some 7 million persons. In the area of urban housing, the National Housing Bank (BNH) has made over 1.7 million loans over the period 1964-77. Beginning in 1975, a new sites and services program (PROFILURB) was established to serve the urban poor and in 1977 this was complemented by a program to finance the purchase of construction materials. Increased priority has also been placed on improving urban water supply. The percentage of urban dwellings connected to general water supply networks rose from 54% in 1970 to 61% in 1973, and it appears likely to reach at least 70% by 1980. Available evidence suggests that malnutrition remains one of the most serious social problems in Brazil. Beginning in 1973, the Government established a National Nutrition Program (PRONAN) to attack the problem.

Long-Term Prospects

9. During the past decade, the Brazilian economy grew at an average rate of 10% a year. The Government has now recognized the need for moderating growth because of the balance-of-payments constraint and to contain inflation. In broad terms, a growth rate of 6 to 7% a year is probably needed to absorb

new entrants into the labor force and permit the continued transfer of manpower from low to high productivity areas and sectors. GDP growth rates in that range seem feasible through 1980, and growth might accelerate to 8 to 9% a year in the 1980s. The assumptions underlying this projection include a significant growth of export volume (at a rate of about 10% a year in 1980-85). The terms of trade are expected to turn against Brazil sharply in 1978-80, but should improve again slowly after 1982. Coffee prices are expected to level off in the early 1980s, but to resume their rise subsequently. Soybean prices should improve earlier. The growth of manufactured exports volume is projected to range between 15 and 18% a year until 1983, and taper off gradually thereafter, to 10% in the late 1980s. Assuming a continuation of present import substitution policies, a sizeable trade surplus would begin to emerge by 1980 and the current account deficit would narrow in the early 1980s to about $3 billion or 1% of GDP as compared to 4-5% in 1974-76. The rate of growth of the external debt would slow down considerably in the 1980s. In the late 1980s, the growth of imports is expected to accelerate as import-substitution projects are completed and the import ratio to GDP can be expected to increase as a result. At the same time the exceptional momentum of export growth can be expected to slow down as the absolute magnitude of Brazil's non-traditional exports becomes large by world standards. As a result, the current account deficit of the balance of payments is projected to increase somewhat in nominal terms, although it would still remain below 1% of GDP.

10. This outlook rests on a number of basic assumptions, including, in particular, the expectation of a relatively favorable world economic situation and the continued expansion of market opportunities for manufactured exports. Although there are indications of increasing protectionism in industrial countries, Brazilian commercial policy has so far proven extremely flexible. Brazil can be expected to diversify its export products and markets and revise its commercial strategy within a wide range of options to overcome emerging obstacles in international trade. Even under a less favorable set of assumptions, however, Brazil can still be expected to sustain a long-term growth rate of about 6.5% a year, a growth rate which would constitute a reasonably good performance, and would in all likelihood be adequate to satisfy the expected demand for employment opportunities.

11. Brazil's current development strategy was defined in the second National Development Plan (1975-79). It relies on rapid expansion of both agriculture and industry. Agriculture grew by an impressive 5% per year over the past decade, largely by expansion of land under cultivation. The cultivated area makes up less than 5% of Brazil's surface, and there is every indication that rapid agricultural growth will continue to meet both export and domestic demands, though the development of frontier lands will become progressively more expensive. In the industrial sector, manufacturing has been expanding at the average rate of 11% over the past 10 years. In the late 1960s and early 1970s the leading sectors were automobiles, consumer durables and light equipment, with basic industry lagging behind. Since 1975, however, Brazil's strategy has been to promote a more balanced pattern of industrial growth and reduce dependence on imports by emphasizing heavy industry. One element of this policy involves stepping up the development of Brazil's raw material resources to supply industrial input needs. Large investment programs

are now being carried out, often with substantial public sector involvement, in steel, petrochemicals, fertilizers, pulp and paper, non-ferrous metals and cement. At the same time, Brazil is building up its capability in the machinery and equipment sectors, moving into the production of heavy and more sophisticated equipment, and equipment made to order. The recent decision to build the turbines for the Itaipu dam (one of the largest in the world) in Brazil reflects the growing capability of the sector. The National Economic Development Bank (BNDE) is supporting these efforts through its large credit program.

12. Public sector investment plays a key role in Brazilian national development plans. Defined broadly, public sector investment accounts for more than half of total fixed investment in the Brazilian economy. Federal investment has been heavily concentrated in infrastructure and basic industry. These two areas together account for about 70% of total investment by federal Government agencies and enterprises. Regional development and social programs absorb most of the remaining 30%. Until 1975, the rapid expansion of public investment reflected a heavy emphasis on road construction and regional development. The Second National Development Plan added the massive program of import substitution in basic industrial inputs, and an acceleration in the pace of social programs. Since 1977, with the restraints placed on public investment, road and rail transport expansion plans have been cut back sharply. Investments in electric power, on the other hand, are maintained at a high level. In basic industries such as steel, non-ferrous metals and petroleum, investments are being stepped up considerably. The share of regional development programs in total federal investment has now stabilized at about 7%. The percentage allocated to social investment is increasing gradually, reflecting continued expansion of federal investment in housing, water supply and sewerage, and other urban development programs. State and municipal governments also devote a substantial proportion of their resources to health, education, welfare and other public services.

External Assistance and Creditworthiness

13. Although Brazil's resource gap may be expected to turn into a surplus in the early 1980s - barring major unforeseen developments in the world economy - and its balance-of-payments current account deficit is expected to be reduced by half in 1980 as compared to the levels reached in 1974-1976, external capital requirements will remain high in 1979-84 because of heavy debt service payments. The gross capital inflow needed during 1979-84 is projected at US$10.7 billion annually, compared with a US$8.3 billion average medium- and long-term capital inflow (including net direct foreign investment) in 1974-77. Of this, gross disbursements of suppliers' credits are expected to average US$1.6 billion a year, bond issues are projected to continue at the current annual rate of US$1 billion and the gross inflow of financial credits needed should average US$5.2 billion a year over the 1979-84 period, or about the same as in 1974-77. This level of borrowing would represent mostly the roll-over of existing credits. In contrast to the period 1974-77, when financial credits supplied a net inflow of US$3.8 billion a year, the net contribution from this source is expected to drop to less than US$1 billion a year, on average, in 1979-84. The remainder would be made up of direct private investments and bilateral and multilateral credits.

14. On December 31, 1977, Brazil's public and publicly guaranteed medium- and long-term external debt amounted to $19.3 billion. Financial credits make up a little more than half of this amount. Total external debt (both public and private) registered by the Central Bank at the end of 1977 was $32.0 billion. Of this total, $21.5 billion, or about two-thirds, was in the form of financial credits. During 1977, the share of financial credits in total debt outstanding declined slightly, as a result of an increase in net disbursements by multilateral agencies and bilateral lenders, and a significant rise in bond issues. The share of public and publicly guaranteed debt in total external debt has continued to increase, largely reflecting the growing needs of public sector entities for investment capital. Reflecting this change in the composition of the total debt, the public debt service ratio is expected to rise from about 20% in 1977 to 31% in 1978. The net debt service ratio (debt service less interest earned on reserves) on the total external debt, which reached 49% of exports of goods and non-factor services in 1977, is also expected to increase to about 55% in 1978. This ratio will be high in 1978, because of the exceptional factors depressing Brazilian exports in that year, but can be expected to improve steadily beginning in 1979 and fall gradually to about 28% in 1985. The public debt service ratio can also be expected to decline from its 1978 peak, as a result of the growth of exports and the improvement of the debt profile.

15. During 1974-77 Brazil has been able to finance a cumulative current account deficit of nearly $25 billion, while increasing reserves by more than $1 billion and improving the terms on which it obtains credit in the world financial markets. With the balance-of-payments deficit on current account expected to continue to improve in the early eighties, and with further improvement in the terms of new borrowing, the rate of growth of debt service payments should slow to an average of about 5% a year in 1980-85, as compared to more than 25% a year during the period 1974-77. In sum, Brazil may be expected to remain fully creditworthy for Bank lending.

PART II - BANK OPERATIONS IN BRAZIL

16. By December 31, 1978 the Bank had approved 82 loans to Brazil, amounting to US$3,887.1 million, of which 39 were not yet fully disbursed. Two additional loans, totalling US$193 million, were approved in January, 1979. During FY70-75, disbursements averaged US$150 million per year, reaching US$202 million in FY76, US$267 million in FY77 and US$252 million in FY78. Disbursements are expected to increase during the next few years. Annex II contains a summary statement of Bank loans as of December 31, 1978 and notes on the execution of ongoing projects.

17. Over the FY75-78 period, Bank lending to Brazil ranged from US$425 to over US$700 million per year. In FY75, five loans were made totalling US$426.5 million; in FY76, ten loans totalling US$498 million; in FY77 seven loans totalling US$425 million and FY78, nine loans totalling US$705. So far in FY79, two loans totalling US$193 million have been approved: a US$100 million loan for a water supply and sewerage project in the northeast and a US$93 million loan for a sites and services and low-cost housing project.

Work is advanced on the preparation of an industrial pollution control project in Sao Paulo; two power distribution projects in the southern states of Parana and Rio Grande do Sul; two integrated rural development projects in the northeastern states of Sergipe and Pernambuco; a rural primary education project in the northeast; a medium-sized cities development project; and a second secondary and feeder roads project. We expect to propose loans for these projects in the near future.

18. Of Brazil's external public debt outstanding and disbursed at the end of 1977, amounting to nearly US$19.3 billion, the Bank held about 8.0%. The Bank's share of the service on this debt was about 7.0%. When Brazil's total (public and private) external debt is considered, the Bank's share in the total outstanding at the end of 1977 was 4.8%, and its share in Brazil's external debt service was about 2.9%. By 1980, the ratios of the Bank's share in total outstanding debt and in total debt service are expected to rise to 6.2% and 3.3%, respectively.

19. As of December 31, 1978, IFC commitments to Brazil totalled US$395.2 million, of which US$268.2 million had been cancelled, repaid or sold. Of the balance of US$127.0 million, US$95.8 million represent loans and US$31.2 million equity. A summary of IFC's investments as of December 31, 1978 is given in Annex II.

Lending Strategy

20. In its lending to Brazil, the Bank has sought to help the Government achieve a number of important development objectives which are interdependent and complementary. One important lending objective in Brazil is to help intensify the efforts of the Government to identify and develop projects that will increase productivity and income of the lowest income segments of the population, to broaden the economic opportunities open to those groups, and to improve their living conditions. The loans for nutrition research and development, vocational training, agricultural research, agricultural extension and polder construction in the Lower Sao Francisco as well as for integrated rural development in the States of Rio Grande do Norte, Minas Gerais, Ceara, Paraiba and Bahia were all designed to assist low-income groups in rural areas. Additional projects designed to assist low-income groups in rural areas are in preparation, including a rural education project and several integrated rural development projects in the Northeast. The loans for water supply and sewerage in the state of Minas Gerais, Greater Sao Paulo and the northeast, for urban transport in five major cities, and for sites and services and low-cost housing are assisting to improve the living conditions of the urban population, particularly of the urban poor. Several projects to reach low-income groups in urban areas are in preparation: a medium-sized cities development project, a second urban transport project, an integrated urban development project and a pollution control project for Greater Sao Paulo.

21. Another of the Bank's lending objectives in Brazil is to support institutional development and policy reform designed to develop rational policies and procedures, establish adequate coordination and control, and help maximize public savings and ensure that they are used economically through

rational selection of investment projects. This intitution-building objective has been important in Bank assistance, for example, in the transportation sector where there has been emphasis on the selection of investments, the strengthening of railway operations, and the improvement of railways' financial performance and in the power sector as well. The proposed project would make important contributions towards the development of the aluminum industry in Brazil in the areas of transfer of technology and personnel training. VALESUL is the first major aluminum undertaking by Companhia Vale do Rio Doce, and would serve as a training ground to prepare the skilled management and manpower needed to develop the aluminum industry in the Amazon region, which has enormous potential.

22. Another lending objective is to ease the foreign exchange constraint on development, a constraint that has become more critical since the increase in petroleum prices, by supporting projects designed to increase Brazil's export capacity and, where economical, to substitute domestic production for imports. As a result of the deterioration in Brazil's terms of trade and balance of payments which took place at the time of the 1974 energy crisis, this objective was placed in the forefront of the Government's economic policy. Lending for the electric power sector supports this objective, since it is based primarily on hydroelectric energy, and its development lessens the need for petroleum imports. Bank support of fertilizer and petrochemicals projects is assisting Brazil to substitute imports with large-scale efficient domestic production and aid its balance-of-payments position. Bank lending for agro-industries in the Center and South of Brazil is also supporting this objective and much of the Bank-assisted investment in the transport sector -- railways, ports and highways -- is designed to facilitate the smooth and economic flow of exports. Support of the steel expansion program is helping Brazil to expand domestic output of a traditional import commodity which can be produced efficiently in Brazil in view of the country's ample supply of high-grade iron ore and the scale of its internal markets. VALESUL would substitute aluminum imports with domestic production which would rely on Brazil's abundant hydro-electric resources for power and on Brazil's ample reserves of bauxite for raw material.

23. A final objective which applies to all Bank lending to Brazil is to provide part of the very large volume of medium- and long-term capital inflows that Brazil has needed and will continue to need for some time in order to sustain rapid growth and achieve its employment creation and regional development objectives. Continued substantial lending by the Bank in Brazil is regarded by the international financial community as an important sign of confidence in Brazil and encourages them to continue their own programs there. In some sectors, especially in electric power and industry, Bank participation is helping Brazil obtain additional resources in greater amounts and on more favorable terms from bilateral credit agencies and commercial financial institutions. Since 1976, eight co-financing operations totalling more than US$275 million have been concluded with private financial institutions and several others are in preparation. VALESUL has negotiated a US$90 million loan from a group of commercial banks with the Chase Manhattan Bank N.A. as agent, to complete the financing plan for the proposed project. We propose to provide the usual co-financing links for the commercial bank financing with the proposed Bank loan (see para. 45). Finally, Bank support of VALESUL has

been a decisive factor in Shell Brasil S.A., a subsidiary of Royal Dutch Shell Ltd., and in Reynolds International Inc. deciding to purchase 35% and 4% of the capital stock of the company, respectively.

PART III - THE ALUMINUM INDUSTRY SECTOR

The International Context

24. The aluminum industry has traditionally developed in the industrialized countries and in developing countries with ample sources of bauxite or low cost hydroelectric power. Certain developing countries, such as Brazil, are well endowed with these two major manufacturing inputs and offer, in addition, substantial market potential for the economic development of a local industry. In these countries, the development of the aluminum industry has undoubtedly high economic priority. Apart from market considerations and natural resources, the major factors constraining the development of the aluminum industry in the less-developed countries (LDCs) have been the size of the investment required and the need to acquire closely held production technologies. Such a situation has led to a substantial involvement in the development of the sector of the major integrated multinational companies. These companies are well equipped to combine their technology with their access to capital and their ability to coordinate the production and marketing of bauxite mines, alumina refineries, aluminum smelters and fabricating facilities with the varying needs of international markets. Over the last few years, the upsurge in energy prices and the slowdown in the rates of growth of the more developed economies have led the leaders of the industry to look to the LDCs for investment opportunities and particularly to those with bauxite resources, abundant power supply, and substantial market potential. As a result, LDCs share of world primary aluminum production is projected to increase from 8% in 1976 to 17% in 1985.

25. The high investment cost in the aluminum industry coupled with a sagging demand and a cost-price squeeze have held back industry expansion plans over recent years. Taking into account a normal lead time of three to four years for an aluminum project to come into production, current investment plans indicate that installed capacity would increase until 1980 by only about 3% p.a. and by a slightly higher rate of about 4.5% p.a. thereafter, compared to an average demand growth rate estimated at about 6.8% p.a. In late 1978, the capacity utilization rate was 88% worldwide, compared to a normal industry objective of 95%. Demand is expected to exceed total world capacity by 1980, thus exerting considerable upward pressure on prices. The projected supply-demand situation indicates that aluminum prices are likely to rise in real terms during the next few years. It is expected that the industry will only reach an equilibrium situation in the early eighties after more attractive prices have induced substantial additions to the present production capacity. The international aluminum ingot price (the international price), which was US$0.58 per pound FOB New York in December 1978, is projected to average US$0.59 in 1979 and reach US$0.61 by 1981, in 1978 US dollars.

The Brazilian Aluminum Industry

26. Industry has played a central role in the rapid growth of the Brazilian economy in the recent past. From 1967 to 1976, real industrial output increased at an average annual rate of 12%. Its growth declined, to 4% in 1977 largely as a result of balance of payments constraints. However, industrial activity accelerated again in 1978, when it showed a growth rate estimated at about 8%. The most dynamic element in Brazil's industrial expansion has been the production of consumer durables and capital goods, which grew at an annual rate of 18% between 1967 and 1976. Production of intermediate goods (chemicals, fertilizers, paper, rubber, semi-finished metals), which account for 42% of industrial output, has grown at 12% a year on average since 1967. Production of intermediate goods such as primary aluminum has, however, not kept pace with domestic demand and imports of them reached US$2.54 billion in 1977, or 21% of total imports.

27. Significant production of aluminum started in Brazil twenty-five years ago. Presently, the Brazilian aluminum industry consists of three major companies: Alcan Aluminio do Brasil (Alcan), Companhia Brasileira de Aluminio (CBA) and Companhia Mineira de Aluminio (ALCOMINAS). Alcan and CBA are fully integrated enterprises. They operate bauxite mines, produce alumina and aluminum and fabricate aluminum products. ALCOMINAS, which was partly financed by a US$22 million Bank loan made in January 1968 (Loan 526-BR), is not involved in fabrication and is the sole local supplier of primary aluminum to independent fabricators. In 1977, total local aluminum production reached 167 thousand tons.

28. In spite of the rapid growth of output of about 16% p.a. during the seventies, the local primary aluminum industry has not been able to keep pace with the rising internal demand. Further growth is expected as the present low per capita consumption (2.6 kg per person in 1977) comes more in line with averages in other countries. The annual per capita consumption of aluminum in industrialized countries, such as Japan and Germany, is about 10 times that for Brazil. The past and projected demand-supply balance of aluminum in Brazil is given below:

Brazil: Demand-Supply of Aluminum
(in thousands of tons)

	Actual				Projected		
	1966	1970	1976	1977	1980	1985	1990
Primary Production	32.9	56.2	139.2	167.1	273.0	534.0	768.0
Secondary Production	4.1	8.0	28.0	33.5	38.0	77.0	88.0
Domestic Production	37.0	64.2	167.2	200.6	311.0	611.0	856.0
Imports	41.8	40.5	92.5	112.1	74.0	157.0	675.0
Total Supply	78.8	104.7	259.7	312.7	385.0	768.0	1,531.0
Inventory Changes and Exports	9.4	(0.1)	0.8	(20.4)	-	-	-
Apparent Consumption	69.4	104.6	258.9	292.3	385.0	768.0	1,531.0

29. With substantial reserves of bauxite, abundant hydropower and an aluminum market with enormous growth prospects, Brazil is particularly well placed for the development of an integrated, large-scale aluminum industry. As part of its policy to improve the country's long-term balance of payment prospects through large-scale import substitution in a number of key industries, the Government has developed plans to increase substantially the supply of locally produced aluminum. In addition, over the longer run the development of the aluminum industry is also expected to have a significant impact on the development of the Amazon region which has large deposits of bauxite and hydroelectric resources. The development of the sector is focused on: (i) the expansion of all existing private alumina and aluminum facilities; (ii) the construction of new alumina and aluminum plants; and (iii) the development of new bauxite mines.

30. Expansion plans of existing producers encompass the development of increased capacity to mine bauxite and produce alumina and aluminum. Some projects are already under execution, and others are expected to be started soon. According to studies prepared by Companhia Vale do Rio Doce (CVRD), between 1977-1980, investments under those plans would amount to approximately US$270 million. They will be broken down as follows: Alcan, US$90 million; ALCOMINAS, US$80 million; and CBA, US$100 million.

New Projects

31. In addition to the expansion plans mentioned in paras. 29 and 30, the Government intends to promote new projects in the sector to bring aluminum supply more in line with the growing internal demand and with the country's availability of ample natural resources over a reasonable period of time. In the preparation of those plans the Government has had to make policy decisions concerning two critical aspects: industry ownership and location and schedule of planned investments. Historically, the Brazilian aluminum sector has been privately owned and the Government policy is to maintain the sector in private hands. However, in view of the size and the complexity of the investments required, and because local industry had not kept pace with demand, the Government authorized CVRD, a state controlled company, to promote the VALESUL project under an ownership scheme designed to maintain the influence of the government over the sector while ensuring that the project is under both Brazilian and private control. At the same time, the proposed scheme makes it possible for the participation of foreign firms able to provide capital and technology. The Government also authorized CVRD to promote and participate in bauxite mining, alumina refining and aluminum smelting projects in the Amazon region.

32. The location and the timing of the various proposed investments, including VALESUL, has been a matter of discussion within the Government. The most important bauxite prospects in Brazil are located in the Amazon region. This region also has very large hydroelectric resources which only recently have started to be exploited. The large Tucurui hydroelectric project is already under construction in the region. Thus, it is generally felt in Brazil that the development of new mining and production projects should be concentrated in the Amazon region. The first bauxite mining project in the Amazon Region is already under way. Mineracao do Rio Norte's Trombetas mine has a planned initial production of 3.35 million tons per year

of bauxite with the first shipment scheduled for 1979. Total project cost is estimated at US$350 million, of which US$15 million is being financed by IFC. However, it is also felt that in the immediate future a project to produce primary aluminum in the southeast region would be fully justified. VALESUL would have a high economic return; be located close to aluminum consumers and sources of labor, and be able to start substituting for imports at a much earlier date than any of the alumina or aluminum projects planned for the Amazon Region. Furthermore, since CVRD would be involved in both VALESUL and the northern plants, VALESUL would also serve as a training ground to prepare the skilled management and manpower that Brazil would need in the future for the development of the northern projects. Finally, over the longer term, market projections indicate that there is room for both Valesul and the northern projects, as well as for the expansion of existing plants in accordance with a realistic schedule of implementation. Projects in the north are highly unlikely to start producing before the mid-1980's given the substantial issues still to be resolved by the sponsors, the construction difficulties to be faced in the Amazon, and the enormous financing requirements. Moreover, economic projections made on the basis of information obtained from feasibility studies show that the economic return of the Amazon projects under present circumstances is likely to be low.

Pricing Policy

33. The Government regulates the price of primary aluminum through the Interministerial Price Commission (CIP). The price of final aluminum products is not regulated. As mentioned in para. 27, only one (ALCOMINAS) of the three main producers supplies primary aluminum to independent fabricators. The other two producers are fully integrated. As a result, CIP regulations affect only ALCOMINAS directly and it is generally felt that price regulations have not adversely affected the development of the industry. Historically, the Brazilian price of primary aluminum has been about 10% above the international price, which is quoted FOB New York. However, the Rio de Janeiro CIF price of imported aluminum has been 5% higher than the Brazilian price, as it includes transport cost. During 1977, the Brazilian price was reduced to a level roughly equivalent to the international price. In 1978, the Brazilian aluminum price was again increased in real terms to a level about 10% above the international price FOB New York. As projects with higher cost structures come into production, the demand supply imbalance persists and the international price of aluminum increases it is expected that the Brazilian aluminum price will continue to have a premium over the international price FOB New York (see para. 51). The forecast price level about 5% above the projected international price and 10% below the Rio de Janeiro CIF price of imported primary aluminum would continue to allow aluminum producers attractive rates of return on their invested capital (see para. 49).

PART IV - THE PROJECT

34. A report, entitled "Staff Appraisal Report on VALESUL Aluminum Project," No. 2007-BR, dated February 20, 1979, is being circulated separately to the Executive Directors. The project was submitted to the Bank in 1977,

and, after some preparation work, was appraised by a mission that visited Brazil in November 1977. The project was prepared by VALESUL with the assistance of Companhia Vale do Rio Doce, Reynolds International Inc., and Billiton International Metals Ltd. (a subsidiary of Royal Dutch Shell Ltd.). Negotiations were held in Washington from January 29 to February 14, 1979. The Borrower, VALESUL, was represented by its president, Mr. Alberto Mazoni; the Government of Brazil by Mr. Luiz Americano; and the Shareholders by CVRD's vice-president, Mr. Eduardo de Carvalho, Shell Brasil's treasurer, Mr. Luis Messer and Reynolds International's counsel, Mr. Eugene Desvernine. A supplemental project data sheet, including a timetable of key events and a summary of special conditions is presented in Annex III.

Project Description

35. The basic conditions set by VALESUL for the project were that the most modern aluminum reduction technology was to be used to build a relatively small plant to supply the domestic market, and to be located close to consumer centers. This plant was to substitute for imports, and to serve as a training center for larger aluminum projects to be developed at a later stage in the Amazon region. Another condition for the project was that it should be profitable enough to attract foreign and local investors.

36. After considering proposals from various international aluminum producers, VALESUL decided to use the Reynolds pre-baked anode technology to produce approximately 86,500 tons per year of primary aluminum in a product mix envisaged as approximately 35% billets, 35% slabs, and 30% ingots. Casting equipment will be sufficiently flexible to handle variations from this mix. Production is expected to start in mid-1981, and full capacity to be reached during 1982. The technology is basically the same as that used by all the major international aluminum producers. Since 1974, Reynolds has used its own version of this technology in a new plant in Germany, and in two projects in Venezuela. The final feasibility study, prepared by VALESUL with assistance from Reynolds, was completed in December 1977.

37. The aluminum reduction process is based on the electrolysis of alumina at approximately 950°C, in which oxygen is generated and must be reduced using consumable carbon anodes. The main project components would be: a carbon plant to provide anodes, a rectifying substation to supply direct current, a potline of electrolytic cells where the reduction process takes place, and a cast house in which liquid aluminum from the potline is cast into the selected aluminum products. The project would also include service and support facilities including storage and materials handling components, fume control units and maintenance equipment.

Supply of Raw Material

38. Alumina would be the most important raw material for the plant. Valesul would eventually obtain alumina from CVRD's ALUNORTE project in the Amazon region. But, since it is unlikely that alumina could be produced at ALUNORTE before 1985, Valesul would need about four years of an interim source

of alumina supply. Contracts for the supply of alumina from refineries in Guyana and Surinam have been finalized. After the expiration of these contracts, the shareholders would ensure that VALESUL purchases its supply of alumina at competitive prices and on an arm's-length commercial basis (Section 3.05 of the draft Shareholders Agreement). A modification of these contracts without the prior approval of the Bank would be an event of supervision and default (Section 6.01(c) of the draft Loan Agreement).

Project Location and Infrastructure Facilities

39. VALESUL carried out extensive studies covering the coastal strip from the state of Bahia to Sao Paulo to determine the most appropriate location for the plant. These studies determined that the state of Rio de Janeiro was the most adequate area, mainly because of its power supply and port facilities as well as for the availability of skilled and semi-skilled manpower. Another important factor was the closeness to the large aluminum consumption centers of Rio de Janeiro and Sao Paulo. The site is approximately 60 km southwest of Rio, and 17 km northeast of the new Port of Sepetiba and is located near main highways, a railroad line, major transmission lines, and a power station. The site was owned by the Rio de Janeiro State Development Bank which has exchanged it for preferred VALESUL shares.

40. Unloading facilities would be located in the new port of Sepetiba. The port of Sepetiba would involve a relatively short, inexpensive haulage to the plant. For purposes of the project, the port of Sepetiba has clear advantages over the port of Rio de Janeiro which is heavily congested and would require the transport of alumina to the plant by truck through densely populated areas. The alumina unloading facilities at the Port of Sepetiba would constitute only a small part of the large coal unloading facilities currently under construction. PORTOBRAS, the port sector holding company, has informed the Bank in a supplemental letter that it will ensure VALESUL adequate port facilities for the full utilization of the facilities included in the Project.

41. VALESUL would receive alternating current from two new 138 kV lines that would connect the plant with an existing substation owned by LIGHT, the Rio de Janeiro and Sao Paulo power company. VALESUL's power demand of 160 MW would account for less than 1% of the capacity of the power grid to which the plant would be connected. Continuous supply of power would be of vital importance for the success of the project. A power outage lasting longer than one hour would result in the freezing of the molten aluminum in the potlines and have disastrous consequences in the operation of the plant. Discussions between VALESUL, power sector authorities and the Bank have resulted in satisfactory power supply arrangements. An analysis of these arrangements has indicated that provided appropriate protective measures are taken, the chances of a significant power outage are negligible. VALESUL would pay LIGHT about 15.4 mills per Kwh, the standard rate for bulk industrial power consumers. This rate, which would be adjusted from time to time, is not expected to adversely affect the power company's financial position. The utility rate legislation provides to power companies a return of 10% to 12% on remunerable investment. ELETROBRAS, the power sector holding company, has informed the Bank in a supplemental letter that it will take all actions required to ensure

VALESUL an uninterrupted supply of power. VALESUL has entered into a Power Supply Agreement with LIGHT. A modification of this agreement without the prior approval of the Bank would be an event of suspension and default (Section 6.01(c) of the draft Loan Agreement).

Project Execution and Operation

42. VALESUL would carry out the project on the basis of Reynolds engineering. It has contracted the services of Companhia Internacional de Engenharia (CIE), a Brazilian engineering company, to prepare detailed engineering, supervise construction and carry out procurement. CIE has extensive experience in engineering and construction of industrial projects in Brazil but has no experience in construction of aluminum plants. To strengthen its capabilities, CIE has arranged for the participation of Kaiser Engineering (US) in the areas of cost control, project scheduling and foreign procurement. Execution of infrastructure support for the project would be the responsibility of other entities such as LIGHT and FURNAS, for power supply, Docas do Rio de Janeiro and PORTOBRAS for port facilities, the Municipality of Rio de Janeiro for road construction and the state water company of Rio de Janeiro for water supply. Reynolds and CIE are already working on the preparation of detailed engineering designs, planning of construction works and procurement schedule and procedures. VALESUL is expected to receive the first bids for time-critical components procured under international competitive bidding by March 1979. Field construction has begun. Site preparation is completed and building of foundations is under way. The first pots should start production of primary aluminum by July, 1981. The start-up should be completed by December, 1981 and full production achieved in early 1982. The initial long lead-time contracts would be awarded in July 1979. Reynolds, on the basis of its recent experience in Venezuela, feels that the proposed schedule, though tight, is realistic.

43. VALESUL has recruited its initial staff mainly from CVRD and the three Brazilian aluminum companies. Training plans for technical staff have been prepared and contracted with Reynolds. Training material prepared by Reynolds for its German and Venezuelan plants would be used. In total, about 720 employees would be trained, of which about 660 (totalling 3,700 man-months) in Brazil, and 60 (totalling 300 man-months) abroad in the U.S., Germany and Venezuela. The cost of this program would be approximately US$3.2 million.

Project Cost and Financing

44. The total cost of the project, including working capital and interest during construction is estimated at US$370.1 million equivalent with an estimated foreign exchange component of US$185.6 million equivalent. The estimated foreign exchange component is based on the assumption that 54% of the equipment would be procured under international competitive bidding and that Brazilian suppliers would win 40% in value of these bids. The project would qualify for exemption from import duties on equipment. Price contingencies in US dollar terms have been added as follows: for equipment and materials: 7.5% in 1979, and 7.0% p.a. in 1980 and thereafter; for civil works: 12% p.a. for all years. Working capital requirements are estimated at US$40.3 million and interest during construction at US$32.7 million equivalent. The estimated project cost includes a 10% provision for physical contingencies, which is considered adequate.

45. The total cost of the project (US$370 million) would be financed by long-term loans totalling US$222 million (60%) and equity contributions totalling US$148 million (40%). The long-term loans include: (a) the proposed Bank loan of US$98 million, which would finance about 26% of total project cost, or about 53% of its foreign exchange component; (b) a loan from a group of commercial banks with the Chase Manhattan Bank N.A. as agent (Chase) of US$90 million, which would finance another 24% of total project cost; and a loan from Banco de Desenvolvimento do Estado de Rio de Janeiro acting as agent for FINAME, the Brazilian suppliers credit agency, of US$34 million which would finance the remaining 9% of the project cost to be financed by debt. We would link the Bank loan with the Chase loan through the usual cofinancing arrangements (Sections 6.01(d) and 6.02(c) of the draft Loan Agreement). The effectiveness of the Chase loan would be a condition for effectiveness of the Bank loan (Section 7.01(c) of the draft Loan Agreement). CVRD, Shell and Reynolds would provide VALESUL with all additional funds that may be required to complete the project. If the cost of the project exceeded US$370 million, additional expenditures up to a maximum of US$33 million would be financed by further long-term debt having at least 10 years of maturity including 5 years of grace (60%), and equity contributions by the shareholders (40%). Chase has informed VALESUL that it is prepared to provide additional debt financing for the project up to a maximum amount of US$20 million. Expenditures in excess of US$33 million would be financed by equity contributions and if (a) the debt service ratio projected for VALESUL is at least 1.5:1 and (b) the debt to equity ratio does not exceed 60:40, by additional long-term debt (Sections 2.02, 2,04 and 2.05 of the draft Shareholders Agreement and 5.04 of the draft Loan Agreement).

46. Unexpected cost overruns, which are felt quite unlikely but nevertheless possible, may require a change in the scope of the project. To these effects, the shareholders or the Bank would be able to request, at any time, a full review of the estimated cost of the project. If the revised cost estimate exceeded US$403 million equivalent, the shareholders would prepare and carry out a plan of action to complete the project. If the shareholders failed to agree on a plan or the proposed plan was not satisfactory to the Bank, the shareholders would complete the project as presently envisaged (Sections 2.03 and 2.04 of the draft Shareholders Agreement).

47. The Bank loan would finance the cost of the goods to be procured under international competitive bidding and international shopping (para. 52) and the direct foreign cost of the consultancy services required for management of project execution. In addition it would finance about 50% of the interest during construction due by VALESUL to the Bank. The partial financing of interest during construction would improve the tight cash flow position that VALESUL is expected to have during its first years of operation. VALESUL would bear the foreign exchange risk on the Bank loan and pay, in addition to the interest rate, a 3% per annum guarantee fee to the Government. If the cost of the Bank loan to VALESUL, in US dollar terms, would exceed 10% per annum, this guarantee fee would be correspondingly reduced.

Project Ownership

48. As mentioned in para. 31, the policy of the government is to keep the control of the aluminum industry in private hands. Up to now, control

of VALESUL was substantially in the hands of CVRD. However, CVRD has substantially completed negotiations with Shell Brasil, S.A., a subsidiary of Royal Dutch Shell (U.K./Netherlands) on a 35% equity participation. In addition, Reynolds International Inc., a subsidiary of Reynolds Metals Inc. (US) has agreed to convert into equity its technology fee amounting to US$6 million equivalent (which would correspond to a 4% equity participation). Thus, foreign interests would subscribe as much as 39% of VALESUL's shares. The agreement between CVRD, Shell and Reynolds regarding their participation in VALESUL has been finalized. A change in that agreement without the prior approval of the Bank would be an event of suspension and default (Section 6.01(c) of the draft Loan Agreement). Neither CVRD nor Shell nor Reynolds would sell their shareholdings in VALESUL except as described in para. 49 below (Section 3.03 of the draft Shareholders Agreement).

49. CVRD and VALESUL have studied various alternatives for attracting Brazilian investors over the past year, including some form of underwriting of VALESUL's shares by Brazilian banks, the issuance of subordinated convertible debentures, and the selling of participations to prospective VALESUL's customers who might wish to secure a local source of primary aluminum. There have been, however, various practical problems in finding private Brazilian investors willing to commit themselves at this stage to participate in a new joint venture with the Government and foreign partners and who have the necessary capital available. It is generally felt that it would be easier to attract local investors once the project is in full production. CVRD would offer for sale a percentage of VALESUL's voting shares to private Brazilian investors so that both private and Brazilian shareholders would hold more than 50% of VALESUL's voting shares. At present, CVRD is actively discussing with two Brazilian aluminum fabricators the sale of a substantial equity participation in VALESUL. However, if by the time of start-up, CVRD had not been able to sell the required percentage of voting shares, it would offer for sale, over a three year period, one-third of the difference between the number of shares it may hold and 49% of VALESUL's voting shares to private Brazilian investors. If, in any year, CVRD was not able to sell the shares offered, it would seek the advice of an expert third party in consultation with the Bank to determine the most convenient timing, terms and conditions for the sale of the shares in question (Section 3.06 of the draft Shareholders Agreement). In any case, CVRD would keep, as a minimum, a 40% participation in the stock of VALESUL. This would ensure VALESUL access to the management expertise and financial resources of CVRD needed to bring the project to a successful completion and operation (Section 3.06 of the draft Shareholders Agreement). Shell would also maintain a substantial participation in the stock of VALESUL for the same reasons.

Financial Projections

50. Based on the assumption that Brazilian aluminum price levels will be kept approximately in line with international prices (see para. 32), financial forecasts indicate that VALESUL would be a financially viable undertaking. The internal financial rate of return of the project is estimated at 10.8%. In its initial years of operation, VALESUL's profitability would be low, at least during the period when VALESUL would have to import alumina from abroad and face large financial expenses. However, VALESUL's profitability is expected to improve substantially in subsequent years. Although the financial

rate of return of the project is arguably on the lower side, the project has proven attractive to private foreign investors (para. 48), who are taking other factors into consideration, including the opportunity to secure sales of alumina, the major raw material; the longer term implications of entry into a growing and potentially very large aluminum market; the possibility of improved profitability through future expansions and/or integration into further processing of the primary aluminum; and the possibility that the domestic aluminum price could be higher than that projected in the Bank's estimates.

51. The financial projections for VALESUL indicate that the company's revenues would not cover its operating expenses (including depreciation) and interest payments until 1984, the second year of full production. In 1983, VALESUL would be able to finance its cash requirements out of its own resources with a capacity utilization above 71% (83% for 1985). Thereafter VALESUL's financial situation would progressively improve. To ensure financial soundness, VALESUL would maintain a long-term debt to equity ratio not exceeding 70:30 at the end of each fiscal year until the completion of the project and 60:40 thereafter; maintain a current ratio of at least 1.1:1; and limit its dividend distribution or any other cash distribution, or its financial commitments or prepayment of any debt if such action would cause its current ratio to fall below 1.3:1. To complete the project, VALESUL would incur long-term debt as described in para. 45 above. After the completion of the project, VALESUL would not contract any debt if, on the basis of reasonable financial projections, the projected debt service coverage in any year would be less than 1.5 times and the debt equity ratio higher than 60:40 including the debt to be contracted (Section 5.04 of the draft Loan Agreement). VALESUL would have its annual accounts audited by independent auditors acceptable to the Bank, and submit these to the Bank within three months after the end of the fiscal year (Section 5.02 of the draft Loan Agreement).

Pricing and Marketing

52. As mentioned in para. 33, the Government controls the prices of primary aluminum products such as billets, slabs and ingots. Historically, the Brazilian ingot price has been about 10% above the international posted price, which is quoted FOB New York, except during 1977, when the Brazilian price was kept in line with the international price. There is no indication that the pricing policy followed in the past would change substantially in the foreseeable future. Since an increasing part of the aluminum demand in Brazil and abroad will be supplied from new plants or expansion projects which would have a higher capital cost than existing plants, and since demand for aluminum is expected to exceed world supply in the early eighties, the expected continuation of the present price policy would tend to increase aluminum prices in real terms. The Brazilian ingot price is projected to increase in constant terms from about US$0.59 per pound in 1978 to US$0.64 per pound by 1981. This would approximately correspond to the projected increase in the international price. The Government would take all action required with regard to the prices of VALESUL's products to enable VALESUL, operating efficiently, to earn a reasonable return on its invested capital (Section 3.04 of the draft Guarantee Agreement).

53. VALESUL would market its production. However, the main shareholders would have rights to offtake metal on an arm's-length commercial basis. Having its own marketing system would assure the company greater managerial and financial independence, and consequently make it more attractive to prospective private investors. The marketing organizational structure would be relatively simple. However, the formulation of marketing strategies would require careful consideration given the propensity of the industry to tie its markets through forward integration, and the risks that this represents for a non-integrated newcomer. VALESUL would prepare a marketing plan on the basis of a detailed market study and submit it to the Bank for its review by December 31, 1979 (Section 3.05 of the draft Loan Agreement). CVRD, Shell and Reynolds would assist VALESUL with this undertaking (Section 3.04 of the draft Shareholders Agreement).

Procurement and Disbursement

54. In accordance with a Government policy aimed at supporting the development of the Brazilian capital goods industry, about 43% (US$69 million) of the value of equipment and materials required by the project (US$159 million) would be procured only from Brazilian suppliers. The cost of equipment reserved for local procurement is expected to increase the total cost of the project by less than 5%. Such equipment would be paid for from resources other than the Bank loan. Procurement of equipment to be financed by the Bank with an estimated value of US$90 million, would be through international competitive bidding in accordance with the Bank's Guidelines, except for US$4 million in items each not exceeding US$250,000 in value which would be procured through international shopping. Brazilian suppliers would be allowed a preference margin of 15% (or the import duty rate if lower). On this basis it is estimated that about 40% of the FOB value of the equipment to be financed by the Bank might be won by Brazilian suppliers. The equipment lists have been developed taking careful account of items which are critical for the technical operation of the plant or have critical delivery times. Items reserved for local procurement are less technically specialized and less critical on delivery. Civil works and erection for the plant (other than the turn key green mill) would be locally contracted.

55. The proceeds of the loan would be disbursed (i) US$90 million against 100% of CIF expenditures for imported equipment, or the ex-factory cost of locally supplied equipment procured through ICB, or 100% of the foreign expenditures for items to be purchased through international shopping; (ii) US$3 million against 100% of the foreign exchange cost of consultancy services for management of project execution; and (iii) US$5.0 million against interest during construction on the Bank loan. Up to US$1 million would be disbursed on account of payments made for foreign consultancy services after April 1, 1978. The loan is expected to be fully disbursed by the Closing Date, July 31, 1982.

Project Benefits

56. With huge bauxite reserves and enormous hydroelectric potential, Brazil is particularly well endowed for the development of a large aluminum industry. Nevertheless, Brazil's three primary aluminum producers have not been able to satisfy the country's increasing demand for the product. Between

30% to 40% of the aluminum supply was imported in the past. This high import level, coupled with a fast expanding market, has exerted increasing pressure on the balance of trade of the country. The prospect of continued high aluminum imports in an environment of a considerable balance-of-payments constraint and the desire to increase the Brazilian participation in the industrial development of the country have led the Government to take an active role in the development of the industry. The VALESUL project has been planned in response to these concerns. At full production, the project's output would reach 86,500 tons per year, and substitute for imports with an estimated value of US$145 million. The direct foreign exchange savings of the project, net of imported raw materials, is estimated at about US$120 million per year in constant terms before principal and interest payments on foreign loans. Net of foreign debt service, the project would generate foreign exchange savings of approximately US$75 million in the years with heaviest debt service. VALESUL will thus have a continuing and increasingly favorable impact on Brazil's balance of payments.

57. The economic rate of return for the project is estimated at 20.4%. A shadow exchange rate, 30% higher than the official rate, was used to reflect foreign trade distortions caused by import tariffs, export taxes and subsidies, as well as other forms of import restrictions and export incentives. Sensitivity tests show that the economic rate of return would not be substantially affected by changes in the price of power which would be the most important local input. If the economic cost of power would be increased from the 23 mills used in the base estimate to 30 mills, the economic rate of return would drop to 17.5%.

58. The direct employment effects of the project are only 845 permanent jobs. Employment directly generated during construction is estimated at about 5,000 man-years. Additional jobs would be provided in the engineering and capital goods industries. Training benefits would accrue from the executive level on down. Training benefits are particularly important in view of the planned Amazon projects. In addition, the project would provide primary aluminum consumers with an alternative source of supply, now restricted to ALCOMINAS and expensive imports. Moreover, the project would introduce in Brazil the aluminum reduction technology of Reynolds, the third largest international aluminum company (after Alcoa and Alcan). Majority ownership would be Brazilian (and eventually private and Brazilian), thus improving the basis for Brazilian leadership in the development of the huge aluminum potential in the north of the country.

Project Risks

59. Prices of all of VALESUL's products - ingots, slabs, and billets - are subject to Government policies and regulations, and thus outside VALESUL's control. Since VALESUL's financial performance would depend on these prices, the Government would take all action required with regard to the prices of VALESUL's products to enable the company to earn a reasonable return on its invested capital. Though CVRD has extensive iron ore experience, the project would be its first aluminum reduction plant. However, the project is not expected to face any major management-related operational risks since VALESUL's technical and administrative staff has considerable operating experience in the aluminum industry. Moreover, the involvement of both Reynolds and Shell in the project and the execution of a suitable training program should ensure a successful plant operation.

Ecology

60. Although detailed pollution control regulations for aluminum smelters do not yet exist in Brazil, VALESUL has recognized the need to exercise strict control over all aspects of environmental pollution to avoid potential adverse effects that could stem from the proximity of the plant to highly populated areas. To this effect, VALESUL intends to apply in the project standards similar to those used by Reynolds for its plant in Hamburg, Germany which we consider adequate from an environmental point of view. VALESUL would execute and operate the project with due regard to all environmental factors (Section 3.04 of the draft Loan Agreement).

PART V - LEGAL INSTRUMENTS AND AUTHORITY

61. The draft Loan Agreement between the Bank and Valesul Aluminio S.A., the draft Shareholders' Agreement between the Bank, Companhia Vale do Rio Doce, Shell Brasil S.A., and Reynolds International Inc., and the draft Guarantee Agreement between the Federative Republic of Brazil and the Bank; and the draft Report of the Committee provided for in Article III, Section 4(iii) of the Articles of Agreement are being distributed to the Executive Directors separately.

62. The effectiveness of the Chase loan would be a special condition for effectiveness of the Bank loan.

63. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATION

64. I recommend that the Executive Directors approve the proposed loan.

Robert S. McNamara
President

by Ernest Stern

Attachments
February 22, 1979
Washington, D.C.

BRAZIL - SOCIAL INDICATORS DATA SHEET

LAND AREA (THOUSAND SQ. KM.)
TOTAL 8512.0
AGRICULTURAL 2066.0

	BRAZIL			REFERENCE GROUPS (ADJUSTED AVERAGES /a - MOST RECENT ESTIMATE)		
	1960 /b	1970 /b	MOST RECENT ESTIMATE /b	SAME GEOGRAPHIC REGION /c	SAME INCOME GROUP /d	NEXT HIGHER INCOME GROUP /e
GNP PER CAPITA (US$)	320.0	580.0	1390.0	1066.7	1796.4	2839.0
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	332.0	474.0	670.0	911.1	1525.0	2376.4
POPULATION AND VITAL STATISTICS						
TOTAL POPULATION, MID-YEAR (MILLIONS)	69.8	92.8	113.2	.	.	.
URBAN POPULATION (PERCENT OF TOTAL)	44.5	55.7	61.4	57.9	52.2	..
POPULATION DENSITY						
PER SQ. KM.	8.0	11.0	13.3	25.6	27.6	55.8
PER SQ. KM. AGRICULTURAL LAND	44.0	49.0	55.0	77.6	116.4	83.6
POPULATION AGE STRUCTURE (PERCENT)						
0-14 YRS.	43.0	42.0	41.7	42.0	34.8	40.0
15-64 YRS.	54.0	55.0	55.1	52.2	56.0	55.3
65 YRS. AND ABOVE	3.0	3.0	3.2	3.7	5.7	3.8
POPULATION GROWTH RATE (PERCENT)						
TOTAL	3.0	3.0	2.8	2.7	1.6	2.9
URBAN	5.5	5.0	4.4	4.3	3.4	..
CRUDE BIRTH RATE (PER THOUSAND)	40.8	38.4	37.1	35.8	27.0	31.7
CRUDE DEATH RATE (PER THOUSAND)	11.7	9.9	8.8	9.1	9.9	7.9
GROSS REPRODUCTION RATE	2.6	2.6	2.5	2.6	1.9	1.6
FAMILY PLANNING						
ACCEPTORS, ANNUAL (THOUSANDS)	..	111.0	203.6	.	.	.
USERS (PERCENT OF MARRIED WOMEN)	..	1.6	..	15.1	19.3	..
FOOD AND NUTRITION						
INDEX OF FOOD PRODUCTION PER CAPITA (1970=100)	87.8	100.0	112.3	102.1	103.8	114.7
PER CAPITA SUPPLY OF						
CALORIES (PERCENT OF REQUIREMENTS)	102.0	104.0	105.0	103.9	110.4	113.4
PROTEINS (GRAMS PER DAY)	61.0	64.0	62.1	60.3	77.7	89.9
OF WHICH ANIMAL AND PULSE	38.0	39.0	33.6	26.7	22.2	48.0
CHILD (AGES 1-4) MORTALITY RATE	..	..	..	8.7	1.9	..
HEALTH						
LIFE EXPECTANCY AT BIRTH (YEARS)	56.0	59.4	61.4	62.6	63.0	60.2
INFANT MORTALITY RATE (PER THOUSAND)	180.0	110.0	..	56.9	38.2	22.1
ACCESS TO SAFE WATER (PERCENT OF POPULATION)						
TOTAL	..	56.3	71.7	60.7	67.7	83.0
URBAN	..	77.7	83.2	78.0	83.5	100.0
RURAL	..	29.0	52.9	34.9	41.5	..
ACCESS TO EXCRETA DISPOSAL (PERCENT OF POPULATION)						
TOTAL	..	59.9	65.5	61.1	70.3	57.8
URBAN	..	86.1	86.3	80.3	90.7	99.3
RURAL	..	26.5	39.0	25.4	38.3	..
POPULATION PER PHYSICIAN	2170.0	1910.0	1650.0 /f	1899.3	1310.8	976.9
POPULATION PER NURSING PERSON	..	3220.0	2920.0 /f	1220.1	849.2	676.1
POPULATION PER HOSPITAL BED						
TOTAL	275.0	260.0	260.0	422.3	275.4	325.8
URBAN	..	..	..	258.2	129.9	250.0
RURAL	..	..	..	2281.6	965.9	770.0
ADMISSIONS PER HOSPITAL BED	..	18.0	..	25.6	18.9	18.7
HOUSING						
AVERAGE SIZE OF HOUSEHOLD						
TOTAL	5.1	4.8	..	5.2	3.9	..
URBAN	..	4.6	..	..	..	..
RURAL	..	5.2	..	..	..	..
AVERAGE NUMBER OF PERSONS PER ROOM						
TOTAL	..	1.1	1.1 /f	2.0	0.9	..
URBAN	..	1.0	1.2 /f	2.1	0.8	..
RURAL	..	1.2	1.2 /f	2.7	1.0	..
ACCESS TO ELECTRICITY (PERCENT OF DWELLINGS)						
TOTAL	38.7	47.6	55.1	51.2	59.2	..
URBAN	..	75.6	77.9	77.3	78.0	..
RURAL	..	8.4	12.5	12.8	12.5	..

BRAZIL - SOCIAL INDICATORS DATA SHEET

	BRAZIL			REFERENCE GROUPS (ADJUSTED AVERAGES /a - MOST RECENT ESTIMATE)		
	1960 /b	1970 /b	MOST RECENT ESTIMATE /b	SAME GEOGRAPHIC REGION /c	SAME INCOME GROUP /d	NEXT HIGHER INCOME GROUP /e
EDUCATION						
ADJUSTED ENROLLMENT RATIOS						
PRIMARY: TOTAL	95.0	83.0	90.0	103.5	97.6	104.1
FEMALE	93.0	83.0	90.0	102.9	87.4	120.3
SECONDARY: TOTAL	11.0	27.0	26.0	37.2	47.8	44.7
FEMALE	10.0	27.0	20.0	37.9	42.6	46.0
VOCATIONAL (PERCENT OF SECONDARY)	19.0	17.0	47.0 /g	14.7	22.7	18.7
PUPIL-TEACHER RATIO						
PRIMARY	33.0	28.0	22.0	32.8	25.4	30.6
SECONDARY	13.0	13.0	11.0	17.8	24.9	16.3
ADULT LITERACY RATE (PERCENT)	61.0	66.0	..	74.9	96.3	..
CONSUMPTION						
PASSENGER CARS PER THOUSAND POPULATION	7.0	25.0	35.0	26.9	32.3	53.4
RADIO RECEIVERS PER THOUSAND POPULATION	66.0	60.0	60.0	173.5	201.9	195.5
TV RECEIVERS PER THOUSAND POPULATION	18.0	66.0	83.0	69.4	97.7	108.4
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	54.0	37.0	39.0	72.8	70.9	108.0
CINEMA ANNUAL ATTENDANCE PER CAPITA	5.0	1.9	..	4.3	4.4	..
EMPLOYMENT						
TOTAL LABOR FORCE (THOUSANDS)	22700.0	29400.0	34100.0	.	.	.
FEMALE (PERCENT)	17.5	20.4	21.6	21.4	17.4	26.9
AGRICULTURE (PERCENT)	52.0	40.4	37.8	37.8	38.4	25.7
INDUSTRY (PERCENT)	14.8	18.3	..	..	..	..
PARTICIPATION RATE (PERCENT)						
TOTAL	32.0	31.6	31.5	30.8	33.7	40.1
MALE	52.7	50.3	49.5	47.2	50.8	55.8
FEMALE	11.2	12.8	13.6	13.2	12.6	24.7
ECONOMIC DEPENDENCY RATIO	1.6	1.5	1.4	1.7	1.4	1.6
INCOME DISTRIBUTION						
PERCENT OF PRIVATE INCOME RECEIVED BY						
HIGHEST 5 PERCENT OF HOUSEHOLDS	27.7 /h	34.9 /h	..	28.9	20.2	..
HIGHEST 20 PERCENT OF HOUSEHOLDS	54.4 /h	62.2 /h	..	57.7	47.9	..
LOWEST 20 PERCENT OF HOUSEHOLDS	3.5 /h	3.2 /h	..	3.2	3.2	..
LOWEST 40 PERCENT OF HOUSEHOLDS	11.6 /h	10.0 /h	..	10.7	13.7	..
POVERTY TARGET GROUPS						
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US$ PER CAPITA)						
URBAN	..	..	..	251.9	..	..
RURAL	..	..	150.0	200.6	157.9	..
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US$ PER CAPITA)						
URBAN	..	..	465.0	403.1	448.8	..
RURAL	..	..	332.0	258.0	313.1	..
ESTIMATED POPULATION BELOW POVERTY INCOME LEVEL (PERCENT)						
URBAN	..	..	34.0	24.8	23.2	..
RURAL	..	..	55.0	65.2	54.5	..

.. Not available
. Not applicable.

NOTES

/a The adjusted group averages for each indicator are population-weighted geometric means, excluding the extreme values of the indicator and the most populated country in each group. Coverage of countries among the indicators depends on availability of data and is not uniform.

/b Unless otherwise noted, data for 1960 refer to any year between 1959 and 1961; for 1970, between 1969 and 1971; and for Most Recent Estimate, between 1973 and 1977.

/c Latin America & Caribbean; /d Upper Middle Income ($1136-2500 per capita, 1976); /e High Income (over $2500 per capita, 1976); /f 1972; /g Beginning 1973, duration of general education reduced from 7 to 4 years, therefore data may not be comparable to those of earlier years; /h Data refer to economically active population.

September, 1978

DEFINITIONS OF SOCIAL INDICATORS

Note: The adjusted group averages for each indicator are population-weighted geometric means, excluding the extreme values of the indicator and the most populated country in each group. Coverage of countries among the indicators depends on availability of data and is not uniform. Due to lack of data, group averages for Capital Surplus Oil Exporters and indicators of access to water and excreta disposal, housing, income distribution and poverty are simple population-weighted geometric means without the exclusion of extreme values.

LAND AREA (thousand sq. km)

Total - Total surface area comprising land area and inland waters.

Agricultural - Most recent estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow.

GNP PER CAPITA (US$) - GNP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1975-77 basis); 1960, 1970, and 1977 data.

ENERGY CONSUMPTION PER CAPITA - Annual consumption of commercial energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of coal equivalent per capita.

POPULATION AND VITAL STATISTICS

Total population, mid-year (millions) - As of July 1; if not available, average of two end-year estimates; 1960, 1970, and 1977 data.

Urban population (percent of total) - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries.

Population density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area.

Per sq. km. agriculture land - Computed as above for agricultural land only.

Population age structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population.

Population growth rate (percent) - total, and urban - Compound annual growth rates of total and urban mid-year populations for 1950-60, 1960-70, and 1970-75.

Crude birth rate (per thousand) - Annual live births per thousand of mid-year population; ten-year arithmetic averages ending in 1960 and 1970 and five-year average ending in 1975 for most recent estimate.

Crude death rate (per thousand) - Annual deaths per thousand of mid-year population; ten-year arithmetic averages ending in 1960 and 1970 and five-year average ending in 1975 for most recent estimate.

Gross reproduction rate - Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1975.

Family planning - acceptors, annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family planning - users (percent of married women) - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices to all married women in same age group.

FOOD AND NUTRITION

Index of food production per capita (1970=100) - Index number of per capita annual production of all food commodities.

Per capita supply of calories (percent of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and changes in stock. Net supplies exclude animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distributions of population, and allowing 10 percent for waste at household level.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for a minimum allowance of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day.

Child (ages 1-4) mortality rate (per thousand) - Annual deaths per thousand in age group 1-4 years, to children in this age group.

HEALTH

Life expectancy at birth (years) - Average number of years of life remaining at birth; usually five-year averages ending in 1960, 1970, and 1975.

Infant mortality rate (per thousand) - Annual deaths of infants under one year of age per thousand live births.

Access to safe water (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to excreta disposal (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

Population per physician - Population divided by number of practicing physicians qualified from a medical school at university level.

Population per nursing person - Population divided by number of practicing male and female graduate nurses, practical nurses, and assistant nurses.

Population per hospital bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physicisn (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities.

Admissions per hospital bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING

Average size of household (persons per household) - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes. Statistical definitions of household vary.

Average number of persons per room - total, urban, and rural - Average number of persons per room in all, urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Access to electricity (percent of dwellings) - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

EDUCATION

Adjusted enrollment ratios

Primary school - total, and female - Total and female enrollment of all ages at the primary level as percentages of respectively primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

Secondary school - total, and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

Vocational enrollment (percent of secondary) - Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

Pupil-teacher ratio - primary, and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

Adult literacy rate (percent) - Literate adults (able to read and write) as a percentage of total adult population aged 15 years and over.

CONSUMPTION

Passenger cars (per thousand population) - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

Radio receivers (per thousand population) - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

TV receivers (per thousand population) - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper circulation (per thousand population) - Shows the average circulation of "daily general interest newspaper", defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

Cinema annual attendance per capita per year - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

EMPLOYMENT

Total labor force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc. Definitions in various countries are not comparable.

Female (percent) - Female labor force as percentage of total labor force.

Agriculture (percent) - Labor force in farming, forestry, hunting and fishing as percentage of total labor force.

Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force.

Participation rate (percent) - total, male, and female - Total, male, and female labor force as percentages of their respective populations. These are ILO's adjusted participation rates reflecting age-sex structure of the population, and long time trend.

Economic dependency ratio - Ratio of population under 15 and 65 and over to the labor force in age group of 15-64 years.

INCOME DISTRIBUTION

Percentage of private income (both in cash and kind) received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

POVERTY TARGET GROUPS

Estimated absolute poverty income level (US$ per capita) - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated relative poverty income level (US$ per capita) - urban and rural - Relative poverty income-level is that income level less than one-third per capita personal income of the country.

Estimated population below poverty income level (percent) - urban and rural - Percent of population (urban and rural) who are either "absolute poor" or "relative poor" whichever is greater.

Economic and Social Data Division
Economic Analysis and Projections Department

ECONOMIC DEVELOPMENT DATA SHEET

	ACTUAL 1974	1975	1976	1977	PROJECTED 1978	1979	1980	1985	1990	Annual Growth Rate 1975-77	1978-80	1981-85	1986-90	As Percent of GDP 1974	1977	1980	1985	1990
A. NATIONAL ACCOUNTS (Millions of US$ at 1975 prices)																		
1. GDP (Market Prices)	116,218	123,038	134,334	140,664	147,200	157,327	167,694	252,452	386,088	6.6	6.0	8.5	8.9	99.9	98.9	100.4	100.2	99.9
2. Gains from TT	45	-	1,238	1,531	51	-300	-702	597	323	.	.	.	.	--	1.1	-0.4	0.2	0.1
3. Gross Domestic Income	116,263	123,038	135,612	142,194	147,251	157,027	166,992	251,855	386,411	6.9	5.5	8.6	8.9	100.0	100.0	100.0	100.0	100.0
4. Imports	14,963	14,308	14,277	12,965	12,386	12,770	12,706	19,182	31,584	-4.9	-0.7	8.6	10.5	12.9	9.1	7.6	7.6	8.2
5. Exports - Volume	8,591	9,376	9,398	10,479	11,093	12,764	13,997	22,479	32,902	6.8	10.1	9.9	7.9	7.4	7.4	8.4	8.9	8.5
6. Exports - TT Adjusted	8,637	9,376	10,636	12,010	11,145	12,465	13,295	21,881	33,225	11.6	3.4	10.5	8.7	7.4	-8.4	8.0	8.7	8.6
7. Resource Gap (4-6)	6,326	4,932	3,601	955	1,241	305	-589	-2,699	-1,641	.	.	.	.	5.4	0.7	-0.4	-1.1	-0.4
8. Consumption and Stocks	94,077	96,778	104,151	110,172	115,515	121,386	127,581	187,481	285,444	5.4	5.0	8.0	8.8	80.9	77.5	76.4	74.4	73.9
9. Fixed Investment	28,513	31,192	35,062	32,978	32,978	35,946	38,822	61,673	99,325	5.0	5.6	9.7	10.0	24.5	23.2	23.2	24.5	25.7
10. National Savings	21,130	24,492	29,148	29,448	28,841	32,578	36,148	60,429	96,536	11.7	7.1	10.9	9.8	18.2	20.7	21.6	24.0	25.0
11. Domestic Savings	22,186	26,260	31,461	32,023	31,737	35,641	39,411	64,373	100,966	13.0	7.2	10.3	9.4	19.1	22.5	23.8	25.6	26.1
B. MERCHANDISE TRADE (Millions of US$ at current prices)														As Percent of Total Imports				
1. Imports																		
Consumer Goods	1,598	1,357	1,392	1,217	1,556	1,747	1,898	3,605	6,574	-9.5	15.9	13.7	12.8	12.6	10.1	12.7	11.8	10.3
Petroleum and Derivatives	2,962	3,100	3,846	4,069	4,370	5,009	5,740	11,813	23,343	11.1	12.2	15.5	14.6	23.4	33.9	38.5	38.7	36.7
Other Intermediate Goods	4,962	3,819	3,552	3,636	3,555	3,760	2,443	6,964	16,906	-11.0	-1.9	15.1	19.4	39.3	30.3	23.1	22.8	26.6
Capital Goods	3,119	3,934	3,556	3,074	2,892	3,357	3,843	8,170	15,792	-0.5	7.7	15.3	15.5	24.7	25.6	25.7	25.7	26.4
Total (FOB)	12,641	12,210	12,346	11,996	12,373	13,873	14,924	30,552	63,615	-1.8	7.6	15.4	15.8	100.0	100.0	100.0	100.0	100.0
														As Percent of Total Exports				
2. Exports																		
Coffee	980	934	2,398	2,642	2,175	2,151	2,296	3,453	5,560	39.0	-4.8	8.5	10.0	12.3	21.8	13.6	9.2	7.7
Other Agricultural Goods	3,385	3,407	2,993	3,873	2,992	4,342	4,796	10,079	18,829	4.6	7.4	16.0	13.3	42.6	31.9	28.3	26.7	26.0
Minerals	670	1,096	1,118	970	1,008	1,013	1,163	2,403	4,225	13.1	6.2	15.6	11.9	8.4	8.0	6.9	6.4	5.8
Semi-Processed Goods	634	665	790	988	1,234	1,608	1,581	3,234	6,101	15.9	17.0	15.4	13.5	8.0	8.1	9.3	8.6	8.4
Manufactured Goods	2,086	2,379	2,449	3,388	4,405	5,395	6,747	17,996	36,990	17.5	26.0	22.0	15.5	26.2	27.9	39.8	47.7	51.0
Other Goods	195	209	381	278	200	327	356	539	778	12.6	8.6	8.2	7.6	2.5	2.3	2.1	1.4	1.1
Total (FOB)	7,951	8,670	10,128	12,139	12,114	14,636	16,939	37,702	72,483	15.2	11.7	17.3	14.0	100.0	100.0	100.0	100.0	100.0
C. SECTOR OUTPUT (Share of GDP at Factor Cost at 1970 prices)																		
1. Agriculture	10.8	10.5	10.0	10.5	10.1	10.5	10.4	8.9	7.5	5.7	5.5	5.2	5.2					
2. Industry	39.2	39.4	40.1	39.7	39.9	39.3	39.8	39.8	40.8	6.9	3.7	8.7	9.0					
3. Services	50.0	50.1	49.9	49.8	50.0	50.1	50.3	51.3	52.3	6.3	6.4	8.9	9.2					
D. PRICES (1975=100)																		
1. Export Price Index	99	100	115	122	115	120	127	178	234	7.2	1.3	7.0	5.6					
2. Import Price Index	98	100	101	107	115	123	134	183	231	3.0	7.8	6.4	4.8					
3. Terms of Trade Index	101	100	114	115	100	98	95	97	101	.	.	.	.					
4. General Price Index	78	100	141	202	.	.	.	.	.	.	.	.	.					
5. Average Exchange Rate	84	100	131	174	.	.	.	.	.	.	.	.	.					

E. SELECTED INDICATORS

	1975-77	1978-80	1981-85	1986-90
1. ICOR	4.160	3.923	2.782	2.813
2. Import Elasticity	-0.908	-0.892	1.008	1.131
3. Average National Savings Rate	0.212	0.210	0.234	0.249
4. Marginal National Savings Rate	0.265	0.209	0.288	0.271
5. Imports/GDP	0.105	0.080	0.075	0.079
6. Investment/GDP	0.250	0.228	0.239	0.252
7. Resource Gap/GDP	0.025	0.002	-0.008	-0.007

F. EMPLOYMENT

	1970	1975
1. Labor Force (million)	29.4	34.1
2. Unemployment (% of F.L.)	7.5	5.0
3. Employment (million) (% shares)	27.2	32.4
3.1. Agriculture	43.8	39.5
3.2. Industry	18.0	19.8
3.3. Services	38.2	40.7

G. PUBLIC FINANCE a/

	1974	1975	1976	1977
1. Current Revenue	10.7	9.5	10.7	10.4
1.1. Tax Revenue	10.3	9.4	10.2	10.0
2. Current Expenditures b/	9.5	8.7	9.7	..
3. Current Savings	1.2	0.8	1.0	..
4. Capital Expenditures	0.6	0.8	0.9	..
4.1. Government Fixed Capital Formation c/	4.0	4.3	..	..

a/ Federal Government.
b/ Including capital transfers.
c/ Including state and municipal government direct fixed investment.

-- less than half the smallest unit shown
.. not available
. not applicable

September 1, 1978

BALANCE OF PAYMENTS AND EXTERNAL ASSISTANCE

(Million US$)

	ACTUAL				PROJECTED				
	1974	1975	1976	1977	1978	1979	1980	1985	1990
A. Summary of Balance of Payments									
1. Exports (incl. NFS)	8,471	9,376	10,797	12,826	12,772	15,373	17,775	40,115	76,892
2. Imports (incl. NFS)	14,678	14,308	14,440	13,847	14,194	15,749	16,987	35,166	73,094
3. Resource Balance	-6,207	-4,932	-3,643	-1,021	-1,422	- 376	788	4,949	3,798
4. Net Factor Service Income	- 916	-1,770	-2,339	-2,859	-3,440	-3,873	-4,374	-7,068	-10,129
1. Net Interest Payments	- 652	-1,498	-1,809	-2,103	-2,284	-2,412	-2,521	-3,538	-4,604
2. Direct Investment Income	- 248	- 235	- 380	- 455	- 493	- 542	- 590	-1,030	-1,775
3. Other Factor Service Income	- 16	- 37	- 150	- 301	- 663	- 919	-1,263	-2,500	-3,750
5. Current Transfers (Net)	1	2	4	6	7	7	7	7	7
6. Balance on Current Account	-7,122	-6,700	-5,978	-3,8744	-4,855	-4,242	-3,579	-2,112	-6,324
7. Net Private Direct Investment	887	892	962	840	780	770	760	750	750
Medium and Long Term Loans									
a. Traditional Sources[a]									
8. Disbursements	1,956	1,612	2,054	2,553	3,303	3,571	4,005	6,599	10,328
9. Amortization	- 739	- 992	-1,350	-1,701	-1,280	-1,218	-1,518	-3,818	-6,146
10. Net Disbursements	1,217	620	703	852	2,023	2,353	2,487	2,781	4,182
b. Financial Credits									
11. Disbursements	5,103	4,524	5,978	5,940	5,671	5,644	6,603	3,574	8,523
12. Amortization	-1,181	-1,193	-1,664	-2,426	-3,526	-4,150	-5,008	-3,907	-4,947
13. Net Disbursements	3,922	3,331	4,314	3,514	2,145	1,494	595	- 333	3,576
14. Use of IMF Resources	-	7	-	-	-	-	-	-	-
15. Short-term Capital and Capital n.e.i.	138	788	-2,256	-699	-	-	-	-	-
16. Reserves (- = increase)									
1. Reserve Accumulation[b]	958	1,062	-2,255	-699	-93	-375	-263	-1,086	-2,183
2. Dollar Valuation Adjustment	185	176	-252	-16	-	-	-	-	-
3. Changes in Reserve Levels[c]	1,143	1,238	-2,507	-715	-93	-375	-263	-1,086	-2,183
17. Foreign Exchange Reserves (End of Period)	5,272	4,034	6,541	7,256	7,349	7,724	7,987	11,894	20,160
B. Grant and Loan Commitments									
1. Total M&LT Loans	7,179	7,005	9,482	9,637					
1.1. IBRD	242	426	498	425					
1.2. IDB	283	167	186	270					
1.3. Governments	518	512	1,251	1,184					
1.4. Suppliers	1,088	1,376	1,300	1,100					
1.5. Bonds	25	-	269	718					
1.6. Financial Credits	5,103	4,524	5,978	5,940					
C. Memorandum Items									
1. Grant Element of Total Commitments	2.5	2.5	2.5	2.8					
2. Average Interest (Percent)	9.5	9.5	9.4	9.3					
3. Average Maturity (Years)	9.0	9.9	8.3	8.9					

a/ Includes multilateral agencies, bilateral lenders, suppliers' credits and bond issues.
b/ IFS Line 79d.
c/ IFS Line 1d.

September 1, 1978

DEBT AND CREDITWORTHINESS

	Actual 1974	1975	1976	1977
A. Medium and Long-Term Debt (Disbursed only)				
1. Total Debt Outstanding (end of period)	17,166	21,171	25,985	32,037
1. By type of Debt				
1. Financial Credits	11,211	14,561	18,194	21,528
2. Traditional Lenders a/	5,955	6,610	7,791	10,509
2. By type of Borrower				
1. Public and Publicly Guaranteed	8,533	11,461	14,852	19,309
2. Private	8,633	9,710	11,133	12,729
2. Net Debt Service	2,572	3,683	4,825	6,230
1. Total Interest	1,370	1,863	2,891	2,462
2. Net Interest	652	1,498	1,810	2,103
3. Public Debt Service	1,287	1,550	1,982	2,500
B. Debt Burden				
1. Net Debt Service Ratio b/	30.4	39.8	44.7	48.6
2. Total Net Debt Service Ratio c/	33.3	41.8	48.2	52.1
3. Public Debt Service Ratio	15.2	16.5	18.4	19.6
4. Liquidity Ratio d/	23.0	33.3	43.0	39.2
5. Net Debt Service/GDP e/	2.6	3.0	3.6	4.0
6. Public Debt Service/GDP e/	1.3	1.3	1.5	1.6
7. Total DOD/GDP e/	17.0	17.2	19.2	20.5
C. Terms				
1. Interest on Total DOD/Total DOD f/	10.9	10.9	9.9	9.5
2. Net Debt Service/Total DOD f/	20.5	21.5	22.8	24.0
D. Dependency Ratios for M&LT Debt				
1. Gross Disbursements/Imports (incl. NFS)	48.1	42.9	55.6	61.3
2. Net Transfer/Imports (incl. NFS)	25.7	14.6	20.3	13.8
3. Net Transfer/Gross Disbursements	53.4	34.0	36.4	22.4
E. Exposure				
1. IBRD Disb./Gross Total Disb.	3.5	4.1	2.2	3.1
2. IBRD DOD/Total DOD	4.9	5.2	5.0	4.8
3. IBRD Debt Service/Net Debt Service	3.0	2.5	2.4	2.9

F. External Debt (Disbursed Only)	Outstanding December 31, 1977 Amount	Percent
1. IBRD	1,540	4.8
2. Other Multilateral	815	2.5
3. Governments	2,939	9.2
4. Suppliers	3,773	11.8
5. Bonds	1,222	3.8
6. Financial Credits	21,528	67.2
7. Other	219	0.7
8. Total M&LT Debt	32,037	100.0
9. Total Public M&LT Debt	19,309	60.3

G. Debt Profile	
1. Net Debt Service 1978-85/Total DOD end of 1977	199.0

a/ Includes multilateral agencies, bilateral lenders, suppliers' credits, bond issues and M&LT loans n.e.i.
b/ Net Debt Service as percent of exports of goods and NFS.
c/ Including Direct Investment Income in debt service.
d/ Net Debt Service as a percent of exports of goods and NFS plus exchange (at beginning of year) in excess of 3 months imports.
e/ In constant 1975 prices.
f/ As percent of DOD at beginning of year.

Note: Debt service ratios have been calculated on the basis of net rather than gross interest payments in order to take into account interest earned upon Brazil's international reserves.

THE STATUS OF BANK GROUP OPERATIONS IN BRAZIL

A. SUMMARY STATEMENT OF LOANS
(As of December 31, 1978)

Loan #	Year	Borrower	Purpose	Amount less Cancellations (US$ Million)	Undisbursed
Forty-three loans fully disbursed				1,360.5	
756	1971	Brazil	Ports	45.0	12.2
828	1972	Companhia Siderurgica Paulista	Industry	64.5	1.0
829	1972	Centrais Eletricas de Minas Gerais - Sao Simao	Power	60.0	.1
853	1972	Brazil	Land Settlement	6.7	3.2
923	1973	Furnas Centrais Eletricas - Itumbiara	Power	125.0	38.7
924	1973	Brazil	Agro-Industry	54.0	31.2
1008	1974	Cia. Hidro Eletrica do Sao Francisco-Paulo Afonso IV	Power	81.0	33.7
1009	1974	Banco Nacional de Habitaco	Water Supply	36.0	4.0
1067	1974	Brazil	Education	23.5	19.2
1074	1975	Rede Ferroviaria Federal	Railways	175.0	33.3
1075	1975	Brazil	Roads	110.0	42.3
1151	1975	Companhia Siderurgica Nacional	Industry	95.0	82.4
1152	1975	Companhia Siderurgica Paulista	Industry	60.0	55.0
1153	1975	Brazil	Agriculture	23.0	16.8
1171	1975	FEPASA - Ferrovia Paulista	Railways	75.0	40.5
1195	1976	Brazil	Rural Development	12.0	11.2
1206	1976	Brazil	Development Bank	85.0	72.3
1207	1976	Brazil	Feeder Roads	55.0	53.0
1249	1976	Brazil	Agriculture	40.0	37.0
1256	1976	Petrobras Fertilizantes	Fertilizer	50.0	28.6
1257	1976	Companhia Paranaense de Energia Eletrica - COPEL	Power	52.0	37.3

A. SUMMARY STATEMENT OF LOANS (Continued)
(As of December 31, 1978)

Loan #	Year	Borrower	Purpose	Amount less Cancellations (US$ Million)	Undisbursed
1300	1976	Eletrobras	Power	50.0	41.0
1302	1976	Brazil	Nutrition	19.0	18.2
1309	1976	Banco Nacional de Habitacao	Water Supply	40.0	32.2
1317	1976	Brazil	Agro-Industry	83.0	83.0
1343	1977	ELETROSUL	Power	82.0	52.2
1362	1977	State of Minas Gerais	Rural Development	42.0	32.7
1406	1977	Petrobras Fertilizantes	Fertilizer	64.0	60.4
1411	1977	Fertilizantes Vale do Rio Grande S.A.-VALEFERTIL	Fertilizer	82.0	59.2
1452	1977	Brazil	Education	32.0	31.3
1488	1977	Brazil	Rural Development	17.0	16.6
1525	1978	Banco Nacional de Habitacao	Sewerage	110.0	110.0
1537	1978	Brazil	Rural Development	24.0	24.0
1538	1978	ELETROBRAS	Power	130.0	130.0
1557	1978	Brazil	Roads	114.0	114.0
1562	1978	COPESUL	Petrochemicals	85.0	83.3
1563	1978	Brazil	Urban Transport	88.0	86.7
1568	1978	Brazil	Agric. Extension	100.0	100.0
1589	1978	Brazil	Rural Development	37.0	37.0
		Total		3,887.1 /1	
		Of which has been repaid to the Bank		520.7	
		Total now outstanding		3,366.4	
		Amount sold	45.8		
		of which has been repaid	35.3	10.5	
		Total now held by Bank		3,355.9	
		Total undisbursed			1,764.8

/1 No IDA credits have been made to Brazil. On January 23, 1979, the Executive Directors approved a loan of US$93 million for a sites and services and low-cost housing project (see Report No. P-2442-BR of January 10, 1979) and on January 30, 1979, the Executive Directors approved a loan of US$100 million, for a northeast water supply and sewerage project (see Report No. P-2447-BR of January 17, 1979). These loans were signed on February 8, 1979 (Loans No. 1654-BR and 1656-BR).

B. STATEMENT OF IFC INVESTMENTS (as of December 31, 1978)

Fiscal Year	Obligor	Type of Business	Amount in US$ million Loans	Equity	Total
1957	Siemens do Brasil Cia. de Eletricidade	Electrical Equipment	2.00	-	2.00
1958	Olinkraft, S.A. Celulose e Papel	Pulp and Paper	1.20	-	1.20
1958	D.L.R. Plasticos do Brasil, S.A.	Automotive Parts	0.45	-	0.45
1958	Willys-Overland do Brasil, S.A. Industria e Comercio	Motor Vehicles	2.45	-	2.45
1959	Companhia Mineira de Cimento Portland, S.A.	Cement	1.20	-	1.20
1959	Champion Celulose, S.A.	Pulp	4.00	-	4.00
1966/1968/ 1972	Acos Villares, S.A.	Steel	8.00	1.93	9.93
1966/1969	Papel e Celulose Catarinense, S.A.	Pulp and Paper	3.78	3.41	7.19
1967/1972	Ultrafertil, S.A. - Industria e Comercio de Fertilizantes	Fertilizers	8.22	3.03	11.25
1969	Petroquimica Uniao, S.A.	Petrochemicals	5.50	2.88	8.38
1970	Poliolefinas, S.A. Industria e Comercio	Petrochemicals	5.50	2.88	8.38
1971	Oxiteno, S.A. Industria e Comercio	Petrochemicals	4.60	1.44	6.04
1971	Rio Grande - Companhia de Celulose do Sul	Pulp	4.90	-	4.90
1972/1975	Companhia de Cimento Nacional de Minas	Cement	29.14	3.20	32.34
1973/1974/1977	Companhia Siderurgica da Guanabara - COSIGUA	Steel	76.96	7.50	84.46
1973	Capital Market Development Fund - FUMCAP	Capital Market Development	5.00	-	5.00
1973/1978	Empresa de Desenvolvimento de Recursos Minerais - CODEMIN, S.A.	Nickel Mining and Refining	85.00	8.34	93.34
1974	Industrias Villares, S.A.	Elevators and Industrial Equipment	6.00	-	6.00
1974	Fabrica de Tecidos Tatuape, S.A.	Textiles	31.00	-	31.00
1975	Capuava Carbonos Industrias Ltd.	Carbon Black	6.18	1.08	7.26
1975	Oxiteno Nordeste, S.A.	Petrochemicals	10.00	-	10.00
1976	Santista Industria - Textil do Nordeste, S.A.	Textiles	6.45	1.00	7.45
1976	Tecanor S.A. - Textil Catarinense do Nordeste	Textiles	6.00	-	6.00
1977	FMB S.A. Productos Metalurgicos	Iron and Aluminum Castings	20.00	-	20.00
1977	Mineracao Rio do Norte S.A.	Mining	15.00	-	15.00
1978	Cimetal Siderurgia S.A.	Iron and Steel	7.0	3.0	10.0
	Total Gross Commitments		355.53	39.69	395.22
	Less Cancellations, Terminations, Repayments and Sales		259.70	8.51	268.21
	Total Commitments Now Held by IFC		95.83	31.18	127.01
	Total Undisbursed		10.38	6.94	17.32

C. PROJECTS IN EXECUTION 1/

There are now 39 effective Bank loans under disbursement:

Loan No.

756 Santos Port Project: US$45 million loan of June 21, 1971; Effective Date: October 29, 1971; Closing Date: June 30, 1979. After long delays, project execution is proceeding satisfactorily although it appears now that project completion will not be realized until early 1980 and postponement of the closing date would then be required. In spite of tariff increases, the financial condition of the Port of Santos continues to be unsatisfactory. Price escalation for civil works continues to increase the project cost. All of the increase is in local currency and is expected to be covered by additional allocations from Brazil's federal Port Authority, PORTOBRAS.

828 COSIPA Steel Expansion Project, Stage II: US$64.5 million loan of June 14, 1972; Effective Date: October 5, 1972; Closing Date: June 15, 1979. The Stage II project was completed in 1978 at a total project cost of US$970 million. This is thirty months behind the appraisal schedule and at a cost of US$593 million (157%) higher than anticipated at the time of appraisal. However, the project remains economically justified. Production reached the project's design capacity of 190,000 tons of raw steel per month (the annual equivalent of 2.3 million tons) during one peak month in mid-1978. Total production reached 2.2 million tons of raw steel equivalent in 1978.

829 Sao Simao Hydroelectric Project: US$60 million loan of June 14, 1972; Effective Date: September 20, 1972; Closing Date: September 30, 1979. Construction of the project is proceeding according to schedule, and is expected to be completed by March of 1979. An anticipated 50% cost overrun, which does not affect the economic justification of the project, is being covered by local and foreign borrowing. The first four units of the power plant were commissioned in June of 1978.

1/ These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered, and the action being taken to remedy them. They should be read in this sense, and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

Loan No.

853 Alto Turi Land Settlement Project: US$6.7 million loan of July 24, 1972; Effective Date: February 15, 1973; Closing Date: June 30, 1980. The settlement agency, COLONE, has prepared revised farm development plans whose credit component, to be financed by public financial institutions, will be significantly higher than originally estimated, although still low in comparison to other settlement projects. Administrative delays in the release of public funds for farm credit, road construction and COLONE working capital requirements and difficulties in recruiting project staff delayed the start of project execution. COLONE continues to be hampered by lack of assured financing, and this problem is compounded by cost overruns presently amounting to about 240%. The original closing date of December 1, 1978 has been postponed to June 30, 1980.

923 Itumbiara Hydroelectric Project: US$125 million loan of August 1, 1973; Effective Date: October 30, 1973; Closing Date: December 31, 1982. The project is about half completed. Major procurement has been completed. However, commissioning of the units is expected to be delayed about 16 months behind appraisal estimates, due to geological problems encountered and very heavy rains which delayed construction of the earthfill dam. The present cost estimate is about 54% over the appraisal cost estimate, 10% of which is due to the need for increased physical quantities due to geological problems. The rest of the increase is due to a substantial increase in the size of the transmission works and to an increase in the cost of civil works. However, the project remains economically justified.

924 Agro-Industries Credit Project: US$54 million loan of August 1, 1973; Effective Date: March 11, 1974; Closing Date: December 31, 1978. Disbursements for sub-loans totalling US$14.7 million were made during 1975-76 under procedures which were not in accordance with the Loan Agreement. These funds have now been prepaid by the Government, reducing the effective loan amount to US$39.3 million. Commitments under this loan are almost at a standstill as a result of competing credit lines at subsidized rates and a general slow-down in industrial investments. However, disbursements should improve in 1979, as the Government is expected to restrict the availability of subsidized credit. The Bank has proposed an interim postponement of the closing date to June 30, 1979, pending a review with the new Government taking office in March 1979 on the prospects for future disbursements.

1008 Paulo Afonso IV Hydroelectric Power Project: US$81 million loan of June 17, 1974; Effective Date: April 15, 1975; Closing Date: December 31, 1978. Resettlement of the 9,700 families displaced by the Sobradinho reservoir has been satisfactorily completed, and new towns and villages to house the displaced population have been constructed. The construction of the underground power station and Sobradinho Dam is proceeding on schedule. Construction of the transmission lines and sub-stations is about 12 months behind schedule. A postponement of the closing date will be considered following the return of a technical supervision mission scheduled during February 1979.

Loan No.

1009 Minas Gerais Water Supply Project: US$36 million loan of June 17, 1974; Effective Date: January 9, 1975; Closing Date: August 15, 1979. This project is proceeding satisfactorily. Thirty-one subprojects have been satisfactorily completed out of a total of 41. The remaining 10 subprojects are under construction and progressing well. As of December 31, 1978, 89% of the loan proceeds had been disbursed. It is envisaged that the loan will be fully disbursed by June 1979. The Government recently increased COPASA's tariff by 36% which should allow the company to operate on a sound financial basis, at least during the first half of 1979.

1067 Second Education Project: US$23.5 million loan of December 27, 1974; Effective Date: April 17, 1975; Closing Date: December 31, 1979. Project execution is one year behind schedule mainly because of delays by the government in providing counterpart financing. Project implementation units have been established in all eight project states and these, together with the main project unit, PREMEN, are working well. The pre-investment studies in the Northeast, financed under the loan, have been completed and have yielded useful information for future sector investment planning.

1074 Second Railway Project: US$175 million loan of January 17, 1975; Effective Date: June 17, 1975; Closing Date: June 30, 1979. Project execution is progressing satisfactorily and appropriate steps are being taken to strengthen project management and control. Cost estimates for the Investment Plan, of which the project is a part, have increased substantially on several items. Therefore, the Plan has been revised and several items have been deleted or postponed. This revision is not expected to affect significantly the items included under Bank financing. Although the financial situation of the borrower has improved, further improvement is necessary for it to be able to effectively carry out its investment program. The Government has decided to deregulate most freight tariffs and is expected beginning in 1979 to make payments to the railway to meet deficits on uneconomic services. These actions should significantly improve the borrower's financial position.

1075 Fifth Highway Project: US$110 million loan of January 17, 1975; Effective Date: May 15, 1975; Closing Date: December 31, 1979. Project execution is proceeding satisfactorily. Roadworks are progressing well, and detailed engineering studies for road construction and road rehabilitation are now completed. Implementation of the road maintenance component is making progress.

1151 CSN Steel Expansion Project - Stage III: US$95.0 million loan of August 4, 1975; Effective Date: April 30, 1976; Closing Date: December 31, 1982. The latest cost estimate is US$3,530 million, an increase of about 67% over the appraisal estimate due to a slower than expected start of project implementation, higher than expected construction costs, difficulties in holding the scope of the project to its essentials and some problems in the management of the expansion program. At the request of the Bank, a thorough review of the project was made. Substantial changes were made resulting in better management and control of the project. The project is now progressing satisfactorily in line with the revised cost estimate and schedule, and remains economically justified.

1152 COSIPA Steel Expansion Project - Stage III: US$60.0 million loan of August 4, 1975; Effective Date: March 4, 1976; Closing Date: June 30, 1980. The project is about two years behind schedule. The cold mill has been deleted from the project to reflect changes in forecast demand. The Bank has recently agreed to three additional changes in the project's scope as follows: construction of a conveyor belt system to deliver iron ore to the raw materials yard (in lieu of a second rail line), an additional reheating furnace for the hot strip mill, and changes in the port layout. COSIPA is preparing for Bank review a comprehensive report on Stage III including revised project capital cost, implementation time schedule and financial projections. Due to a shortfall in the government's equity contributions, COSIPA is experiencing some financial difficulties in spite of its improved operations.

1153 Lower Sao Francisco Polders Project: US$23.0 million loan of August 4, 1975; Effective Date: November 25, 1975; Closing Date: December 31, 1979. CODEVASF made only limited progress on construction for this project during 1977 and 1978 because of heavy rains in the project area. Physical completion of the project will probably extend to 1981, and postponement of the closing date will be required. Current cost estimates show an 80% increase over the appraisal estimate of US$56.5 million. These increases have resulted from design changes, rapid increases in the costs of civil works and equipment, and in the cost of land expropriation. Modifications in the design of emergency and irrigation works are being studied by CODEVASF and its consultants with a view to limiting further cost increases. Project implementation had encountered certain opposition from the population of the project area, which disagreed with the principles and procedures for land expropriation, settlement, future land tenure and the structure of the proposed cooperative system. CODEVASF has revised the social strategy to be followed under the project and is improving communications and relations with the area population.

1171 Third Railway Project (FEPASA): US$75.0 million loan of November 12, 1975; Effective Date: March 24, 1976; Closing Date: June 30, 1979. Project execution is proceeding satisfactorily. The Transport Master Plan Study for Sao Paulo is substantially completed. The technical assistance program which is intended to improve FEPASA's operations, marketing, and data processing systems is showing results. The Government recently deregulated most foreign tariffs and is starting to make payments to the railways to meet deficits on uneconomic services. These actions should assist in improving FEPASA's financial position. Preliminary results of the Transport Master Plan indicate that a major redimensioning of the railway will undoubtedly be required.

1195 Rio Grande do Norte Rural Development Project: US$12.0 million loan of March 1, 1976; Effective Date: July 30, 1976; Closing Date: June 30, 1981. Progress is being adversely affected by funding delays and marketing problems in the principal project crop, perennial cotton. Means of resolving the problem are under discussion. Implementation of the research and credit components of the project has been successful. Disbursements are behind the original appraisal schedule, partially because of funding delays.

1206 Development Banking Project: US$85.0 million loan of March 1, 1976; Effective Date: August 26, 1976; Closing Date: March 31, 1979. Project implementation is behind schedule. The major reasons are: (i) an initial delay in the commitment of funds under this project because of differences between the relending terms of the agencies concerned and those required under the Loan Agreement. These differences are now partly resolved; (ii) a leveling off of the industry's demand for investment financing; and (iii) resource constraints of the National Development Bank (BNDE). To accelerate commitment of the loan, the Bank agreed to amend the Loan Agreement so as to finance the full foreign exchange cost of subprojects. However, commitment of the loan is progressing slowly because of the existence of competing credit lines at subsidized rates and a general slow-down in investments. Postponement of the closing date will be required.

1207 Secondary and Feeder Roads Project: US$55.0 million loan of March 1, 1976; Effective Date: July 13, 1976; Closing Date: December 31, 1981. Five sub-loans totalling US$101 million have been committed with a total Bank contribution of US$23.5 million. Prospects are good that the full amount of the loan will be committed by the end of 1978 or in early 1979.

Loan No.

1249 Agricultural Research I Project: US$40.0 million loan of June 23, 1976; Effective Date: September 21, 1976; Closing Date: December 31, 1981. The project is progressing well and in some areas ahead of schedule. Implementation of the civil works program is actively in progress at 10 of the 21 research stations included in the project, and is expected to be accelerated during 1979. Facilities and research programs at seven experiment stations in the three priority regions (North, Northeast and Central-West) are proceeding in accordance with project goals. Staffing is in advance of project goals, but technical assistance being provided by consultants and the training program are somewhat behind schedule.

1256 Araucaria Fertilizer Project: US$52.0 million loan of May 19, 1976; Effective Date: July 20, 1976; Closing Date: December 31, 1980. Project completion is expected to be delayed by about 15 months due to delays in delivery of equipment to be provided by Brazilian suppliers. Total project cost has increased to US$321 million, which is US$49 million over the appraisal estimate of US$272 million. All the increase is in local currency and with the planned increases in local loans and equity commitment the project has no financing gap.

1257 COPEL Power Distribution Project: US$52.0 million loan of May 19, 1976; Effective Date: August 17, 1976; Closing Date: December 31, 1979. Project execution is on schedule and about 80% completed. Procurement under the loan has also been completed. Disbursements lag about 40% behind appraisal forecast, but the loan is expected to be fully utilized by the closing date.

1300 Northeast Power Distribution: US$50.0 million loan of August 27, 1976; Effective Date: January 31, 1977; Closing Date: June 30, 1980. Project implementation is about 12 months behind schedule because of initial difficulties in obtaining a Government definition regarding participation by Brazilian suppliers. Procurement is now progressing satisfactorily.

1302 Nutrition Research and Development: US$19.0 million loan of October 1, 1976; Effective Date: December 30, 1976; Closing Date: December 31, 1980. The INAN project unit is seriously under staffed which is adversely affecting the progress of the project. The nutrition delivery system's field tests are proceeding reasonably well. Disbursements under the industrial credit components are behind schedule because of competitive programs at subsidized rates. Measures to deal with these problems are under study.

Loan No.

1309 Second Minas Gerais Water Supply and Sewerage Project: US$40.0 million loan of August 27, 1976; Effective Date: January 18, 1977; Closing Date: September 30, 1980. This loan has been fully committed for the financing of subprojects in the Metropolitan area of Belo Horizonte, 38 subprojects for medium sized cities in the interior, and 138 subprojects for small communities mostly in rural areas of the state of Minas Gerais. It is envisaged that the closing date will have to be extended by one year to September 30, 1981, to allow for completion of disbursements.

1317 Second Agro-Industries Credit Project: US$83.0 million loan of September 22, 1976; Effective Date: March 25, 1977; Closing Date: December 31, 1982. Because of commitment delays under the First Agro-Industries Credit Project, commitments for the second loan have not started.

1343 ELETROSUL Transmission Project: US$82.0 million loan of February 23, 1977; Effective Date: June 13, 1977; Closing Date: December 31, 1981. The project is about 30% complete and about 60% of the contracts for supply of equipment and materials to be financed under the loan have been awarded; the remainder are expected to be awarded by mid-1979. With the exception of a relatively minor component, project execution is on schedule. The shortfall (25%) in loan disbursements, caused by delays in the procurement process, is expected to be reduced to 10% by mid-1979 and eliminated by the end of that year.

1362 Minas Gerais Rural Development Project: US$42.0 million loan of February 23, 1977; Effective Date: June 29, 1977; Closing Date: December 31, 1981. Organization of this project is progressing satisfactorily after initial delays. The credit component is expected to gather momentum in the near future. Mainly as a result of administrative difficulties, participation in this project by landless producers is significantly lower than originally envisaged, but concerted efforts by the state government and the participating banks have improved this situation recently. Both the health and education components have advanced significantly.

1406 Sergipe Fertilizer Project: US$64.0 million loan of April 29, 1977; Effective Date: August 31, 1977; Closing Date: November 30, 1981. Plant buildings and equipment foundations are under construction, but some delays have been experienced in procurement of imported equipment which may delay the project completion date by about nine months. Commercial production is now expected to begin in September 1981. The anticipated cost to complete the project is currently running about 8% below the budget.

Loan No.

1411 VALEFERTIL Phosphate Fertilizer Project: US$82.0 million loan of April 29, 1977; Effective Date: July 29, 1977; Closing Date: May 31, 1980. The project has been progressing satisfactorily within the original budget estimate, and the plant start-up will experience only a minor delay. VALEFERTIL has been sold by CVRD to Petrobras Fertilizantes. This change in ownership is not expected to affect project execution.

1452 Vocational Training Project: US$32.0 million loan of September 7, 1977; Effective Date: April 5, 1978; Closing Date: December 31, 1982. Construction of training centers and procurement of equipment are proceeding according to schedule. With one exception (FUNDACENTRO), the technical assistance program is underway at the training centers.

1488 CEARA Rural Development Project: US$17.0 million loan of November 17, 1977; Effective Date: March 28, 1978, Closing Date: December 31, 1982. The implementation of the project has proceeded satisfactorily after initial local funding delays. Agricultural extension and experimentation services, agricultural credit, input supply, marketing and storage services are making good progress, while the parts of the project relating to land purchase credit, agricultural mechanization and cooperative societies organization are progressing at a slower than expected rate.

1525 Greater Sao Paulo Sewage Collection and Treatment Project: US$110.0 million loan of March 10, 1978; Effective Date: August 7, 1978; Closing Date: September 30, 1984. This project is proceeding according to schedule. Civil works contracts for construction of three sewage treatment plants have been signed and work is progressing well. Equipment contracts have been signed for two of these plants, committing approximately US$50 million of the loan. Bids are underway for the third plant.

1537 Paraiba Rural Development Project: US$24.0 million of May 8, 1978; Effective Date: October 19, 1978; Closing Date: September 30, 1983. The project is proceeding satisfactorily and generally on schedule. Civil works are underway and progressing well, and the non-farm development component is showing encouraging initial results. However, administrative problems are causing difficulties in making credit available to the smaller farmers and tenants.

1538 South-Southeast Power Distribution Project: US$130.0 million loan of May 8, 1978; Effective Date: September 14, 1978; Closing Date: December 31, 1982. Initial disbursements have been delayed by about six months due to necessary revisions of the beneficiaries' construction programs caused by changes in the power market; however, it is not certain that project completion will also be delayed.

Loan No.

1557 Sixth Highway Project: US$114.0 million loan of May 8, 1978; Effective Date: October 13, 1978; Closing Date: December 31, 1982. The project is proceeding according to schedule. The training component of the maintenance program for this project is now underway.

1562 COPESUL Petrochemical Project: US$85.0 million loan of July 6, 1978; Effective Date: October 30, 1978; Closing Date: June 30, 1982. The project is proceeding according to schedule.

1563 Urban Transport Project: US$88.0 million loan of May 22, 1978; Effective Date: September 1, 1978; Closing Date: December 31, 1981. This project is progressing according to schedule. Contracts for civil works in Curitiba, Recife, and Salvador have been signed. The Bank has approved a subproject proposal for Porto Alegre and is examining a proposal for Belo Horizonte.

1568 Agricultural Extension Project: US$100.0 million loan of May 22, 1978; Effective Date: September 22, 1978; Closing Date: December 31, 1982. The executing agency EMBRATER has initiated work with state/territory agencies for project implementation. The Project Coordination Unit has been effectively organized and project execution is proceeding satisfactorily.

1589 Bahia Rural Development Project: US$37.0 million loan of July 19, 1978; Effective Date: December 5, 1978; Closing Date: December 31, 1983. This project is proceeding satisfactorily. Implementation of the project has advanced satisfactorily after initial local funding delays, and substantial progress is being made in the majority of the components.

ANNEX III
Page 1

BRAZIL

VALESUL ALUMINUM PROJECT

SUPPLEMENTARY PROJECT DATA SHEET

Section I - Timetable of Key Events

(a) Time taken by sponsors and VALESUL to prepare project: Approximately 2 years

(b) Project prepared by: VALESUL, Companhia Vale do Rio Doce, Reynolds International Inc., and Billiton International Metals Ltd. (a subsidiary of Royal Dutch Shell Ltd.)

(c) First presentation to the Bank: Early 1977

(d) Departure of Appraisal Mission: November, 1977

(e) Completion of Negotiations: February 13, 1979

(f) Planned Deadline for Effectiveness: June 15, 1979

Section II - Special Bank Implementing Actions

None.

Section III - Special Conditions

(a) A modification of raw material supply contracts to be an event of default (para. 38);

(b) A modification of power supply agreement to be an event of default (para. 41);

(c) Bank's loan to be linked to commercial bank's loan through usual cofinancing arrangements (para. 45);

(d) Shareholders to provide VALESUL all additional funds that could be required to complete the project (para. 45);

(e) Effectiveness of Chase Loan to be condition for effectiveness of Bank loan (para. 45);

(f) A change in agreement between major shareholders to be an event of default (para. 48);

(g) Shareholders not to sell their participation in VALESUL except as for (h) below (para. 48);

(h) CVRD to sell a percentage of VALESUL's voting shares to private Brazilian investors so that both private and Brazilian shareholders would hold more than 50% of VALESUL's voting shares (para. 49);

(i) VALESUL to undertake various financial obligations (para. 51);

(j) VALESUL to have its accounts audited (para. 51);

(k) Government to take all action with regard to aluminum prices required to ensure VALESUL a reasonable rate of return (para. 51);

(l) VALESUL to prepare a marketing plan with assistance of shareholders (para. 53); and

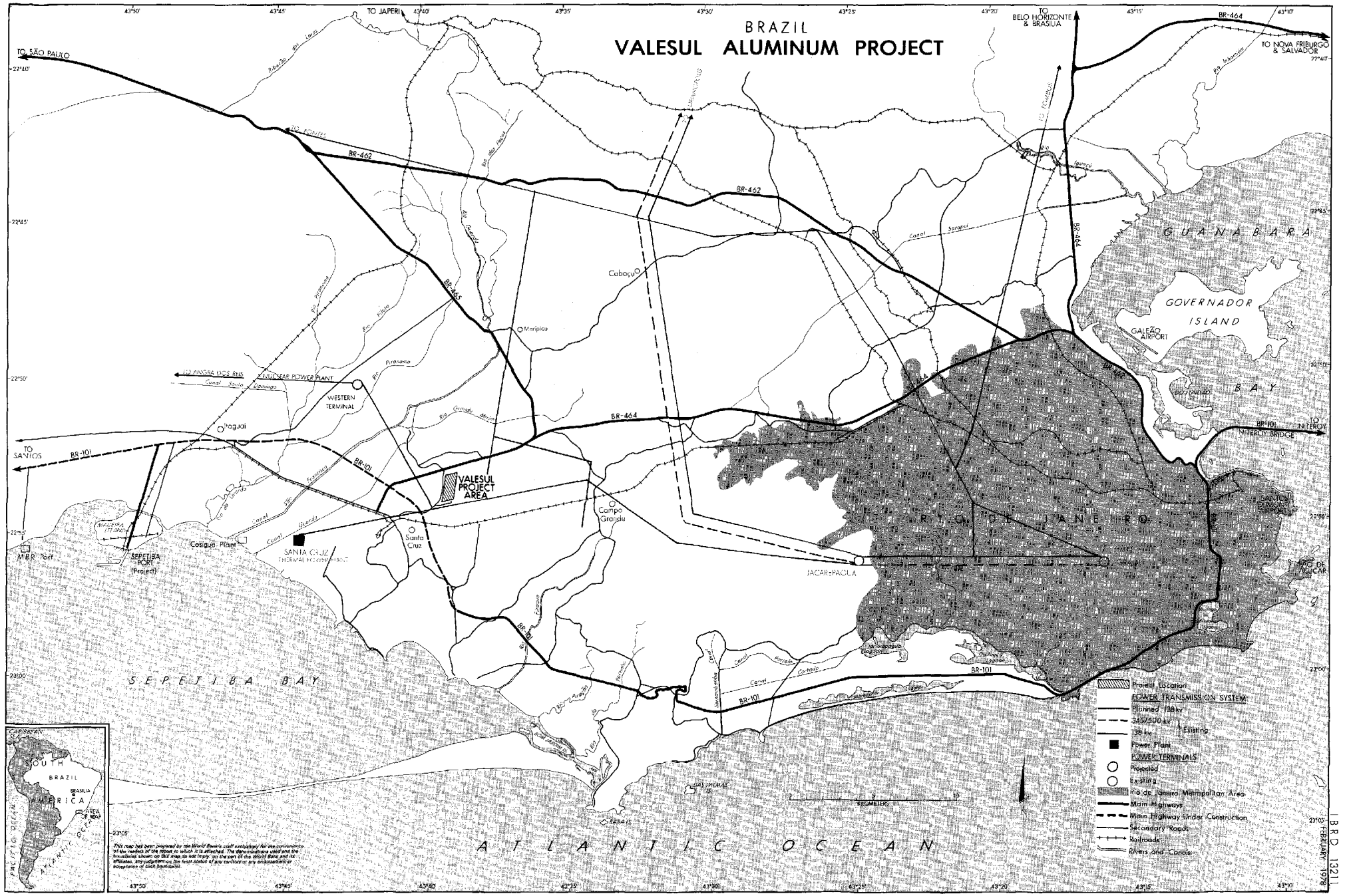
(m) VALESUL to execute and operate project with due regard to environmental factors (para. 60).

IBRD 13222

BRAZIL

VALESUL ALUMINUM PROJECT

This map has been prepared by the World Bank's staff exclusively for the convenience of the readers of the report to which it is attached. The denominations used and the boundaries shown on this map do not imply, on the part of the World Bank and its affiliates, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.



BRAZIL
VALESUL ALUMINUM PROJECT

▨ Project Location

POWER TRANSMISSION SYSTEM:

- Planned 138 kv
- 345/500 kv } Existing
- 138 kv } Existing

■ Power Plant

POWER TERMINALS

○ Projected

○ Existing

Rio de Janeiro Metropolitan Area

Main Highways

Main Highway Under Construction

Secondary Roads

Railroads

Rivers and Canals

IBRD 13211
FEBRUARY 1978