

BRAZIL'S CARAJAS IRON ORE PROJECT
- SOCIAL COMPONENT -

Companhia Vale do Rio Doce
April 11, 1983

SOCIAL COMPONENT OF THE CARAJÁS IRON ORE PROJECT

In the implementation of the Carajás Iron Ore Project

- construction and operation of
 - a deepwater port terminal in São Luis, Maranhão
 - connected by a 890 kilometer long railroad to an iron ore strip mine and industrial facilities deep in the Amazon forest of the Serra dos Carajás in Pará
- the social component has received a special degree of attention.

To mitigate possible problems of impact, Companhia Vale do Rio Doce took action on two fronts:

- one, by indemnifying and/or relocating the existing settlers whose land had to be acquired for project implementation, and
- two, by providing housing for Company project employees and sites and services lots for the migrant population which undoubtedly will be attracted to this new development pole in the uninhabited Amazon frontier.

EXPROPRIATION AND INDEMNIFICATION

The process of land expropriation and indemnification was initiated in 1975 and has principally been based on two laws

- the Presidential Decree, Law no. 3365 of June 26, 1941
- and
- the Presidential Decree no. 87.461 of December 21, 1982.

The first, no. 3365, authorizes expropriation of land for the public purpose, and as stated in Article 4, includes the contiguous areas necessary for development of projects, and as in Article 5, those necessary for the development of mines and mineral resources and the construction, maintenance and improvement of public rights-of-way.

The second, Decree no. 87.961 extinguished the concession of the Carajás Iron Ore Railroad to AMZA (which had been incorporated by CVRD) and gave authorization to CVRD for the construction, use and benefit of the railroad and to engage in the necessary expropriation of land.

The area necessary for project implementation, totalling 10.719 hectares, of which

2,221 hectares at the port site and

8,498 hectares along the railroad right-of-way (which along the 890 kilometers length varies from 80 to 360 meters in width)

was analysed by CVRD's technical team consisting of about 40 to 50 persons (lawyers, engineers, topographers and their assistants).

The typical process for the expropriation and indemnification of land entails the following steps:

- 1) survey of the property's physical conditions,
- 2) an analysis of the property's legal status,
- 3) an assessment of the property's value
- 4) payment for the indemnification of the property, determined either through out of court mutual agreement for just price or through court litigation.

The total number of 2,024 cases of registered landowners and settlers was involved in the expropriation and indemnification process, as follows:

- 495 were landowners

. 12 at the port site and

. 483 along the railroad

and

- 1,529 were settlers

. 898 at the port site and

. 631 along the railroad

Up to now eighty percent - 1652 - of the above mentioned 2,024 cases have been completely settled, i.e.:

. 1,576 by out-of-court mutual agreement for just price and

. 76 resolved in court

with a total amount paid to date for indemnification reaching US\$

3,357,839.00, being 835 cases at the port site (US\$ 2,036,505.00) and

817 cases along the railroad (US\$ 1,321,334.00).

RELOCATION AND ACCOMODATION OF MIGRANT POPULATION

MONTES PELADOS

For the implementation of the deep water port terminal at Ponta da Madeira, São Luis, Maranhão, it was necessary to relocate the 641 families which were residing on the project site when it was purchased by CVRD.

Montes Pelados, a parcel of land, 44.1 hectares in area, adjacent to the BR 135 highway and the Anjo da Guarda community, was purchased in November 1979 by CVRD to provide serviced lots for these families. This site is proximate to the area from which the families are being removed, thus facilitating the maintenance of existing social networks fundamental for income generation, informal credit lines, family ties, etc. This site is also located in the zone of transitional land use, between the industrial and maritime use of the port area and the urban use of the city center, maximizing the residents' employment opportunities.

Handwritten note: K i ...

On March 24, 1980, CVRD's Directorship approved the implementation of the Montes Pelados resettlement project which included the installation of the following infrastructure: artesian wells, water reservoir, communal water taps, access roads and circulation network, school, social center and a 13.8 KW electrical transmission line. The existing brick factories, an important element of income generation for the resident population, were maintained on the site.

Project implementation was completed on February 2, 1982 and the 641 lots were distributed by lottery on February 12, 1982.

Total investment for the Montes Pelados project includes:
(February 1982 figures):

Acquisition of land	Cr\$ 6.071.104,92
Procedural expenses	Cr\$ 350.000,00
Site clearing/construction	Cr\$ 25.879.545,81
TOTAL:	Cr\$ 32.300.650,73 = US\$ 359,935.00

Of the total 441,000 m² of area the following describes the project land use:

Vegetated area	13,557 m ²
School	6,781
Social Administration	1,514
Supermarket	1,730

Handwritten note: A parte social é considerada mercado

tax "evolutiva" e social

PROMON

In collaboration with the state and municipal authorities, a land use and zoning plan for the area around the port terminal is being prepared to control the development of squatter settlements along the access highway to the port, with upgrading and provision of basic urban services.

PARAUPEBAS TOWNSITE

As integral part of the Carajás Iron Ore Project, Companhia Vale do Rio Doce has designed and is constructing ten townsites at the mine and along the railroad to house project operating personnel and to accomodate migrant population attracted to the project area of influence.

The Parauapebas townsite, located at the limits of the mining concession area on the Parauapebas River, 24 kilometers from the Carajás townsite at the mine, is a phased development to accomodate the 98 railway maintenance staff and service workers and to provide serviced lots for the numerous persons not directly employed in the project which are likely to be drawn to the area.

The first phase of this townsite is dimensioned to accomodate 5,000 residents with an expansion in the second phase for 10,000.

On September 14, 1981 the site with a total area of 400 hectares was acquired by CVRD for US\$ 52,631.00 (Cr\$ 5.000.000,00 - Feb. 1983 figures) with the initial development of 130 hectares, 1,000 serviced lots in the first phase. The infrastructure installed includes access roads, an internal system of circulation, services of drinking water, electricity and a sewage and storm water network, a grammar school for 600 pupils, a 26-bed hospital, an administration building with 250 m², a police station and jail, town squares and leisure areas.

To date, a total allocation of US\$ 13,095,458.00 has been made: US\$ 4,327,526.00 for services of site preparation and grading, and installation of infrastructure - circulation, drinking water, sewage and storm water networks, and US\$ 8,767,932.00 for construction of community facilities: school, hospital, administration and law enforcement buildings.

os lotes q estão sendo usados
proc. de venda pela Prof. Marata -> fca. propriet.

Rio Verde -> agra
sta sendo
iluminada!

exploração do gerador
escola e hosp. -> P.

On April 20, 1982, CVRD's Directorship approved the terms of an agreement between CVRD and the Municipal Government of Marabá, Pará, to donate the Parauapebas townsite to the latter party with responsibility for its administration and operation.

grupo de operações CVRD interfere na administração
de Parauapebas
16/7 - para inteira (e p) Marabá
7 lots da CVRD em P. (200 lots) - vila residencial
→ pessoal ^{operações} da furação - páris Parauapebas
(mm. Sta. Inês, Marabá)

CARAJÁS IRON ORE PROJECT

ENVIRONMENTAL, ANTHROPOLOGICAL
SOCIAL AND ECONOMICAL APPROACH

PROGRESS REPORT

MARCH 1984

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1. THE ENVIRONMENTAL APPROACH TO CARAJÁS IRON ORE PROJECT

During 1983, the Environmental Sector of Carajás Iron Ore Project has obtained the following results:

1.1 - BIOLOGICAL INVENTORY RESEARCH

1.1.1 - After a year's work, research in the field of botany identified the vegetation of the open rocky clearing that grows directly on the iron-bearing outcrops normally known as "canga" (see Secco x Mesquita 1983). The occurrence observed of the endemic species Ipomoea Cavalcanti-fam, Convolvulaceae and other indigenous species such as Sobralia Liliac-trum-fam and Orchidaceae (Manoela Silva, Museu Goeldi, 1983).

1.1.2 - Regarding archaeology a number of sites situated on the banks of the River Parauapebas were studied. About 180 kg of material (pottery and lithium) were transported to the Museu Goeldi where, after washing, they were labelled and analysed. All the indications are that the material belongs to the same culture or archaeological period and the pottery shows similarities to that already identified in the middle/upper reaches of the Itacaiúnas (Mário Simões, Museu Goeldi, 1983).

1.1.3 - In the field of terrestrial vertebrates the fauna survey has identified amphibians, reptiles (Chelonia, lizards, snakes), birds, mammals (bats, primates, rodents and marsupials). There still exists in the region a type of "muçuã" (Kinosternon scorpioides Carajaensis) hunted as food. In regard to birdlife the "tico-tico" predominate (Zonotrichia capensis) although the presence has been observed of a species of white bellbird (Procnias) that had

previously only been registered in the mountainous regions of South America (Novaes, Museu Goeldi, 1983).

1.1.4 - The Serra dos Carajás is rich in entomological fauna possessing a large number of species and an abundance of insects. The entomology of the open rock-based clearings (canga) recalls that of the "cerrados" of southern Pará. New species of insects have been identified in this type of vegetation (Odonatas).

The identification and control is necessary of the physical conditions that favour the development of Similium sp (piuns) and Anopheles spp in the Serra dos Carajás.

1.1.5 - With respect to ichthyological fauna the River Itacaiunas area was the subject of study. About 200 species were found including 15 migratory species like "piau" (Leoposinus spp), "pacu" (Myloplus spp) and others. A study is being made of the food chain with its three principle components: organic material that falls from the trees, the riverbed and the phytoplankton. (Goulding, Museu Goeldi, 1983).

1.1.6 - In the area of control of the water quality, 40 points, representative of the hydrographic basin of the Serra dos Carajás, are being monitored and their relation to climatology observed. (Amaral, Y., Museu Goeldi, 1983).

1.2 - CONSERVATION

1.2.1 - Three areas of the Serra dos Carajás range, totalling 35,000 hectares have been selected for inclusion in the area destined for environmental protection. These will be submitted to SEMA for naming and final

designation in 1984.

1.2.2 - An area, circumscribed by major geographic accidents and located in what is understood as a buffer zone to the north of the 419,000 ha mining area of Carajás, is the subject of negotiations with the Government. These negotiations have in view the ceding of this area, of 480,000 ha, to CVRD for the setting up of a resource reserve.

1.2.3 - Two areas, in Marabá and Buriticupu in the municipality of Bom Jardim, each of 10,000 ha, have been acquired by CVRD for florest research.

1.3- VEGETAL RECUPERATION

1.3.1 - In the area of flora 2 nurseries have been set up (São Luís and Serra dos Carajás) with an ample program of analysis of indigenous species, seed collection and the formation of a herbarium, in addition to activities in support of landscaping and the recuperation of degraded areas.

1.3.2 - 400,000 m² of recuperated areas in the camps and in the industrial area of the mine were hydroseeded with the reforestation of 45,000 m² using 2,800 seedlings of native species. In addition 1,800 seedlings were planted for the Parauabepas urbanization project that was handed over by CVRD to the Marabá Municipality in November 1983.

1.3.3 - 23,378,000 m² of vegetal cover were hydroseeded along the cuts and embankments of the railroad. 52,500 m² of these areas were also grassed.

1.3.4 - 116,000 m² of test beds for hydroseeding were prepared by the horticultural research company for use in the hydroseeding of the railroad area.

1.3.5 - 57 native species were tested for use in the landscaping of the port and railroad. This work was carried out by the São Luís nursery set up in 1983.

1.3.6 - 50,000 seedlings were prepared in the Carajás Botanical Garden, 8,000 of which were planted in the industrial area and camp of N-5. 700,000 seeds of bushes, fruit trees, and plants of the region were collected.

1.3.7 - 763,000 m² of vegetal coverage were hydroseeded in the industrial area and the railroad loop of the mine site at Carajás.

1.3.8 - In the residential township and commercial area of the N-5 camp 5,000 seedlings of native species were used in the landscaping.

1.3.9 - The implementation of the environmental master plan of the port at São Luís is to be initiated in 1984 with the execution of the green belt program.

1.4 - PROJECTS AND STUDIES

1.4.1 - After a study of the structure of land ownership and of institutional responsibility for its management, the text of the ecological zoning of the Carajás Iron Ore Project, with its designation of areas of conservation and preservation, was completed.

1.4.2 - Detailing was carried out of the monitoring of air, water quality and noise levels in the São Luís port area.

1.5 - METEOROLOGY

1.5.1 - The Project's second meteorology station is being set up in São Luís for environmental monitoring and maritime support. The meteorology station at Serra dos Carajás is fully operational and issues a monthly report of meteorologic information of the level of a class II station of the Ministry of Agriculture.

1.6 - WORKS OF AN ENVIRONMENTAL NATURE

1.6.1 - Various dams of an environmental nature such as Rejeito Sul, Gabião and Geladinho were constructed for the quality control of the water of the hydrographic basin and rejects of the Serra dos Carajás.

1.7 - SUPPORT FOR THE TRAINING OF QUALIFIED PERSONNEL

1.7.1 - Under the CVRD/CNPq agreement researchers from various areas were received by the CARAJÁS PHYSICAL BASE for a period of field training. These included members of the UNICAMP Postgraduate Ecology Program, technicians of the Universities of Pará, researchers of the Museu Goeldi, anthropologists of the Brazilian Anthropology Association and technicians of the SESP Foundation, SUCAM, EMBRAPA, IBDF and SEMA.

From the experience obtained in the work undertaken it is believed that, in management terms, a satisfactory balance can be achieved between development and the environment in the construction of a large scale project in the humid tropical forest of Amazônia that will produce adequate benefits to present and future generations.

2. THE ANTHROPOLOGICAL APPROACH TO CARAJÁS IRON ORE PROJECT

The FUNAI/CVRD agreement for support of Amerindian communities was developed as well as the anthropological assessment of 6 experts to CVRD management program during 1983.

This work involves a specific program that considers the demarcation of land and health support being the two more important priorities in this field.

Educational services, administrative support and agricultural projects complete the last of activities..

Of the 14 Indian reservations, four of them (in Maranhão) had their land demarcated, fixed and ratified during 1983, by the SPU as follows:

Alto Turiaçu, registered under SPU nº MA 162

Caru, registered under nº MA 161

Governador, registered under nº MA 154

Rio Pindaré, registered under SPU nº MA 163

The Parã reservation called Sororô is waiting the register of SPU, since August 1983. The indians of this reservation consider the FUNAI perimeter very small and CVRD is presently negotiating with FUNAI in order to include the banks of rivers inside the reserve, in order that fishing and fauna are satisfactory to the indians.

CVRD gave helicopter support during two months in 1983 for the work of demarcation of perimeter of Parakanã reservation.

CVRD waits the final report of FUNAI/MINTER and MEAF for final ratification.

At the moment, APINAJÉS reservation at Goiás is being studied by technicians of DSG (Army Support) for the demarcation of their land, which is in a very sensitive region as the Bico do Papagaio.

3. SOCIAL COMPONENT OF THE CARAJÁS IRON ORE PROJECT

During 1983 on the implementation of the Carajás Iron Ore project the following progress was achieved:

3.1 - LAND AND PROPERTY EXPROPRIATION

The total number of registered cases of settlers and landowners involved in the process of expropriation and indemnification along the railroad route is 2271. (* see note on next page) During the year 225 cases have been resolved with mutual agreement, with fair and just prices. This represents 10 per cent of registered cases. in addition to those 1652 cases previously settled, as reported in April 1983.

3.2 - "MONTES PELADOS"

The relocation of Montes Pelados (old name for Vila Esperança) in the area of São Luís is going ahead with 120 serviced lots already occupied with families of the old landowners of São Luís port area and 400 lots have been committed to the owners. A donation was made to the São Luís municipality in order that the construction of a bridge linking this new settlement to the urban network can be completed in 1984.

3.3 - TOWNSITE OF PARAUPEBAS

In november 1983 the construction of the townsite was completed. In order to have the hospital, primary, school, police station and administration operating at this time it was necessary to establish contacts with several state agencies.

At the present time Parauapebas is now considered a sub-major agency of the municipality of Marabá and administration and police station are under their jurisdiction. A grant has been made by CVRD to the Marabá Municipality of five thousand U.S dollars per month to assist in the maintenance costs of the already completed urban works.

The primary school due to national school holidays commenced on march 10, 1984 with the enrolment of 400 local children.

In the health matter it was studied under request of CVRD a health program by FUNAI, taking into consideration the medical assessment of Prof. João Botelho Vieira.

A special program to diminish malaria in the Parã reservations in being carried out by CVRD medical group and SUCAM technicians in support of FUNAI medical team. A similar program has been completed in XIKRIN and PARAKANÃ reservations.

A monthly control program developed by Ecological Department of CVRD in Carajás and São Luís, checks the progress made by construction contractors under the FUNAI agreement.

As well as the emergential support given by CVRD for health cases and diet changes of new indians "under attraction", helicopter support is given as part of a routine plan.

A total amount of US\$ 2,280,432.85 has been expended up to December 31, 1983 with the FUNAI Amerindian Program.

4. THE ECONOMICAL APPROACH TO CARAJÁS IRON ORE PROJECT

One of the most common criticism on Carajás Iron Ore Project comes from the absence of knowledge of its financial scheme.

→ If we analyse the financial support of the project published by Zraick S, 1983 (CVRD) we get to know very interesting things as of:

- a) 75% of the role investment is supported by internal funds (CVRD and BNDES);
- b) only 2.0% is dedicated to imported components of the project, as rails and mining equipments not available yet at the national market:
- c) All the technology is based on Brazilian experience as well as the manpower involved with project, construction and operation.

The total exchange value generation of the project at exportation level will be around 700 hundred millions dollars per year; The direct manpower considers more than 6.000 employees; the indirect employees are expected to be around 20.000 persons.

Considering aswell manganese reserves exploration already undertaken by CVRD in Carajás, we may consider an exchange value extra during 4 years (1984 through 1987) of about 90 million dollars.

The hospital is operated by the FSESP agency and is manned by local labor thus creating more jobs in the area. Financial grants will be made by CVRD for hospital maintenance during the first year of operations and thereafter a sum of 30 per cent of the annual budget.

One thousand land plots are being distributed to the local population and the new owners will pay a property tax to the municipality of Marabá which will be reinvested in the developing of urban issues in the area.

At the present time 20 families are living in Parauapebas already.

Integration with the Rio Verde community (a GETAT NUCLEUM 3. km away) is being implemented by connecting the two urban designs with a local road, in order that the Rio Verde population may use the already functioning facilities, this being a gift of the project for the further development of urban and social structure in the region close to mine site.

* Obs : i.e. 247 additional cases, compared to 1982 figures.

5. THE APPROACH TO GREAT CARAJÁS ENVIRONMENTAL POLICY

After the Luxembourg meeting of february 21, 1983 contacts have been established by CVRD directorship in order to communicate and reveal to federal government agencies informations received from the NGO report as follows: SEPLAN, MNE, CSN, PGC, MEAF and MRE.

A working group was formed by PGC, CVRD, CSN and MRE representatives and have been dealing with the subject since may 1983 and it is hoped that a environmental guideline policy for Great Carajás will be presented before the end for 1984.