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THE AMAZON IS EVERYBODY'S BUSINESS

REPORT OF A TRIP TO BRAZIL
20 FEBRUARY - 12 MARCH 1992

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1. Introduction

From 20 February - 12 March 1992 I visited Brazil and the Brazilian Amazon, primarily to get a first direct impression of the impact of some major private sector activities or proposals for such activities on the ecology and the peoples of Amazonia.

I made this visit in my capacity as chairman of the European Working Group on Amazonia (EWGA), a "joint venture" of the Netherlands Committee for IUCN¹ and the Environment and Development Resource Centre (EDRC). EWGA is a forum for about 200 non-governmental organisations (NGOs) from Europe, the Amazon countries, North America and Japan, working for the protection of human rights, nature and the environment in Amazonia. The main focus of EWGA is of course Europe's contribution to these objectives.

EWGA considers it part of its program to look at the private sector and market relations between Europe and Amazonia.

Since the bauxite and aluminium sector is an important element of these relations, contact was sought with Shell daughter Billiton, headquartered in the Netherlands, which is one of the main actors in this sector.

In the correspondence and conversations which followed, we expressed the concerns from NGOs in Brazil and elsewhere about the impact of certain proposed or current activities by Billiton - with varying levels of involvement - especially the building of a new bauxite mine and associated hydropower installations in the Trombetas areas and the operation of the Tucuruí hydropower station and the Alumar alumina refinery and aluminium smelter.

Billiton claimed that they took the greatest care to protect the local people and the environment against the negative effects of their operations and pointed to the important income and employment benefits of their work in Brazil, besides of course serving a growing world market for aluminium.

They offered to assist me in the technical organisation of a visit to their operations in Brazil, so that I could see for myself.

I had gotten the same offer from representatives of the Aracruz paper and pulp company, headquartered in Rio de Janeiro, whom I had met at the World Industry Conference on Environmental Management II, in April 1991 in Rotterdam. They were interested in showing me the potential of restoring degraded areas in the Amazon by replanting them with eucalyptus and native species, while integrating this with protection of still existing primary forests. Everything should be done with maximum involvement of the local population.

Since only the eucalyptus part would be commercially viable (in principle), they would like to have the support of the international environmental movement to find money to cover the cost of the non-commercial segment of such a project. Also, of course, it was extremely important that this movement would agree that products coming from "eucalyptus plantations in the Amazon" could be socially and ecologically acceptable.

I decided to accept the offers by Billiton and Aracruz, primarily because it is my strong impression that, while there are still many conflicts between the private sector and the environmental

¹ IUCN stands for International Union for the Conservation of Nature and Natural Resources, now called World Conservation Union, but still abbreviated as IUCN. The IUCN, founded in 1948, is headquartered near Geneva in the same complex as the World Wide Fund for Nature (WWF), which came out of the IUCN in 1961.

movement, there is also a growing common interest: a product of which it is known that it was produced at the cost of the rain forest and its inhabitants, does not do well on the world market, nor in the hearts and minds of the producers...

Considering the dire state of the planet's ecology, I think it is necessary to explore all possible alliances for concrete improvements. At the minimum, all misunderstandings should be swept out of the way and it should be as clear as possible where the real conflicts lie. It was with this objective in mind that I made my visit.

I would like to state here that, from this perspective, I found my trip very satisfying. This is in the first place thanks to Ms Maria Luiza, secretary of Mr Gilbert Landsberg, director of External Relations of Shell Brasil, who, with great efficiency and charm, has made all the contacts at the sites to visit, did all flight and hotel bookings and took care that I was picked up or accompanied where-ever I went. She did this together with Ms Denise Sa from Aracruz.

I will name the others in the course of this report. As my main conclusion, however, I can only say that it will be a joy to cooperate with the people I met to further our common interests.

2. Conversation with Mr Gilbert Landsberg, director External Relations Shell Brasil

After arriving on 21 February I went first to see Maria Luiza to hear the details of my trip and I had an opportunity to meet with Mr Landsberg. He pointed out that environmental awareness in Brazil is quickly rising, but action is still lagging, also because the North is perceived not to do its share. Shell, of course, reacts primarily to market demand.

For many people in Brazil the Amazon is far away; there is more interest in the Atlantic rain forest (Mata Atlantica), of which only a little is left, but which still has a high level of biodiversity. Shell Brasil sponsors projects to protect the Mata Atlantica.

As to the controversial Tucuruí hydropower station in the Amazon, he claimed that Alumar has "saved" Tucuruí (in an economic sense). First there was Tucuruí and then came Alumar. Most people think it was the other way around.

3. Visit to Alumar

On 23rd February I flew to Sao Luis on the coast of the state of Maranhao. Alumar, the integrated alumina refinery and aluminium smelter, owned by Alcoa (56%) and Billiton (44%) (Alcan will come in into the refinery), is located at a distance of 35 km. from the city. In the morning of the 24th I was picked up by Pedro Titoto, Billiton's export manager, who explained me a bit about the trading companies active on the world aluminium market and who introduced me to Jose Mauricio Macedo, superintendent for environmental affairs at Alumar.

Bauxite comes (by ship) mainly from the Trombetas mine in the state of Para and partly from Africa. Electricity is provided by Tucuruí hydropower station. Among the other inputs are coal from Colombia and charcoal from Minas Gerias. With an annual output of around 1 million tons of alumina and 350 thousand tons of aluminium Alumar is one of the world's biggest in its field. (The aluminium goes by rail to the port of Sao Luis.)

The most recent brochure of Alumar describes its relation with Trombetas and Tucuruí as

follows: "The large bauxite deposits in Trombetas and the building of a hydroelectric power plant in Tucuruí, both in the state of Para, have made possible the implementation of the Alumar project (...)."

Environmental protection at Alumar is a line responsibility, in which line management is assisted by the environment superintendent and his staff of 16 persons. Alcoa has provided the policy model and advanced technology to capture and re-use the fluoride emissions from the smelter. Here the strictest standards are met and the aim is complete elimination. Mr Macedo took me around the plant site, where many trees are planted for landscaping as well as for monitoring the effect of the fluoride emissions. (Dr Weinstein, a specialist from Cornell University in the state of New York, involved in this monitoring, is using the methodology of the U.S. Environmental Protection Agency for air sampling. This is Alcoa policy.)

He would like to set up an environmental visitor's centre next to the tree nursery and build an environmental park around the plant. The city of Curitiba, capital of the state of Parana, is assisting here with its experience.

Alumar has a 2100 hectares preservation area of waters and mangroves outside the plant area, which is constantly being monitored and which should be kept clean and intact, and claims it has succeeded in this so far.

My question whether the deep well pumping for the water used in the plants processes had any effect on the mangroves could not be answered. It was said that there was not yet collective management of the underground water, in which other users, such as the city of Sao Luis, also should take responsibility.

The SO₂ emissions from the calcination plant - part of the alumina production process - meet the standards now recently set by Brazilian law.

A serious problem of every alumina plant is the treatment of the toxic "red mud" discharges. At Alumar it is pumped into artificial ponds, which are coated with two layers: one of compact clay and the other of PVC sheets. They are considered to be impermeable and to prevent contamination of soil and underground water. The water, containing the caustic soda used in the process is pumped back, both from the surface and the bottom of the ponds, to be re-used in the process. Certainly the nearby Brahma beer brewery must think it is safe!

Another question is of course what to do with the compacted residues in the ponds. Can it be used to replace clay, as construction material or brick additive? Or should it only be covered with natural soil and then reforested with native species. Mr Macedo and his staff are still working on these questions and would welcome successful examples from other parts of the world.

After lunch in the canteen, where we were joined by the plant's director, I was shown the aluminium smelting rooms (occupying a surface of 117,500 m²!) and the ingot room. Here I was accompanied by Antonio Weber, chief of operations at Alumar and Armando Mariano Filho, working with Billiton's international division in Sao Paulo.

I was impressed by the size and efficiency of the operations and the care to do it all as clean and safe as possible.

At the end of the afternoon Pedro Titoto drove me back to the airport. He had been a very pleasant, internationally oriented host and I am very grateful to him and the people mentioned above for the time and information they shared with me.

I wish I could have stayed longer to see more of the surroundings of Alumar, to visit the town of Sao Luis, which I hear is very attractive, and to speak with environmental organisations or representatives of the local population to get their perspective on Alumar. A list of critical issues which have arisen during the construction and operation of Alumar has been given in the report "From Bauxite to Beer Can" of April 1991, commissioned by the Netherlands Committee for IUCN and at the moment (May 1992) only available in Dutch.

However, this was not the first purpose of my trip, which was to get to know those people in the private sector operations in the Amazon or relevant for Amazonia, who could serve as counterparts for the international environmental movement to discuss potential areas of cooperation. Openness on their side was in this stage more important, than a rigorous check of the ecological and social performance of the companies involved. Of course, the latter has to be included in future relationships and, given the size and complexity of Alumar and its role on the world market, such an assessment has to be based upon audits by the best international environmental auditing firms available. (I was very pleased to hear from the people from Aracruz, that they would welcome suggestions for names of such firms for their operations.)

I am convinced that, on the side of Alumar, that openness is there.

4. Visit to the Tucuruí hydroelectric power station²

Early morning of 25 February I flew from Belem to Tucuruí, in the company of Flavio Bulcao, a lawyer from Billiton's headquarters in Rio de Janeiro in charge of the legal aspects of Alumar's operation. It was also his first time to see Tucuruí, the supplier of electricity to Alumar, and he combined satisfying his own need for information with being excellent company and interpreter for me.

In Tucuruí we were met by Mr Angelo Carillo from Eletronorte, the owner and operator of the station. He brought us to Mr Ricardo Gonsalves Rios, regional manager of the operations at Tucuruí, who showed us the dam, the turbines and the (unfinished) lock for shipping. Tucuruí is the fourth largest hydropower plant in the world. Of its total capacity of 8000 MW only half (the first phase) is in operation. Of the 12 turbines 7 are in operation for the aluminium industry (4 for Alumar and 3 for Albras, the smelter near Belem). The other 5 produce for the cities of Belem and Maraba and their surroundings.

Vandalism against the transmission lines is a big problem. Near Belem poles and threads are taken down and sold... Power cuts are very dangerous for the aluminium industry, because it may jeopardise continuity of operation and of quality of product.

By itself, the Tucuruí dam, which harnesses 760,000 km² of the hydropower of the basins of the Araguaia and Tocantins rivers, is an impressive piece of construction and the operation of the dam and the turbines with all the associated activities made a very modern and efficient impression upon me.

We were shown films of the rescuing of animals after the dam was closed and the lake started

² Much has been written about the social, ecological, economic and political aspects of Tucuruí and most recently, in February in Amsterdam, the International Water Tribunal has given its verdict with respect to a complaint filed against Eletronorte by representatives of the local population. This report is not the place to give an overview or a summary of that enormous amount of information, however. I will limit myself here to reporting about what I saw and with whom I spoke.

filling up. There was also a film about the floodings and damage caused by the Tocantins river before the dam was closed.

Biologists Wilze Foray Casanova and Tacachi Hatanaka explained the work of Eletronorte's environmental laboratory at Tucuruí. Before the dam was closed the seeds of economically interesting plants and trees were collected. On the island in the lake behind the dam there is now a protected germplasm bank. INPA (Dr Nunes de Mello) does the research and Eletronorte takes care of the logistics.

There is constant monitoring of water quality using 28 chemical and biological parameters at three points upstream from the dam and one point downstream plus at a few side waters for reasons of comparison. No significant differences in fish stocks have been found between the parts of the lake which were deforested before the lake was filled, and those which were not. In general there is even more fish in the dam lake because of the release of nutrients when the lake was formed. Along the lake there are now an estimated 5000 (clandestine) fishermen. Downstream the dam there has been overfishing as a result of the use of driftnets.

If during the dry season there is less oxygen in the river, more water can be released through the gates, causing more turbulence resulting in higher oxygen levels in the water.

Their main conclusion was that, after an initial change, there is equilibrium now.

Asked about the mosquito plague around the lake, they said it was a temporary phenomenon, only occurring where certain water weeds (mansonias) grow. The mosquito only comes out at certain moments in the morning and in the evening. It picks, but does not carry the malaria virus. The plants will disappear when full equilibrium has been attained. There is no relation with the submerged vegetation of which only 6% (the leaves) are really decomposable.

The situation of the Brokopondo dam and lake in Suriname is very comparable and has taught that after 12 years stabilisation will be reached. In Tucuruí this will probably happen faster, because the Tocantins is a faster river. In Brokopondo 85% of the lake was covered with weeds, in Tucuruí it is only 25%.

Eletronorte acknowledges it is also their problem, because they relocated groups of people to sites where now the weeds occur. They claim, however, that the problem can be solved by putting nets over the houses and by fumigation and that it will disappear over time. People, like those camping outside the gate of the dam area, who want to be moved to other sites, are manipulated by local politicians, who want to sell the land in those other sites at high prices to Eletronorte.

Eletronorte has also assisted the Parakana and Gavião peoples living around the lake to cope with the effects of the power station, such as transmission lines running through their lands. The destruction of the Brazil nut trees and the forests with the species on which these trees - important sources of livelihood for the local peoples - depend, is mainly caused by other activities such as cattle ranching, in which Eletronorte is not involved. It has to be realised that the Transamazonica runs along the Tucuruí lake, so that the area can easily be reached.

With biologist Tacachi Hatanaka we visited the germplasm island in the lake and during the boat ride over the lake we saw the upper parts of many dead trees above the surface of the water. It was both a sad and a fascinating sight.

In the evening Mr Rios offered us a dinner with delicious fish from the lake. He wondered, however, about my involvement in the International Water Tribunal in Amsterdam, which just had

spoken out on Tucuruí. I think that I made clear that, while I belong to an international movement which has the greatest concerns about the social and ecological impact of projects such as the Tucuruí hydropower plant - which are of course to a large extent caused by developments on the world market - I had come to Brazil this time to meet directly with the people in charge of these projects. I consider this essential input for the positions to be taken by our organisations in Europe vis-a-vis Amazonia.

The next day, 26 February, we first visited a fishermen village on the lake, where the catch of the previous night was brought to land. I was impressed by the size and the quality of the fish. Most of the fish is sold to Belem. On the shore of the lake the fish sells for 300 Cruzeiros per kilo, on the Tucuruí market for 2000 and on the market of Belem for 5000 Cruzeiros per kilo... The fishermen have now started to form a cooperative to improve their position on the market.

Then we drove to the village of Breu Branco, in which inhabitants from the lake area are relocated. Eletronorte has provided the land, a model house and building materials, sewerage, water treatment facility, schools and two churches.

It was difficult for me to get an idea of how successful the relocation was, but I was told by Mr Alisio Resende Prata, in charge of the operations around the lake, that these settlements attract a lot of people from other regions, overburdening the facilities. This, however, should be taken care of by the government of the State of Para, and cannot be the responsibility of Eletronorte. As we could see, most people work now in forestry and the wood industry. The forest lots which Eletronorte has provided are not being respected and IBAMA, the federal environmental agency, fails to effectively monitor and enforce the forestry activities and regulations (nor the clandestine fishing downstream the dam, as I was told).

We also visited the silicium plant of Camargo Correa Metais, a subsidiary of Camargo Correa Constructions & Commerce, which built the Tucuruí dam. Like an aluminium smelter, a silicium furnace needs large amounts of electricity. Together with the availability of abundant amounts of quartz, charcoal and woodchips, the other inputs to make silicium, the plant is well-located. While the charcoal used to come from the surrounding forests, it now comes from a 34,000 hectare area of forest, 40 km away from the plant. The degraded parts of this area are planted with eucalyptus, of which the charcoal is made. It is superior to the charcoal from the primary forests, because of its more constant carbon content. The remaining primary forest in the area is under sustainable management and the animals are protected. The whole area is fenced. I had the pleasure of meeting Mr Elstor Paulo Frey, director of the company set up to manage this forest area, the Reflorestadora Agua Azul S.A.

Superintendent Getulio Bernar showed us around the plant, which only operated at 25% (750 tons per month) of its capacity. The silicium (important element for f.e. aluminium alloys and micro-electronics) is shipped by boat to Belem and then to Europe and the U.S. One of the reasons for the low level of operation is that Brazilian silicium exports have been submitted to an anti-dumping procedure by the European Communities.

In the afternoon we went to see a relocation settlement farther away from the lake. We were joined by engineer Gilson Nakamura and Mr Luiz Fernando Rugato from the Brasilia office. Along the road I saw large deforested areas belonging to cattle ranches. The largest ranch has more than 10,000 heads of cattle. Here and there pieces of primary forest were left. Once in a while, one

could hear the noise of a felled tree, falling on the ground.

This settlement grew very fast, mainly with people from outside, and the Eletronorte people expressed again their dissatisfaction with the lack of involvement of the State government in handling the problems caused by this growth.

On the way back I asked to stop at the gate, because I wanted to introduce myself to the people camping outside the gate along the road, having fled the mosquito area and wanting new land and compensation. I heard they were already 8 months there and that they did not think the measures proposed by Eletronorte such as nets, spraying and fumigation were effective or acceptable (health risks of spraying). I told them that I was there as a guest of Eletronorte, but that I had met Ms Aida Maria, member of the Para State Parliament supporting their case, while she was in Amsterdam for the International Water Tribunal, and that I would share the report of my trip also with her. I left my address with the spokesman of the group.

That evening we flew back, via Maraba, in rather heavy weather to Belem.

5. Visit to bauxite mine in Trombetas

Early morning 27 February I flew from Belem to Porto Trombetas to visit the Mineracao do Rio Norte (MRN), in which Billiton and Alcoa now participate each for 12.5%. Major share holder is Companhia Vale do Rio Doce (CVRD), now with 40%. The other share holders are Alcan (12.5%), Companhia Brasileira de Aluminio (12.5%), Norsk Hydro (5%) and Reynolds (5%). MRN is the major supplier of bauxite to Alumar and exports about 80% of its production.

At the Porto Trombetas airport I was met by Mr Oliver Henry Knowles, a famous expert on Amazonian forests, fauna and flora, who has set up and now supervises MRN's ecological restoration programme. Together with chief engineer Silma he showed me the mine site, 30 km away from Porto Trombetas, on a plateau in the middle of the forest. High quality and easy to mine bauxite is found in layers of these plateaus. Mr Knowles explained the mining process to me, which is basically the following: per year 120 hectares is deforested; after removing and storing the top soil, the yellow clay layer is taken away, after which the bauxite can be mined. The bauxite is crushed and washed at the mine site and transported by rail to Porto Trombetas to be loaded into ships. The tailings of the washing are dumped into nearby artificial ponds on the plateau, which are completely sealed off from the rest of the soil, and experiments with replanting the compacted tailings are going on. The water is pumped back and re-used, so in principle it is a closed system. (See also below about my visit of Lake Batata.)

The top soil is brought back to the mined area and reforestation starts, now with almost a hundred, mostly native, species. It all has to be done on an experimental basis, there are no handbooks on how to re-create a tropical rainforest. One learns by doing: Mr Knowles showed me the various replanted lots since the beginning of the 1980s and one could see the progress made. Dr Joao Ferraz from INPA is doing research on the development of soil quality in the restored areas. While it will take hundreds of years to have something back with the same degree of diversity as the original forest, in 40 years a reasonably balanced cover may be attained.

Mr Knowles succeeded in having a large area of forest around the mine declared as a National Forest, which is now actively protected by MRN.

As was already communicated to me by Billiton headquarters in the Netherlands, there are no plans to expand mining in the near future beyond the plateau which is currently being mined. Billiton and

Alcoa, which originally planned to open a new mine, north west of MRN, have shelved these plans, after re-arranging their participation in MRN. (The local Quilombo population and the national and international environmental movement had been very concerned about the impact of a new mine and will of course continue to follow closely the plans and activities in the Trombetas region.) Since there are no roads to Porto Trombetas, it is relatively easy to protect the area against damaging colonization, ranching or garimpeiro type mining.

Mr Knowles was very firm in denying that MRN would build its own hydropower station in the nearby Chuisco river - in the dry season the river just does not carry enough water - nor did he think the Cachoeira Porteira more upstream in the Trombetas would be built.

After having shown me the mine, Mr Knowles drove me back to Porto Trombetas and introduced me to Artur de Melo from MRN's Public Relations office, who was assisted by Juliana Albuquerque as interpreter. They took me to Phillip de A. Stirling, the port manager, who showed me the drying, storage and loading facilities in the port area. Main environmental problem there still is the waste water coming off the conveyor belts, transporting the bauxite to the various facilities, which now runs into the river. There are plans to build one big collection pond and to recycle the water.

The power for the mine and port installations comes from diesel generators, with the oil supplied by Petrobras.

Mr de Stirling was so kind as to offer me a trip with his boat up the Trombetas and to a nearby lake with nice beaches, if I could stay over the weekend. I accepted of course with pleasure and Mr de Melo and Ms Albuquerque were extremely helpful with making the necessary changes in flight tickets and hotel bookings.

Later in the afternoon I was shown the town of Porto Trombetas, especially built for the people working for MRN and well-equipped with all facilities. Since the town lies in the middle of the forest (on one side there is the Trombetas, of course), there are regular reports of jaguars walking through the gardens.

In the morning of the next day, 28 February, I was first brought to the Horto Botanico, where I met Alexandre Machado Guimaraes and botanist Evandro Soares da Silva from MRN's Environmental Department. They work together with Knowles to select and breed the seedlings for the reforestation of the mine and they are involved in monitoring the quality of the waters and the fisheries, which are or may be affected by the operations of MRN.

After having told me about their work and having shown me the tree nursery, they took me to Lago Batata, the natural lake alongside the Trombetas, in which MRN used to dump the tailings of the bauxite washing, when this still was done in the port area. As it was clear that this was a totally unacceptable procedure, MRN installed the closed system at the mine site a couple of years ago. A large part of the lake is now filled with the tailings, which have compacted and under which a water "bubble" has been formed. One can walk upon the compacted sites. MRN hopes it will be covered by vegetation and return to some natural state in the future.

By boat we went over the river to the "clean" side of Lago Batata, which is connected by a small natural canal with the river. At a certain moment then, one can dig up the tailings from the boat. MRN hopes the tailings will not move further to the clean part of the lake or into the river and tries to promote the growth of water plants, which maybe could absorb part of the tailings, by

throwing seeds in the water.

While in Porto Trombetas one sees billboards, which optimistically say that the "original inhabitants are returning to Lago Batata", it is clear that there still is a tremendous ecological problem, which is as yet far from being solved.

That afternoon I had asked to visit Boa Vista, a Quilombo village near Porto Trombetas. I was so lucky as to see there Carlos Printes, coordinator of the Association of Quilombos in that area, whom I had met in Amsterdam, just before I left. Mr Printes had been in Amsterdam for the International Water Tribunal and had visited my IUCN office. I went with him to the house of his family and told them what I had heard from Knowles about the abolishment of the Chuisco dam and the uncertainties about Cachoeira Porteira. He had already heard from Mr Van Erven Dorens from Billiton Headquarters, who was at the meeting in Amsterdam, about the postponement of the new mine into the far future. I urged Carlos to maintain close contacts with Knowles. From my side, I said I would inform him of any new developments about the things that concern the Quilombo community, that would come to my knowledge. I said that I was convinced that certainly Billiton wanted to be as open as possible.

After a wonderful weekend with Phillip de Stirling and his wife, Katia, in which I saw schools of dolphins in the river from Phillip's boat, I returned to Rio de Janeiro.

On March 5 I visited the Shell office in Rio again and I was introduced to Mr Sergio Goloubeff, Vice-President of the Metals Division, who asked me about my impressions of ALUMAR. I said that I was favourably impressed by the efforts to minimize emissions and to improve the landscaping, but that I had still a few questions, amongst others about the water management and its effects upon the surrounding region and its inhabitants. Mr Goloubeff said that deep-well pumping takes place only when - because of evaporation - there is not sufficient surface water available. This water then comes from under the mangroves and thus has no effect on the mangrove water table.

Talking about the Tucuruí dam he showed himself in favour of building multi-purpose dams, which explicitly also have functions for water management and transport and are not just constructions for the production of electricity.

It was a brief but pleasant and open conversation, in which Mr Goloubeff also expressed his great interest in Amazonian conservation.

6. ARACRUZ COMPANY

On March 6 I visited the forestry operations and the pulp mill of ARACRUZ near the town of Aracruz in the state of Espírito Santo, north of the port of Vitoria. The visit was coordinated by Ms Denise Sá from the ARACRUZ Public Affairs department, after Maria Luiza from Shell had discussed with her the date of the visit and had arranged for the flight to Vitoria and back. My host that day was Mr Nuno Cunha e Silva, Environmental Manager of ARACRUZ CELULOSE S.A., who had previously worked for the environmental department of the CVRD steel mill in Vitoria. He too was extremely pleasant company and a very helpful professional at the same time.

After arriving in Vitoria, we were driven along the coast to the guest house of ARACRUZ

FLORESTAL S.A. on the edge of the forestry/plantation area of ARACRUZ, where we had an early lunch with Mr Lineu Siqueira Jr., Manager of the Environmental Resources Department, whom I had met at WICEM II in april 1991 in Rotterdam. He is responsible for the over-all environmental plan which has to be submitted to IBAMA, the Brazilian Environmental Agency, which handles the licensing procedure. The plan also has to comply, of course, with ARACRUZ's own guidelines. The plan is based upon the interpretation of aerial photography and field monitoring.

After lunch we drove through the eucalyptus plantations to the environmental laboratories in the area. The eucalyptus is interspersed with zones of native trees. The original forest is conserved as much as possible - especially along the rivers - and the aim is to have 1 hectare of native forest for 2,4 hectare of eucalyptus. The protection of natural habitats is important not only for the conservation of biodiversity, but also to protect the stands of eucalyptus.

The eucalyptus is propagated by cloning techniques, which guarantees a uniform wood quality and greatly simplifies the pulping process. At one of the laboratories I spoke with Ricardo Penchel, plant fisiologist, who is in charge of the research to further improve the selection of the eucalyptus tree variety (there are more than 600 types of eucalyptus) in view of the soil and moisture conditions and with regard to the absorption of CO₂.

The laboratories, which looked very well equipped and organized, are also the centres for monitoring and introducing the fauna and flora in the area and for the environmental education of the local communities. It takes 10-15 years to turn a eucalyptus area "back to nature".

It has been observed that there are at present 283 bird species and 38 species of mammals in the Aracruz area, which also roam through the eucalyptus stands.³

After the laboratories we visited the impressive nursery for the cloned eucalyptus seedlings - they grow in seven years to their height of 35 meters.

From the nursery we went to the pulp mill near the coast, where we were guided by Mr Silvio Laertes Polak, Chief of the Environmental and Process Division. Mr Polak showed me the facilities to reduce and minimize the emissions from the pulp and bleaching process. Dioxine levels are reported to be undetectable and the aim is to install a complete chlorine-free bleaching process. The water effluent receives a two-stage treatment before it is decharged by a pipe into the sea 1700 meters from the coast. Waste wood and bark make up for over 90% of the mill's energy requirements.

After a short visit to the port, Portocel, which handles not only the oversea shipments of pulp from ARACRUZ, but also from other companies, we had to return to Vitoria to fly back to Rio de Janeiro and there was no time left to see the residential, educational and recreational facilities for the workers, which ARACRUZ considers essential elements of its operation.

³ Besides the estates near Aracruz there are plantations further North in Espirito de Santo and in southern Bahia. The total development area of ARACRUZ is more than 203,000 hectares. As mentioned already in the Introduction to this report, I had heard at WICEM II from International Director Claes Hall that ARACRUZ was interested to invest in comparable development in the Carajas corridor, together with CVRD, but that additional outside, (public) financing would be required for this. ARACRUZ was not involved in an ITTO proposal to study the restoration of degraded lands in the Carajas area by agro-forestry, which I sent to them late 1991.

Since Nuno felt that the schedule had been too tight this day, he offered to organize a visit for me to ARACRUZ headquarters in Rio de Janeiro on March 10.

7. Lunch with Financial Times Brazil correspondent

On March 9 I had lunch with Christina Lamb, Brazil correspondent for the Financial Times. Because of my interest in the relation between the state of the Brazilian economy and the pressures upon Amazonia, I always read her articles with great interest. (Of course she also writes excellent articles about social, cultural and ecological issues in Brazil!). She had written a positive article about the ecological aspects of ARACRUZ in the Financial Times of January 8, 1992, and I wanted to share with her my impressions of my trip so far and to give her a copy of the Synthesis of our report for the European Commission: "Amazonia: Cause and Case for International Cooperation". It was a pleasant lunch in down-town Rio, where we discussed the potential of the Brazilian private sector to become a major player in conservation and sustainable development.

8. Visit to Greenpeace Rio de Janeiro

After my lunch with Christina Lamb I visited Anna Fanzeres of the Rio Greenpeace office. She has been trained as a forester and she has worked and lived for many years in the Amazon.

Since as Netherlands Committee for IUCN we have worked together with Greenpeace on many issues, I wanted to hear her reaction to my experiences and impressions of my trip.

About the Alumar refinery and smelter she agreed that it would be useful to get a more detailed insight into the total water management situation and the effects on the mangroves.

About the situation around the Tucuruí dam she said that Eletronorte may not have realized the difficulties of putting "ribeirinhos", living from fishing, into agro-settlements. Marketing and diversification of their products - everybody seems to plant cabbage - are great problems at the moment.

As to the protesters camping outside the dam site gate, it was her opinion that more effective DDT levels should have been used to kill the mosquitoes, but that local politics, inevitably, play a role here too.

Very concerning is of course, that because of the work for and around the dam, the area has been opened for cattle ranching.

She was very positive about the work of Oliver Knowles for the ecological restoration and environmental protection at and around the site of Mineracao do Rio Norte (MRN), but she was worried about what would happen when Knowles would be retired. It would certainly be important to involve the Quilombo community, with their intimate knowledge of the environment, in the monitoring of the effects of the MRN operations.

According to her, there are sub-contracted people living in bad circumstances in fenced-off places on the mining site.

Anna said that Lago Batata remains a big problem. The bauxite tailings, now occupying one-third of the lake, still creep on to the remaining parts of the lake. Fish reproduction in the lake and in parts of the Trombetas has been lost. The building of a dam in the lake to stop the tailings seems

to be too expensive. The University of Rio de Janeiro is researching the problem.

About the planned Cachoeira Porteira dam upstream from MRN on the Trombetas she told me that a lot of wood was already cut for the building site, but that, if the dam would be built, it would only be for the electricity requirements of Manaus, to supplement the structurally underperforming Balbina hydro station. (She informed me also of the building of a non-dam hydropower station at Jari in Amapa, only using the current of the river.)

Greenpeace Brazil has great problems with ARACRUZ. Yes, eucalyptus plantations do take away pressure on other (native) forests, but they do not produce the so much needed food for the local population. Instead of producing food, small farmers receive eucalyptus seedlings and are then contracted to sell these back to ARACRUZ. (According to Greenpeace, ARACRUZ selects farmers with less than a 100 hectares so as to avoid the obligation of environmental reporting.)

As to the dioxine emissions: there is no legal standard in Brazil. In practice, however, emissions are 2.5 AOX, while the international standard is 1 AOX. The Museum of Biology and the biological station of Santa Teresa have detected fish diseases near the discharge of the effluent in the sea.

Greenpeace is preparing a report, which will look especially at ARACRUZ as a company claiming to be socially and ecologically responsible, but being in practice in many respects the opposite.

9. Visit to ARACRUZ Headquarters

On March 10 I was invited to the headquarters of ARACRUZ in Rio de Janeiro. Again I was accompanied by Nuno Cunha e Silva. My main interlocutor in the morning was Mr Carlos Alberto de Oliveira Roxo, Manager of Environmental and Public Affairs, whom I had also met before at the WICEM II conference in Rotterdam.

He first explained that, unlike in other countries, a major company in Brazil has to build its own social infrastructure (houses, schools, health and recreational facilities for its employees). He then told me that before 1950, the area in Espirito Santo where ARACRUZ now has its major operation (near the town of Aracruz) was covered with beautiful Atlantic Rainforest (Mata Atlantica). Between 1950 and 1970 the area was opened up for logging, the production of charcoal and of coffee. When the forests were gone and the coffee price went down, the state was in a very bad condition and there were many non-registered labourers, with almost a slave-like position. In that situation it was decided to start up several big industrial projects: CVRD palletizing plant plus port facilities in Vitoria, the Siderurgia Tubaron, and ARACRUZ.

ARACRUZ has 7500 employees, of which 300 in Rio, with 22,000 dependents. 60% is local, 30% comes from Minas Gerais and Bahia. ARACRUZ has spent \$ 15 million on hospitals and other facilities, amongst others in the field of training housewives how to use cheap fuel for cooking, in its areas of operation near Aracruz, Sao Mateus more north in Espirito Santo and Southern Bahia. The region now has a positive income per capita and in this way ARACRUZ contributes to prevent migration to the big cities or the Amazon. (It was noted by Nuno that I was very much interested in this aspect of ARACRUZ' operations and that I would like very much to receive any available supplementary information.)

ARACRUZ is now building a second pulp mill of \$ 1.2 billion, the biggest investment in Brazil, to produce chlorine-free pulp. Foreign companies want to buy this technology, which was developed

and patented by ARACRUZ. It is true that there is no legislation on dioxines in Brazil, but they are part of the permit.

The eucalyptus variety now used was also developed by the company on the basis of a mix of seeds of eucalyptus varieties from all over the world and, as I had seen during my excursion on March 6, is propagated by a cloning process, also developed by ARACRUZ. Operations were started in 1967, so there is now 25 years experience with soil conditions. Even after being planted with eucalyptus during that period soils have kept their fertility, which is important if you have to work with a fixed amount of land and when you have to apply fertilizer.

The margins of rivers are left untouched, there is no planting on slopes. More than 20% of the total area - in the Amazon this is 50% - is out-of-bounds for planting, according to IBAMA regulation. Conservation of existing native forests is essential for the biological control of pests in the eucalyptus stands. Asked whether the concept of an ecological infrastructure was used as such, Nuno replied that the eucalyptus certainly did not act as a barrier for the movements of animals. A positive ecological effect of eucalyptus is its relatively high absorption of CO₂ because of its quick growth. Also eucalyptus wood can substitute for rainforest timber. In South Africa it is being used in the furniture industry.

From my point of view it was very important to learn more about the possibilities of eucalyptus wood as a substitute for vegetal charcoal, one of the main destroyers of native forests both in the Amazon and in the rest of Brazil.

I was told that the steel industry in Minas Gerais now imports charcoal from the cerrados of Mato Grosso at large transportation costs and that the Amazon will be next. International steel manufacturers in Minas like Mannesmann and Arbed now get 40% of their fuel from their own eucalyptus plantations. Especially the pig-iron producers still use vegetal charcoal from small producers without any regard for the disastrous ecological effects. A law is being prepared that by 1995 no fuel from vegetal charcoal is allowed any more and that it should be 100% eucalyptus. The Amazon is a difficult area for ARACRUZ, because 50% of the land, even if it is already deforested, has to be preserved.

The Brazilian Foundation for Sustainable Development, an initiative by Brazilian industrialist Israel Klabin, tries to bring together ARACRUZ and CVRD to do replanting and protection of native forests in the Carajas corridor in Maranhao. I said that the European environmental movement is most interested in projects to restore the ecological and social damage caused by the Carajas mining operations, since the European market has profited so much from these operations.

After the morning discussions I was offered an excellent lunch and after lunch I had the privilege of meeting the President Director Mr Armando da Silva Figueira, who reiterated ARACRUZ's commitment to ecologically sound and socially responsible policies as an integral part of the company's philosophy.

I then spoke with Dr Haroldo Mattos de Lemos, special environmental adviser to ARACRUZ and President of the Brazil Institute for UNEP. From 1982-87 he had been the deputy of Dr Golubev, then Deputy Director of UNEP and now Deputy Executive Director of IUCN. During that time he had become good friends with Mr Frits Schlingemann, now Head of the Environment Program at the Directorate General for Development Cooperation of the Dutch Ministry of Foreign Affairs. From 1987-91 he was Secretary for Urban and Regional Development of the State of Rio de Janeiro, where basic sanitation of course is a major issue. At the same time he was professor for

environmental engineering at the University of Rio de Janeiro. As such he was well acquainted with professors Mostertman and La Rivière of the International Institute for Hydraulics and Hydraulic Engineering (IHHE) in Delft, Netherlands.

Dr de Lemos considered UNCED already to be a success, taking into account the worldwide discussions about environment and development and the establishment of institutions like the Global Environment Facility (GEF). The financing of the Global Forum could become a problem, since they decided to hold it in Flamengo Park instead of the University of Rio de Janeiro.

10. Meeting with Mr Israel Klabin of the Brazilian Foundation for Sustainable Development

During my conversation with Dr de Lemos, Mr Roxo had been so kind as to arrange a visit for me to Mr Israel Klabin that same afternoon. As mentioned earlier, Mr Klabin is one of the initiators and founding members of the Brazilian Foundation for Sustainable Development, in which the major Brazilian companies participate, and which has as its objective the promotion of sustainable development - as defined in "Our Common Future", the report of the Brundtland Commission - through the setting up of environmental projects, consulting services, e.a., including the fundraising necessary for these activities. Mr Klabin gave me a copy of the Statutes or Articles of Incorporation of the foundation and suggested that I speak with Ms Marita Koch-Weser at the Environment Department of the World Bank, with whom he was in contact about projects such as to restore parts of the Carajas corridor with the planting of eucalyptus and native species, while conserving the remaining primary forests (see also note 3).

He knew WWF quite well, but was not aware of IUCN and asked me to send him some background information. He was in contact with Price Waterhouse about problems of environmental accounting and auditing.

11. Meeting with Mr Miguel Pressburger of the Instituto Apoio Jurídico Popular (IAJP)

On 11 March I had my last meeting, with Mr T. Miguel Pressburger, coordinator of the IAJP, an institute providing legal support for groups in need of such support. I had contacted Mr Pressburger, because I knew of their work to help defend the people in the Carajas area against those interests, which deforest the land and drive people away for charcoal production and cattle ranching. IAJP started to sue the State and Federal authorities for not respecting the rights of the local people while granting licenses for charcoal production for the manufacturing of pig-iron. They have stopped the process, because the Federal Attorney is now suing the Greater Carajas Authority and, because of their inquiry, the problems of labour relations, the responsibilities of the enterprises and the need for RIMAs (Environment Assessment Reports) have been recognized. Also, IBDF, the Brazilian Forest Service, has imposed high fines on those not respecting the forest regulations in the area. The final verdict is expected in 1994 or 1995.

Still, many small farmers are attracted to produce the vegetal charcoal and run the risk of entering in a situation of slavery because of their indebtedness. Enterprises claim they are "only buying the charcoal", but the Federal authorities now try to involve all parties to normalize labour relations. Enterprises are now in a process of reducing their use of vegetal charcoal and replacing it by cokes. Also, they have started to replant certain areas. However, IAJP has received much material against the use of eucalyptus for this purpose and in favour of planting native species.

Mr Pressburger was of course well aware of the resolutions by the European Parliament denouncing the ecologically and socially devastating use of vegetal charcoal for the pig-iron production and the efforts of the World Bank to find and develop alternative fuels, but this all came much too late. In 1983 Prof Alain Ruellan of the Centre National d'Etudes Agronomiques des Regions Chaudes (CNEARC) already went with documents and pictures to the European Parliament, but the first resolution was only put out in 1988... The World Bank got only concerned about this aspect of its loan to the Carajas mining operations two years ago. The Japanese are not concerned about anything: they just want to buy the pig-iron.

IAJP has collected an enormous amount of information on the problems in the Carajas region, which is available for researchers. In general its function is to step in a process when publicity is needed and to provide a catalyzing function.

12. Concluding remarks

I left Brazil impressed by both the level of knowledge and commitment to sustainable operations of the people in the private sector I had the privilege of meeting, and the tremendous problems they are faced with to make real sustainability true in practice.

I did not go to Brazil to make judgments on the ecological soundness and the social justice - to me the main elements of sustainable development - of what I was to see, but to get to know the people working on these issues and to see whether they could be partners for our work from Europe to promote conservation and sustainable development of Amazonia.

While it will be inevitable for me as somebody who works for the international ecological movement, including the social and human rights aspects associated with the ongoing ecological deterioration, to make those judgments at certain times, my trip has been a success for what it was supposed to accomplish.

Again I want to thank everybody who helped organize my visits and travels and who gave their time to see me, to show me around and to let me enjoy their hospitality. Brazil has been very generous to me.