

In the conclusion of his article begun last issue, Daniel Vidart lists the winners and the losers in the game of Amazon roulette



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PIRATES OF THE JUNGLE

The destruction of the Amazon basin and its ecosystems can be traced to Latin America's economic dependence upon the industrialized world. Both the haves — transnational companies, private consortiums, and even some public agencies — and the have-nots — those who seek to colonize the jungle — are converging on the Amazon in a frantic scramble to exploit the resources of its various ecosystems: the first, to make themselves even richer; the second, to carve a living from the jungle.

Foreign businesses, generally operating with the government's approval, often seek permission for one type of operation and then engage in another. Like pirates on the high seas, they do as they please in the vast jungle. Here, however, the results are highly destructive.

For their part, the so-called "spontaneous colonizers" are being manipulated for the profit of small- and medium-sized entrepreneurs.

In *The Observer* of 22 April 1979, Norman Lewis revealed that the Brazilian Government had adopted a policy of deforestation of a large area of the Amazon Jungle, aimed at earning the \$US. 42 billion needed to repay its foreign debt. Under this policy, two projects would be undertaken: the creation

of a series of 12 logging areas, resulting in the destruction of 35 million hectares, and another in which the devastation would spread over some 165 million hectares.

Images transmitted by the Landsat satellite show that the forest cover has already been cleared from large tracts in an area equal to the size of the Netherlands (33 800 km²). Concerned about this devastation of native forests, Mr Lewis points to the very suggestive findings of a legislative investigating committee that, in early 1979, studied the Jari operation run by an American multimillionaire. At that time, the Jari project had already destroyed 100 000 hectares of virgin Amazon forest to make way for rice and pine tree plantations. The deforestation process has been going on for the last 60 years, and has already seen the demise of one-quarter of the Amazon jungle. The rate of destruction is accelerating and, what is worse, has now become exponential.

WHY THE AMAZON IS DESTROYED

The forest cover in the Amazon basin is being removed for a variety of reasons. First are lumber exports, particularly hardwood. Hardwood species make up 90 percent of the tropical rain forest (*Hylea*), and as the industrialized

countries of the North use up their own forests (setting apart those which remain for conservation), wood exports from Third World countries inevitably rise. According to Norman Myers (see *Reports* Vol. 10 no. 1), the developed countries imported 4.2 million cubic meters of tropical hardwoods in 1950. By 1973 this figure had risen to 53.3 million, and by the year 2000 it is estimated that it will reach 95 million — if there are any forests left. Earnings from these exports, which in the Third World countries go only to the privileged few, totaled over \$US. 3 billion in 1974.

On 29 September 1974, Camilio Viana, the President of the Society for the Preservation of the National and Cultural Resources of the Amazon, stated that the logging companies are "contributing to the growing rate at which the Amazon forest is being destroyed" and are failing to comply with government regulations regarding the mounting of reforestation programs in cleared areas.

Sometimes land is cleared of native forest in order to plant fast-growing exotic species which produce marketable lumber in very short time.

At the same time, the rise in petroleum prices has led some oil companies to seek methods of using wood as an alternative source of energy. This represents a two-fold threat to the tropical

forest. On the one hand, species which required thousands of years of evolution to reach ecological balance are being thoughtlessly destroyed. And on the other hand, reforestation experiments and processing plants are springing up in areas that have been cleared, further endangering the native forest by industrial pollution.

Cattle raising also takes a serious toll. The wealthy countries of the North are accustomed to a diet rich in animal protein. One method of supplying this is to plant cleared areas with pastures. Myers notes that during the 1960s beef production in Central America rose by almost 100 percent while local consumption remained the same. The increase was largely due to forest clearance. The same situation prevails in the Brazilian Amazon.

The tropical jungle has always been subject to slash-and-burn farming techniques as practiced by native Indians. But now other methods, including both traditional subsistence farming and commercial operations, are practiced where once virgin forests stood.

In the first case, small farmers who have been crowded out of other areas are attempting to use upland farming methods that are totally maladapted to the Amazon ecosystem. These are the peasant farmers of the Ecuadorian *hualpungos* and the highlands of Peru, the *terraleros* of Narino (Colombia), and the *pegujaleros* of Bolivia.

Commercial farming operations are clearing large areas to generate and supply profitable new markets. In both cases, the forest is being relentlessly and permanently destroyed in order to plant crops which, after only a few seasons, rapidly transform the meagre topsoil into useless swampland.

So-called "directed" colonization is a peculiarly Brazilian phenomenon. The armies of poor peasants who used to be forced to migrate periodically whenever dry spells hit the *sartaos*, are now being sent to the Amazon by the State itself. The lure of a land of milk and honey is dangled by government authorities before millions of peasants and coastal dwellers.

According to a well-known Brazilian scientist, the outlook for commercial farming operations in the Amazon basin is good if grasslands (*varzea*) are used, if the soil is well fertilized, if riverbanks and natural meadows are used to raise buffalo, and if fruit trees are maintained in their natural environment. Native agricultural methods would need to be abandoned.

The only thing that has been confirmed to date is that commercial agriculture is economically viable on the grasslands. This has been known for some time, however.

One of the most disturbing contributors to the ecological destruction of the rain forest is the construction of the Trans-Amazon and Amazon-Peripheral Highways.

Until 1960, the Amazon basin held only eight percent of Brazil's population. The military government which came

to power in 1964 decided that it was time to "uncover" the largess of the Amazon and solve Brazil's social and demographic problems by moving people from overcrowded coastal areas and the northeastern dust bowl into the Amazon basin. In order to exploit the riches of the area and bring in the colonists, it was necessary to build highways which would break down the jungle's "wall of resistance to civilization."

First to be built was the 2000 km highway stretching from Brasilia to Belem, one of the principal points at which the Amazon reaches the sea. This highway served as the springboard from which some two million colonists were propelled into the interior of the Amazon.

Today, after literally a decade of technological warfare, sacrifice, and much destruction of the natural environment, the Trans-Amazon Highway is complete. This immense fissure, carved from otherwise unbroken jungle, runs from Joao Pessoa and Recife on the Atlantic coast, to the border with Peru, a total of 5300 km. It parallels the Amazon river, some 250 km to the south. Built at a cost of \$US. 500 million, the paved, two lane highway will presumably cost a great deal to maintain.

The Trans-Amazon Highway forms part of a vast network in which some 14 000 km of superhighways and gigantic bridges will criss-cross the area, extending the tentacles of modern life into a world in which man used to live in harmony with the ecosystem.

TOMORROW'S VERDICT

Brazilian authorities are confident that the diligent application of new technologies will enable them to repair the ecological damage they have intentionally wreaked upon the delicate jungle environment. But while these restorative technologies are being developed — if, indeed, they are being developed, and if they arrive in time — the Amazon jungle is disappearing. It is being stripped of its riches, and the awesome contribution it makes to the planetary ecosystem is diminishing. The immediate future should reveal whether Brazil has erred or not in its drive to catch up, whether the devastation of the environment was necessary to "pave the way" for progress, or whether it will set in motion even more serious crises as natural resources are used up and ecosystems destroyed.

Make no mistake, this is a serious and deadly challenge, a sort of Amazon roulette that Brazil hopes to win despite the fact that all indications point to failure. The next two decades will provide answers to these questions. Perhaps by then it will be too late to save the ecosystems we are destroying. □

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AVOIDING THE PITFALLS

In the 1970s, Sao Felix do Xingu, an isolated community at the juncture of the Xingu and Fresco rivers in the Brazilian Amazon, underwent several changes as a result of the general colonization of the area. Numerous migrant families came into town in search of land. Interest grew in exploiting the area's rich mineral, soil, and forest resources. Feasibility studies were carried out for official and private colonization projects.

But the biggest changes are yet to come. A road linking Sao Felix to the frontier area in the south of the State of Para will soon be completed. Hundreds of new migrant families and many large-scale agricultural, industrial, and commercial enterprises are expected to follow.

A study, supported by IDRC in 1978, collected baseline data on the social, economic, and political changes resulting from the influx of settlers and investments into this representative Amazon community.

According to the Centre for Regional Planning and Development (CEDEPLAR), which carried out the study, Sao Felix's already-strained capacity will be severely tried as the town attempts to cope with the expected influx of new settlers. Local officials are already concerned about how to provide the necessary jobs and services.

The findings take on greater meaning when viewed as part of a larger process of frontier expansion, particularly as government policies are continuously evolving with the rapid occupation of the Amazon. For this reason, CEDEPLAR is now beginning a second phase of the study to analyze the changes that have occurred in the past three years in relation to policies. The project will look into such areas as changes in land occupation, agricultural production, and economic activities; migration and other demographic patterns; socioeconomic conditions; and the impact of recent changes in government policies.

The results of this study should provide useful information for evaluating the concrete impact of development programs in the Amazon region. It should thus assist in the formulation of government plans, policy evaluations, and forecasts, and may help to avoid the pitfalls that have confronted similar frontier expansion schemes in Brazil as elsewhere in the world.