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**ENVIRONMENTAL AND SOCIAL CONSEQUENCES OF LOGGING IN
BRAZILIAN AMAZONIA (1)**

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i - INTRODUCTION

The objective of this report is to describe major environmental and social consequences of logging for export in the Brazilian Amazon.

This is a preliminary outline that seeks to provide an overview of some critical ecological and social issues associated with logging for export within the region.

**2 - FOREST CONSERVATION AND THE
ECOLOGY OF AMAZONIAN DEVELOPMENT**

The Amazonian development over the last 30 years has been characterized by a large governmental program of road building and incentives for conversion of tropical forests to other forms of land use, including mostly pastures, mining, agriculture and dams (recently some incentives have been suspended as a result of pressures). These governmental policies have facilitated a rapid increase of deforested area

(1) Detailed outline of a report on the consequences of logging in the Amazon written upon a request of Dr. José Augusto Pádua -GREENPEACE/ Rio/BRAZIL

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Although the total deforested area is relatively small (less than 15%), the most important issue is the pattern of deforestation. This pattern is characterized by a gradual, but constant, conversion of forested areas into other forms of land use, similar to the one that resulted in an almost complete destruction (more than 90%) of Brazil's Atlantic Rain Forest. In the most intensively cultivated areas of Brazilian Amazon such as parts of the Southeastern Amazon, deforestation has reached more than 60%. **Therefore, deforestation is a much greater problem than generally assumed on the basis of overall statistics for the whole region.**

The loss of forest cover is only one issue of a development process that is economically inefficient, socially unfair and environmentally unsustainable. Other relevant issues include the economic returns of government investments (dams, roads, etc), income distribution, land tenure, rural violence, loss of biodiversity, degradation of soil and water resources, pollution, urban development and impacts on regional and global climate. **Deforestation is an end product of a complex chain and therefore should not be analyzed in isolation of social, economic and cultural issues.**

3 - GEOGRAPHY OF LOGGING IN BRAZILIAN AMAZONIA

Up to 1970, the number and size of the logging industry in the Amazon was very small, most of them in the State of Pará, around Belém and in the Marajó Island. This phase of the logging industry was based on species of "varzea" (flooded) forests, since there were very limited access to "terra firme" (dry forests). The construction of a large road network (Belém-Brasília, Transamazônica, Carajás-Porto Velho, Carajás-Santarém and Manaus-Boa Vista) created new access to "terra firme" forest resources (Terezzo 1990).

Logging in the Brazilian Amazon has grown rapidly over the last few decades. Officially (IBGE 1987), it jumped from 4.5 millions of m³ in 1976 (14% of Brazil's total) to 24.6 millions of m³ in 1987 (52% of Brazil's total). This increase in timber production has coincided with declining forest

resources in Brazil's Atlantic forest (which supplied most of the Brazilian domestic market until recently) and in Southeast Asia. For example, the production of roundwood in the Southern part of Brazil's Atlantic forest (States of Paraná, Santa Catarina and Rio Grande do Sul) decreased from 15 million m³ in 1976 to 7.9 millions m³ in 1988. This decline is not only a result of the actual decline in forest resources but also a result of increasing pressure of environmentalists in Southern Brazil.

The official statistics point to a fluctuating volume of exported timber, with a peak in 1969 (Greenpeace 1990). Most exported timber (69% in 1969) is comprised of only five species (*Swietenia macrophylla* - mogno, *Virola surinamensis* - virola, *Bowditchia virgiloides* - virola, *Tabebuia* spp - ipê, and *Cedrela odorata* - cedro). It is important to point out that government statistics in Brazil generally underestimate significantly the real situation.

4 - CHARACTERISTICS OF LOGGING PRACTICES

One of the most important characteristic of the logging industry in the Amazon is its unsustainability. Timber is practically always extracted as a non-renewable resource. This fact has produced a "nomad industry", that is, when the wood resources become scarce due to overexploitation, the response of loggers is to move further into the forest to find untapped resources.

There are a number of factors leading to unsustainable timber production, including: lack of enforcement of forest legislation due to weak forestry institutions, government incentives to other land uses, low timber prices due to high supply and no management costs, lack of forestry tradition among farmers, low economic attractiveness of forest management, and little support to forestry research.

Current logging practices are very inefficient since only a few species are harvest and there is no planning of logging operations so as to favor natural regeneration. Harvesting usually involve a few tree species in forests that have as many as 200 species per hectare. This results in high extraction costs

and a lot of damage. Dead timber resulting from current logging practices may be several times greater than that actually commercialized. The sawmills are also very inefficient and produce low quality timber and too much waste wood.

5 - ENVIRONMENTAL IMPACTS OF LOGGING PRACTICES

The most relevant environmental impacts include: loss of biodiversity, release of CO₂, changes in the regional hydrologic cycle (with possible consequences to the rainfall regime, and flood frequency), degradation of river and lakes (with decreasing supply of fruits to fish and increasing filling of river channels with soil).

6 - SOCIAL IMPACTS OF LOGGING PRACTICES

The most relevant environmental impacts include: pressure on indian and extractive reserves (invasion, violence, corruption), underpayment of rural workers involved in the logging industry, losses of non-timber products (fish, game, medicinal products) associated with forest degradation, low tax payment (since a significant part of the timber industry is non-official) and economic unsustainability.

7 - ALTERNATIVES /STRATEGIES FOR MITIGATION OF ENVIRONMENTAL AND SOCIAL CONSEQUENCES OF LOGGING IN BRAZILIAN AMAZONIA

There is a need for alternatives that change the current pattern of development to achieve long term conservation of Amazonian forests. Localized measures may sometimes backfire or at most reduce deforestation for only a short time. **The activities of environmental organizations such as Greenpeace would be more efficient in achieving long lasting forest conservation if they lead to policies that promote sustainable development.**

Native tropical forest products - including timber, fruits, medicinal plants, fish, etc - have an important role in any strategy to implement sustainable development in the region because of the economic "comparative advantage" of the region in those products. The key issue is whether native products - be them plants or animals - can be sustainably harvested. **Current evidence - ratified by a group of scientists and rural leaders (indians, seringueiros, etc) in a recent WWF workshop held in Costa Rica in December 1990 - is that forest management is biologically and technically viable (WWF 1991).**

This biological and technical viability contradicts the popular thinking that tropical forests are too fragile to sustain any form of management (Viana 1990). It also contradicts the reality of current extraction of fish, game, fruits, medicinal plants and timber, most of them are being extracted in a non-sustainable way. The conclusion is that current unsustainability is not an intrinsic characteristic of tropical plant and animal populations. Instead, current unsustainability is a result of a lack of favorable external conditions (Viana 1991). **The evidence for this come from several tropical forest areas that are being managed sustainably in Latin America (WWF 1991).**

The economic "comparative advantage" of tropical forest products is an important issue in choosing alternatives for Amazonian development. Forest production is a much more benign form of land use than pasture, agriculture, mining, etc; its environmental and social impacts are much more positive. Indians seringueiros have produced a variety of forest products with minor consequences to Amazonian forests for a long time. The idea of sustainable forest production was the basis of Chico Mendes' proposal for extractive reserves. The proposal of extractive reserves is an alternative to **reconcile development and environmental conservation in Amazonia (Allegretti 1990).**

The key issue is how to create the conditions for sustainable production of forest products in the Amazon. There is an old debate around boycotting timber and other products originating from Amazonian and other tropical forests. A total boycott will lower the demand, the price and the value of

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tropical forest products. It will most likely stimulate conversion of forested lands into other forms of land use

An alternative to the total boycott is a "selective boycott" or a "positive stimulus" to sustainably produced forest products. This stimulus would create an economic attractiveness for sustainable production. the goal would be to make sustainable production a viable economic alternative to Amazonian rural population, including indians, seringueiros, ribeirinhos and farmers.

This "selective boycott" would involve barriers against non-sustainable tropical forest products and incentives (e.g. tax exemptions) for sustainable products. It would necessarily involve a certification procedure. This certification would have to be carefully planned and would be most likely succeed if administered by non-governmental organizations.