

Eco development and the crisis of fragile bio-regions: the example of the Amazon Rainforest in Brazil

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The path toward a green future in Latin America lies in the “eco-development” approach, that is, economic development tied specifically to cultural/ecological regions and local contexts. This approach maximizes the potential of specific regions and their unique people, geography, and resources. It assures a more rational use of local resources, technologies that are appropriate to those regions, and the promotion of self-reliance. Eco-development should take place within ecologically defined units of territory that are often referred to as “bio-regions.”

The Amazon Rain forest in Brazil constitutes about one-third of all rainforests of the world, some 2.3 million square miles. It generates 20% of the world’s oxygen. Its main waterway, the Amazon River, contains 20% of the volume of all rivers on the planet. It may be the most ecologically diverse bio-region on Earth, with more than 56,000 species of plants and thousands of species of birds, amphibians, mammals, and reptiles. Its plant life contains natural remedies for some of the worst diseases plaguing humankind.

This bio-region holds value for Brazil and for the larger planet. Yet, in the last thirty years, corporate interests and the Brazilian government have exploited the region for short-term profit (mainly the sale of beef from cattle ranching, the sale of lumber from logging, and more recently the sale of soybeans), while threatening its long-term survival. Some 232,000 square miles of the Amazon have been deforested since 1978. It is an excellent case study to illustrate the importance of promoting sustainable bio-regions.

There are several forces responsible for Amazon deforestation. They include: land clearing for cattle ranching, colonization and subsistence agriculture, infrastructure (mainly highways), commercial agriculture and logging. Each of these factors threatens the sustainability of the Amazon region. For example:

-- *Land clearing for cattle ranching.* Cattle ranching is the leading cause of deforestation in the Brazilian Amazon. Cattle ranchers clear land to plant grasses that provide feed for herds of beef cattle. The world demand for Brazilian beef has made it very profitable as a short-term use of tropical lands in the Amazon. World demand grew during the 1980s and 1990s when Brazil devalued its currency, thus making its beef even more competitive in the world market. Road construction, including the Trans-Amazonian highway built several decades ago, opened forest lands and made shipping and packing of beef cheaper.

-- *Colonization and subsistence agriculture.* The Brazilian government has created programs for poor farmers to colonize jungle areas. Unfortunately, the government does not assist farmers in establishing ecologically sustainable best practices for farming. Peasant farmers use fires to clear land, then plant bananas, rice, maize, manioc, and palms, which grow well in the short term, but ultimately deplete soils of their nutrients, thus causing farmers to move on to other lands and repeat the same land clearing and inefficient agricultural practices.

-- *Infrastructure.* In the 1970s, to develop the rainforest, the federal government created the Trans-Amazonian Highway, a planned 2,000-mile highway system designed to open land for farmers, timber, and mining. The government spurred interest by offering subsidized land, a half-year's salary, and other perks. The highway was plagued with problems due to heavy rains, unstable soils, erosion, and poor farming yields for settlers. The highway has allowed more

access and thus more deforestation as land is cleared for truck farms, cattle, and other production.

-- *Commercial agriculture*. Large scale agri-business arrived in the Amazon in the form of soybean cultivation. Brazilian scientists developed a new variety of soybean that grows well in the rainforest ecosystem. High demand for soybeans accelerated soybean production in the jungle. Unfortunately, soybean farming also causes severe depletion of soils, and is not sustainable in the long-term.

-- *Logging*. The biggest problem with logging is that, although there are laws in the Amazon controlling lumber production, the laws are not sufficiently enforced. There is a great deal of illegal logging in the Brazilian Amazon. Logging is closely tied with road building, so the more the government creates road access into the interior of the Amazon, the more loggers will get in to cut out trees. Those same roads also then encourage poor settlers to colonize the interior for temporary agriculture, access to building materials, fuel wood, and hunting game for food.

Taken together, these economic practices are wreaking havoc on one of the world's richest bio-regions, severely threatening its long-term survival and compromising what could be Brazil's richest source of long-term revenues.

Unfortunately, in some developing nations, governments are not always the best environmental managers. Elected officials are strongly influenced by powerful corporate interests, as well as the need to pay off international debt. Their decisions regarding natural resources like the Amazon basin are strongly influenced by these two forces. International agencies can play an important role—the United Nations has recognized environmental issues but is sometimes sidetracked by other agendas. The United Nations Environmental Program is under-funded and has no real jurisdiction over sovereign nations. Non-governmental

organizations (NGOs) have stepped up to address environmental issues—for example, the World Wildlife Federation, Green Peace, and others. The World Conservation Union (IUCN, International Union for Conservation of Nature) has stated three ecological strategies that must be followed to make agriculture more sustainable: a) careful measurement of tradeoffs between crop management and cattle ranching; b) better crop management; c) protection of watershed forests. Mechanization and the globalization of agriculture are huge threats to preserving local farming.¹

One hopeful trend is the recognition of “biosphere reserves.” A biosphere reserve is an international conservation unit created by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) under its Program on Man and the Biosphere (MAB). According to “The Statutory Framework of the World Network of Biosphere Reserves,” biosphere reserves are created “to promote and demonstrate a balanced relationship between humans and the biosphere.” Biosphere reserves serve in some ways as “living laboratories” for testing out and demonstrating integrated management of land, water, and biodiversity.² The Amazon Rainforest is one of several biosphere reserves in Brazil, though its designation is mainly for scientific purposes and does not imply political control by UNESCO or any other non-Brazil government entity.

¹ See IUCN, World Conservation Strategy, <http://data.iucn.org/dbtw-wpd/edocs/WCS-004.pdf>.

² UNESCO Man and Biosphere website <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/>.