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UNTIL OCTOBER 23, 2006, AT 1.00 PM IN WASHINGTON DC
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World Bank Policy Research Report

*At Loggerheads? Agricultural Expansion, Poverty Reduction and Environment in the
Tropical Forests*

REGIONAL HIGHLIGHTS – LAC

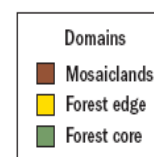
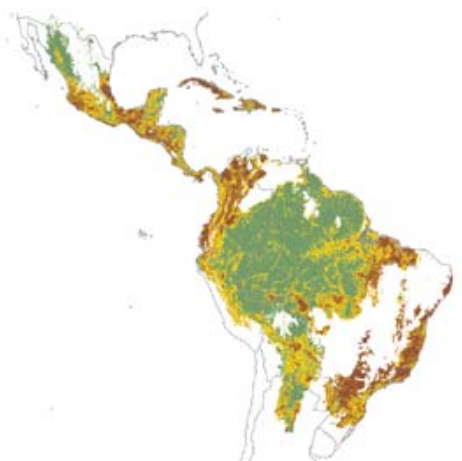
Why global forest carbon finance is important for Latin America

- The Latin America & Caribbean region has the most tropical forest area in the world, about 10 million sq. km. But gross deforestation in the region during the 1990s alone was roughly 4.4 million hectares a year, much of it caused by large commercial interests. These forests are also home to about 165 million people.
- The report recommends harnessing **global carbon finance** to provide alternatives to deforestation, because this would offer developing countries in Latin America additional funds to **improve forest governance, encourage sustainable land management, and boost rural incomes**.
- In the region, dense tropical forest is often cleared to create pastures worth only a few hundred dollars per hectare, while releasing huge amounts of carbon dioxide. For example, pasture at the Ecuadorian frontier is worth only \$150 to \$500 a hectare; at the Bolivian frontier, \$24 to \$500. But abating these emissions might be worth \$1500 to \$10,000 to the world at large. In other words, the forest is worth more as a carbon store than as a pasture. The challenge is to devise institutions that allow LAC countries to tap this higher value and use it to maintain forest environmental services and to create sustainable agricultural alternatives on already-degraded lands.

Policy advice for three types of tropical forests in Latin America and the Caribbean

To aid policy analysis, the report classifies tropical forests (shown to the right) into three types:

- Forest-agriculture mosaics (e.g. the Mesoamerican Biodiversity Corridor, the South American Atlantic forest)
- Frontier and disputed areas
- Areas beyond the agricultural frontier (e.g. the heart of the Amazon basin)



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Mosaiclands

Often overlooked in policy discussions, tropical forest mosaiclands—where forests and agriculture coexist—are widespread in the region. Degradation rates are high in these relatively densely populated areas—about 20 percent of Latin America’s mosaiclands with trees were degraded in the 1990s. Because these forests are highly fragmented, they comprise biodiversity ‘hotspots’ where unique species are threatened with extinction. Here, forests and agriculture need to be integrated in a sustainable way.

Policy implications

- There is potential for both **global carbon finance** and **biodiversity finance** to play an important role in this type of forest, which contains many biodiversity ‘hotspots’. These are particularly found closer to the cities.
- Other environmental services are present, and could justify environmental services programs. Sustained support for these programs requires evidence that the desired services are in fact delivered. For example, in the past, policy was influenced by the conviction that forests generate water. Reforestation based on this myth suffered poor outcomes that may have undermined efforts to protect existing forests.
 - The highest payoffs to watershed management tend to occur within small watersheds, in small steep basins from which cities draw their water, and along erodible river margins. For example, in Guatemala, the most hydrologically sensitive small watersheds have high poverty rates. Watershed management might reduce vulnerability in these watersheds.

Examples of paid environmental services programs that work:

- **Forest conservation:** In Costa Rica and Mexico, environmental services programs pay participating landholders to maintain natural forests.
- **Silvopastoral systems:** A Global Environment Facility-sponsored project in Colombia, Costa Rica, and Nicaragua uses environmental services payments successfully to encourage farmers to maintain their existing forests and to transform degraded pastures into agroforestry systems, which offer additional carbon and biodiversity benefits – and possibly higher long-term profitability and labor absorption.

Frontier and disputed areas

- Sustainable forest management cannot generally compete, on a profit-per hectare basis, with commercial crop cultivation, so frontier expansion is often rational in LAC—though it varies considerably in terms of returns per hectare. In Brazil, for instance, conversion of forest to soy is extremely profitable and driven by large commercial interests.

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- However, the **expansion of pasture has low economic benefits** and very low employment per hectare, resulting in very large CO₂ emissions. Forest conversion to pasture is sometimes difficult to reverse—so that the worst possible outcome is degradation to a persistent, low biodiversity, low-carbon grassland or shrubland.

Policy implications

- The report suggests that deterring conversion of forests to pasture is an area where policy interventions could be most effective. In this case, the region will probably **benefit far more from payments for avoiding deforestation than from conversion to pasture**. Such payments could be used to support more intensive but environmentally sustainable agriculture while preventing the advance of the forest frontier.

Beyond the frontier

- The time is right now, the report says, to engage in effective planning so that future resource capture and controversial access issues are avoided before they arise. The World Bank has already assisted Brazil and other countries to establish protected areas in remote locations.
- While most of Latin America's forest is beyond the frontier, few forest dwellers live in this region, and they tend to be isolated and poor—and disinclined to destroy forests. In particular, the legal titling and physical demarcation of indigenous and other traditional community lands is often an effective strategy for maintaining forests and other natural ecosystems in frontier areas. While LAC leads the world in recognizing indigenous rights, there is still much room for progress.

Tradable forest protection obligations—a proposed solution for biodiversity loss in Brazil's *Cerrado*

- Cattle and wealth-generating soybeans are displacing cerrado (savannah woodland) and forest in west central Brazil. In five years, three Brazilian states added 54,000 sq km of soy and 14 million head of cattle. Converted land is worth over \$3000 per hectare, mostly held by large commercial interests.
- The environmental price of *cerrado* conversion is high. The *cerrado* is home to 4,400 unique plant species and is a very important biodiversity hotspot.
- Although Brazil's long-standing forest code requires landholders to set aside 20 to 80 percent of their properties as forest reserve, landholders have had strong incentives to flout the rules, and compliance has been imperfect. Efforts to regulate land use have failed to meet objectives, and a huge illegal network of illegal deforestation and timber trade was uncovered in June 2005 in a federal anti-corruption operation.

Tradable forest protection obligations

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- A possible solution is to **shift from a command and control system of forest regulation on private lands to trading of forest reserve obligations**. By this system, farmers who lack enough forest reserves to meet their obligations could pay to protect high-biodiversity land elsewhere. This would make it easier to balance interests in society because it would reduce the compliance burden on landholders while achieving conservation outcomes.
- Making this proposed system work requires building more reliable institutions for monitoring trade and tracking compliance, the report says.