Modeling the Timber Industry

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The Issue in Brief

• For the past 30 years, the timber industry of the Amazon has either collected the product of deforestation or mined the forest resource.

• A potentially valuable renewable resource.

• The industry has not progressed to a sustainable, renewable, model of timber harvesting.
The Industry

- Demand of between 25 to 30 million $m^3$ logs
- High incidence of illegal logging
- Poor management
- Few, low value-added products
- Low processing yields
The Industry (cont.)

- Trends towards smaller firms
- Trend towards subcontracting
- Poor technology adoption
- Entrenched misuse of the forest resource
- Competition from other domestic sources
Volume Log Production Brazil Northern Region

Source: IBGE
Why such Poor Progress?
Or, why the “boom-bust”?

• The answer lies in the economic conditions that drive industry decisions.

  – Property rights for forest land are insecure
  – Forest policies have basically been aimed at protection rather than management
  – Government spending and capacity in the forest sector is woefully inadequate.
  – Corrupt officials promote the status quo
Forest Policy

• To create the conditions under which the forest sector can provide the goods and services deemed valuable by society.

  – Compete in the markets (increase GNP).
  – Provide ecosystem services (encourage good management).
Current Policy

- Large scale implementation of parks and protected areas (Forest District)

- Complemented by concessions on federal lands
  - 13 million ha in 10 years

- Divest responsibility: State governments now responsible for management of State Forests and forestry on private lands
The New World of Logging

• 3 players:
  • Federal concessions (SBF, IBAMA)
  • State concessions
  • Private land.
Our research

• Policy oriented model and information
  – Opportunity costs of protection (or excluding the forest sector)
  – Logging on private lands
Mill Capacity: 140,000m³
Profitable cells
Preliminary Scenarios

- Logging model estimates volumes and values of logging
- 3 Scenarios
  - Full access (no protected areas)
  - Private and other lands only (full protection)
  - Partial harvest on Public Lands
Forest Policy for Private Lands

• ONLY 24 % of the Amazon (1996)
Forestry on Smallholder Systems

80 % of private land held in legal reserve

The case of smallholders
- More than 500,000 families settled
- Approximately 100 ha each
- Tremendous potential for economic development and rational use of a human dominated landscape
Lima et al. (2006)
## Harvest Potential on the TransAmazon

<table>
<thead>
<tr>
<th></th>
<th>Total area (ha)</th>
<th>Land area (%)</th>
<th>Forest cover (%)</th>
<th>Total forest area (ha)</th>
<th>Timber stock (m³)</th>
<th>Potential timber flow (m³/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future settlement projects</td>
<td>3,054,700</td>
<td>19.5</td>
<td>85</td>
<td>2,596,495</td>
<td>25,964,950</td>
<td>865,498</td>
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<td>Colonization projects</td>
<td>2,062,900</td>
<td>13.2</td>
<td>40</td>
<td>825,160</td>
<td>8,251,600</td>
<td>275,053</td>
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<td>Informal settlement</td>
<td>1,791,600</td>
<td>11.4</td>
<td>60</td>
<td>1,074,960</td>
<td>10,749,600</td>
<td>358,320</td>
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<td>INCRA* settlements</td>
<td>851,900</td>
<td>5.4</td>
<td>80</td>
<td>681,520</td>
<td>6,815,200</td>
<td>227,173</td>
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<tr>
<td>Demarcated settlements</td>
<td>169,400</td>
<td>1.1</td>
<td>50</td>
<td>84,700</td>
<td>847,000</td>
<td>28,233</td>
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<td>Total smallholders</td>
<td>7,930,500</td>
<td>50.6</td>
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<td>5,262,835</td>
<td>52,628,350</td>
<td>1,754,278</td>
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<td>Buffer area</td>
<td>15,643,477</td>
<td>100</td>
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</tbody>
</table>

Note: The areas not included: unclaimed government land (21.2 percent), indigenous land (15.4 percent), medium and large informal settlement (7.6 percent), conservation units (4.16 percent).
The smallholder reality

- Survey of smallholders (n=2,500)
  - 26 % sold timber (average 1 sale per lot)
  - 20 trees (100 cubic meters)
  - Sale value of R$ 173
  - Total sales of about 1.5 million cubic meters
  - Approx. R$2.5 million total
Comments

- Missing the boat in the forest sector

- Current forest policy and approach is inadequate for a complex sector