Modeling the Timber Industry

Frank Merry

THE WOODS HOLE
RESEARCH CENTER

IPAM - INSTITUTO DE PESQUISA
AMBIENTAL DA AMAZÔNIA

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.
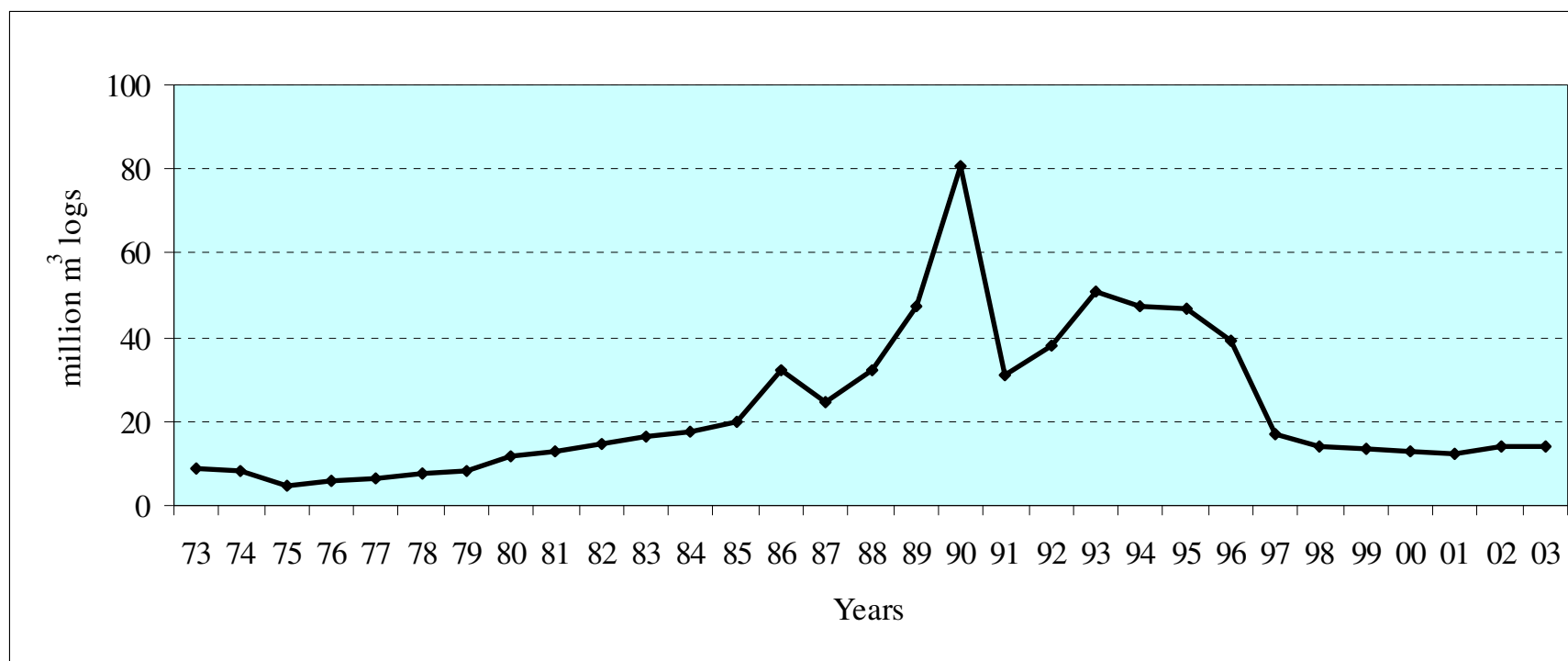
The Industry

- 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
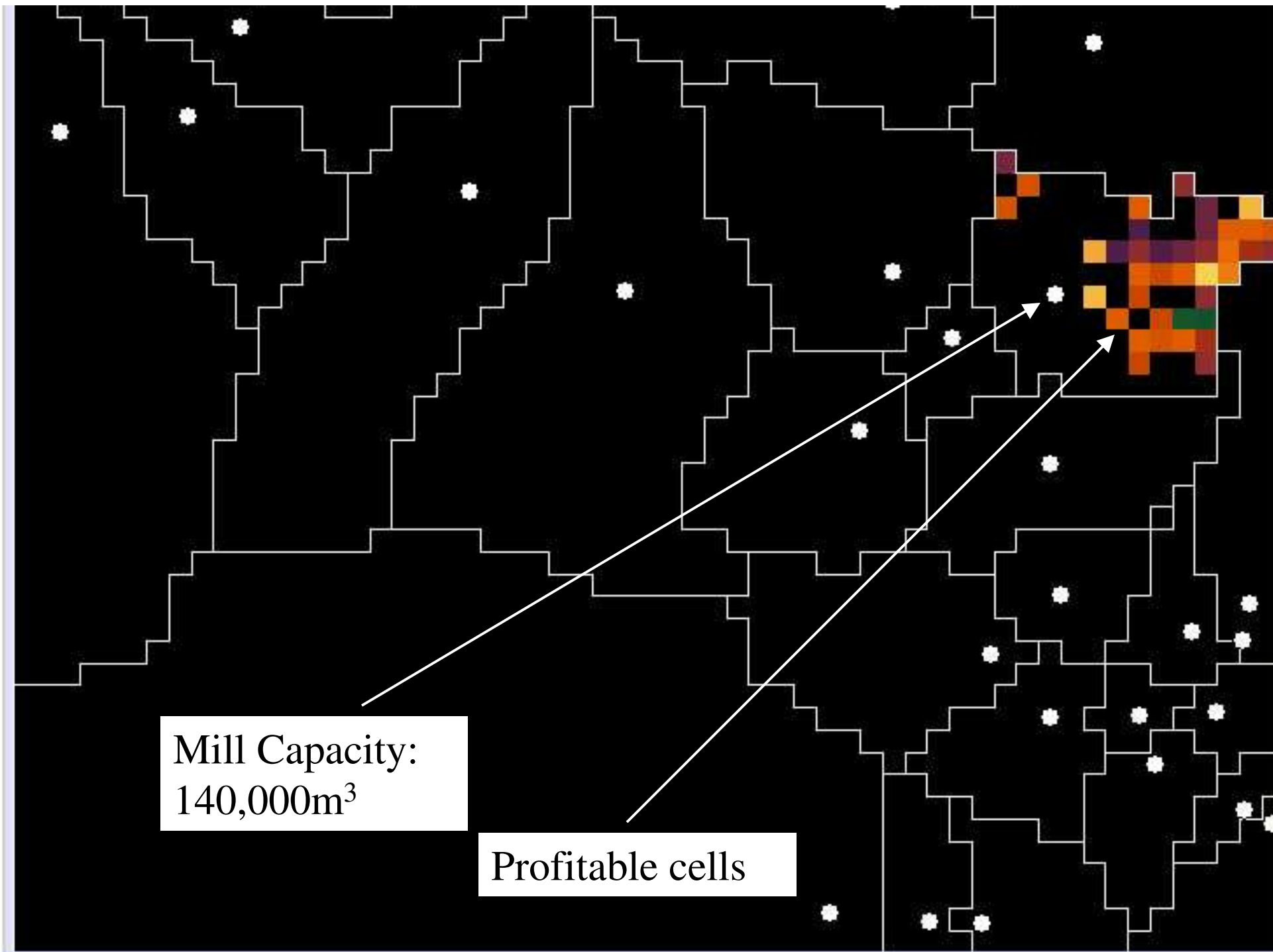
The New World of Logging

- 3 players:

- Federal concessions (SBF, IBAMA)
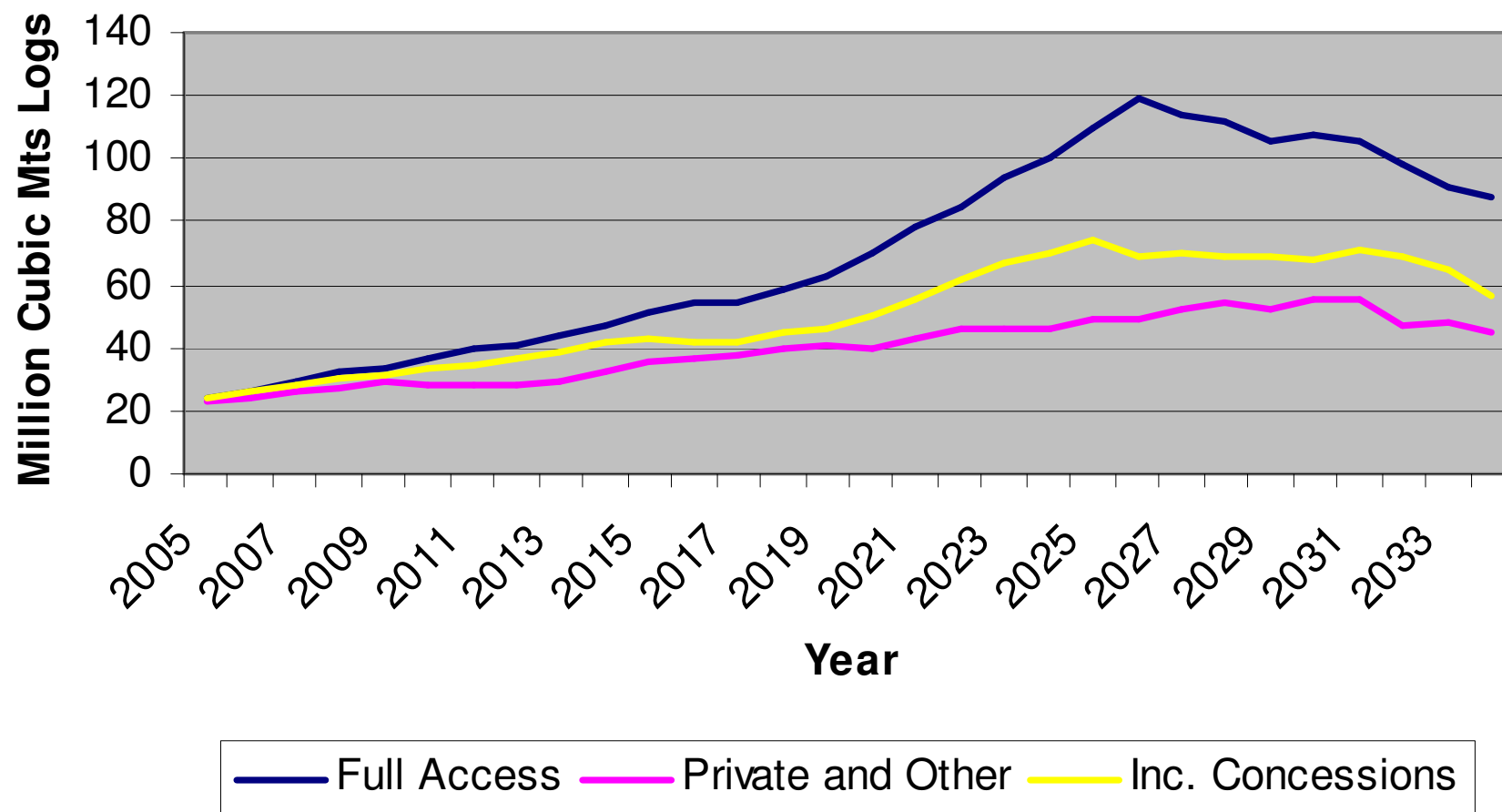- State concessions
- Private land.

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

Simulated Log Harvest Volumes 2005-2034

Million Cubic Mts Logs (y-axis): 0, 20, 40, 60, 80, 100, 120, 140

Year (x-axis): 2005, 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033

Legend: Full Access — Private and Other — Inc. Concessions
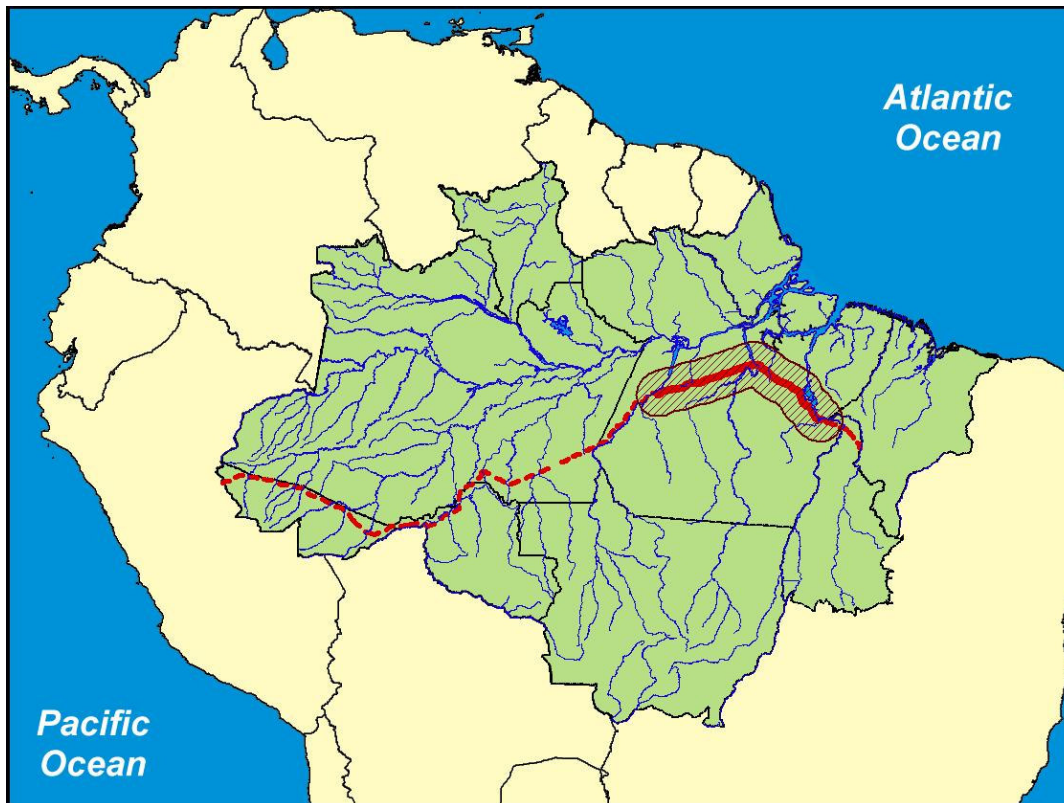
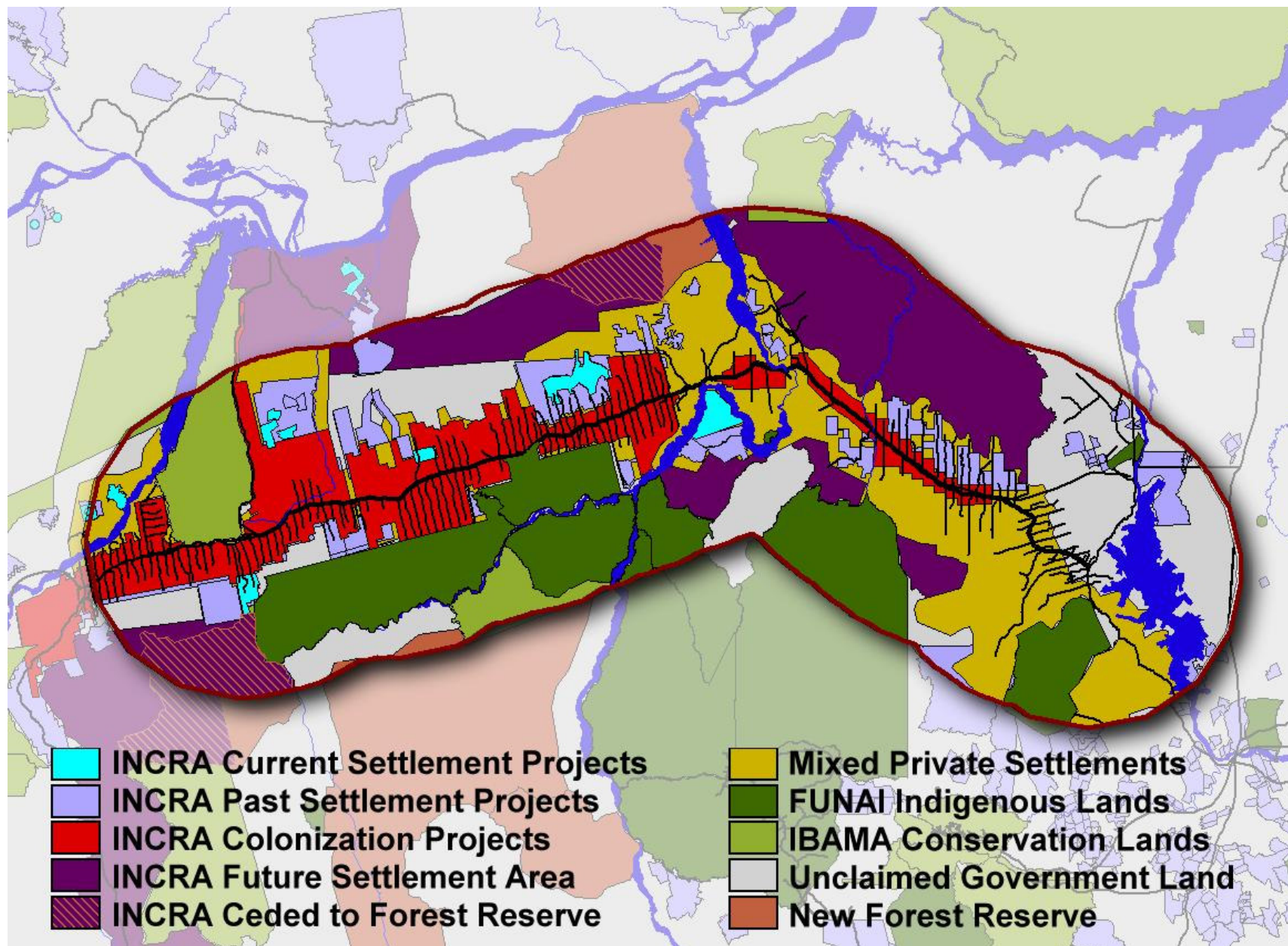# Forest Policy for Private Lands

- 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**

■ (cyan)	INCRA Current Settlement Projects	■ (yellow)	Mixed Private Settlements
■ (light purple)	INCRA Past Settlement Projects	■ (dark green)	FUNAI Indigenous Lands
■ (red)	INCRA Colonization Projects	■ (light green)	IBAMA Conservation Lands
■ (dark purple)	INCRA Future Settlement Area	■ (grey)	Unclaimed Government Land
▨ (hatched purple)	INCRA Ceded to Forest Reserve	■ (salmon)	New Forest Reserve

Lima et al. (2006)

Harvest Potential on the TransAmazon

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

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