The PSA-H in Yucatán, Mexico: from implementation specificities to impacts assessment

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This presentation

• An overview of PESMIX and research methodology in Mexico
• Understanding PSA-H implementation in Yucatan
• Impacts assessment: focus on land uses
1. An overview of PESMIX in Mexico
Context and objectives of PESMIX

- **Context**: Until recently, PSE were presented as an alternative to other conservation instruments (C&C, fiscal/subsidies, IPCD, certification, ...)

- **Objectives** of PESMIX are twofold:
  - Understand what new brings PES in an existing environmental policy mix to manage environmental issues
  - How PES programs do combine or enter in conflict with these instruments within landscapes that are engaged in different development/conservation trajectories.

- **2 countries**: Mexico (National PSA-h)
  - Madagascar (private local PESs)

- **Institutions**: CIRAD / IBERO / ECOSUR / ESSA
PESMIX in Mexico: Chiapas and Yucatan regional level analysis

Fuente: Inventario Forestal Nacional 2000
PESMIX in Chiapas - Sierra Madre: interaction of PSA-H with ANP

3 ejidal case studies + exhaustive household survey + comparison of 3 satellite images

✓ PES not additional compare to existing «command and control» (NPA), but role in enforcement?

✓ Impact more important if associated to other sources of funding (UMA)
PESMIX in Yucatan - CONOSUR: interaction PSA-H and agricultural subsidies

77 ejidos + 200 households (among 25 ejidos) surveyed + comparisons of 3 satellites images

PSA-H reinforce current (agriculture)/ livestock production support schemes
2. PSA-H: some characteristics
PSA-H in Mexico

- National program initiated in 2003 with adaptive targeting rules and State particularities
- Contract of 5 years renewable
- 4 types of payment, made to ejidos mainly, according to type of forest: 380 to 1100 pesos/ha/yr (25-70 euros)

- 3.3 millions ha contracted between 2003-2009 with budget of 300 millions USD
- First impact studies estimate 8% to 10% of avoided deforestation on forests exposed to high pressure (Munoz-Pina and al., 2010 / Alix-Garcia and al., 2010)
Targeting: eligibility areas

From 2% to 20%
Targeting: criteria for scoring

<table>
<thead>
<tr>
<th>Criteria</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary criteria</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hydrological importane and Deforestation Risk</td>
<td>44%</td>
<td>37%</td>
<td>29%</td>
<td>25%</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Secondary criteria</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Marginality index</td>
<td>22%</td>
<td>19%</td>
<td>13%</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>Administrative</td>
<td>0</td>
<td>0</td>
<td>3%</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Other forest programs are present</td>
<td>11%</td>
<td>26%</td>
<td>27%</td>
<td>36%</td>
<td>37%</td>
</tr>
<tr>
<td>Other environmental programs are present (CONANP)</td>
<td>22%</td>
<td>19%</td>
<td>29%</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Total possible score</td>
<td>45</td>
<td>54</td>
<td>70</td>
<td>81</td>
<td>106</td>
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<tr>
<td>Total number of criteria</td>
<td>9</td>
<td>12</td>
<td>17</td>
<td>21</td>
<td>26</td>
</tr>
</tbody>
</table>
Change in characteristics of ejidos within eligible areas

Chiapas

Yucatan

- size (ha)
- forest (%)
- Pop density
- Poverty
- Risk defor
- ANP
Concentration of PSA-H récipients in Cono Sur: role of the tecnico
Dos áreas de recepción en el Cono Sur
PSA-H allocation through time: role of the *tecnicos*
PSA-H allocation within ejidos

**Targets:** Livestock producers receive relatively less than cropers involved in mecanized or milpa

**Amounts:** Average annual payments received by recipient households is between **600 and 40,000 pesos** (2,200 euros)
Consequence on impact methodology

• Matching methods limited at the scale of the state
• Focus on recipient ejidos and assess impact:
  – **Household level**: Amount of PSA-H received on productive assets (livestock, pasture, milpa & mecanized) and inputs used (fertilizers) at household level (Le Velly and al. this afternoon)
  – **Ejidal level**: Timing of PSA-H and type of renewal on LU change and spatial organization
3. PSA-H: impacts on land uses
Land use
2012

“roza-tumba-quema” – milpa (−)
Mecanized agriculture (−/+)
Pastures (++)
Monte bajo (++)
Monte alto > 40 years old (0/- ?)
Expected impact of PSA-H on: LU change (forest)

- No impact
- Avoided deforestation?
- Cultivation abandonment?
- Contained frontier?
- Non eligible for PSA-H

- All milpa
- Mix LU
- All sedentary
- Average ejidal oppportunity cost +
Expected impact of PSA-H on:
land organization

% forest or
forest/ejidal

No
impact

LU
reorganization
Mobile or ++
land
concentration

Land
use
transition
Land
concentration ++

Non eligible for PSA-
H

All milpa
Mix LU
All sedentary
Average ejidal
opportunity cost +

V

1V
No impact of PSA-H

All forested ejido

Non eligible (min of 200 ha of monte alto requested)

Alfonso caso II

Temoson

Ayim
All sedentary agriculture
Culture abandonment
Cultures expansion

Pastures expended
San Isidro y San Salvador
Land transition:

From milpa to mecanizado
Sacchukhen
LU reorganization

Milpa concentrated

*Huacpelchen*

Swithed milpa

*Kentemo*
Conclusions

- Land use change: ?
  - No clear overall impact (goes both ways: LU restriction v.s. payment effect)
  - Very flexible LU changes:
    - looks like PSA-H adapt to LU change trends (and not the opposite)
    - Anticipation effects
    - Importance of ejidal governance (ejidal assembly)
    - Possible leakages (Le Velly, G, A. Sauquet and S. Cortina, ongoing)

- Land use re-organization: YES
  - Land concentration with PSA-H due to land transition and milpa/pastures spatial reorganization
  - Scale: Regional vs ejidal LU specialization

- Methodology:
  - Satellite images every 7 years do not capture very adaptative strategies

These are preliminary hypothesis that need to be validated with quantitative analysis.
Perspectives

- Modality of contract renewal is key to the impact on LU changes and spatial organization:
  - Same polygon or not
  - Adapted to previous leakages

- Additional funding to favor sustainable crop/livestock production practices (agro/sylvo-pastoral) or conditionality to add with renewal (and particularly if non additional)?

- Integrated land use planning at ejidal (OTC) and/or inter-municipal level (pilots REDD+)
THANK YOU
Impact of PSA-H on long term sustainability: environmental services (ES) vs provisionning services (PS)

% forest or forest/ejidalari

No impact

Contained frontier?

ES tradeoff

LU spatial reorganization

Cultivation abandonment

ES tradeoff & +PS

Land use transition

+ES & -PS / 0

Non eligible for PSA-H

All milpa

Mix LU

All sedentary

Average ejidal oppportunity cost +
Methods:

Clasificación  Participatory mapping  Visual interpretation
spot 1999/2005/2012