Expansion of rubber (*Hevea brasiliensis*) in Mainland Southeast Asia: What are the prospects for small holders?

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Rubber: It is ‘still’ a hot commodity

- World rubber consumption has increased at a rate of 5.8 percent per year since 1990 to about 22 million tons in 2008
- 9.6 m tons for natural rubber (NR)
- 12.5 for tons synthetic rubber (SR)
Forecast on Global Rubber Consumption

Over the period 2008 - 2018

- Total rubber consumption will increase from 22.1 to 23.2 million tons,
- Relative NR share in total rubber consumption is anticipated to increase from 43% to 48%,
- Consumption of NR is anticipated to increase from 9.6 to 13.8 million tons (growth of 3.7% per year).

Sources: IRSG forecasts in 2009
20 June 2009 ANRPC Presentation, ARC Laos

NR price forecasts to 2011

NR production in major countries, 1990-2011


Patterns of rubber expansion:
from traditional to non-traditional rubber-growing regions
Non-traditional rubber area
Estimates 2008

<table>
<thead>
<tr>
<th>Region, Country</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast Thailand</td>
<td>348,063 (Thai Rubber 2007)</td>
</tr>
<tr>
<td>Xishuangbanna, China</td>
<td>334,000 (Reuters 2008)</td>
</tr>
<tr>
<td>Laos</td>
<td>140,665 (NAFRI 2008)</td>
</tr>
<tr>
<td>Cambodia</td>
<td>107,901 (ANRPC 2009)</td>
</tr>
<tr>
<td>Northeast Myanmar</td>
<td>68,723 (Hly Myint 2008)</td>
</tr>
<tr>
<td>Vietnam</td>
<td>58,100 (AgroInfo 2008)</td>
</tr>
<tr>
<td>Total</td>
<td>1,057,452</td>
</tr>
</tbody>
</table>

Rubber distribution in 2009 in MMSEA

derived from MODIS 250m
NDVI time series
Hotspots of LCLUC in Mainland Southeast Asia (1990 to 2008)

Total area in square kilometers
Annual rate of increase in %

F = forest; RP = rice/paddy; PA = protected area; AQ = Shrimp aquaculture;
PT = Perennial trees; NTR = non-traditional rubber.

Sources: FAOSTAT; FAO World Forests; World Bank World Development Indicators;
IUCN Protected Areas.

Land-use policies: main driver of rubber expansion in MMSEA?
Summary of land-use policy

- **1951**—Decision on Cultivating Rubber Trees established an order to begin cultivating rubber for national defense and industrial construction.

- **1956**—Jing Hong state rubber farm was established.

- **1978/79**—Household Responsibility System returns agriculture lands to farmers under long term lease arrangements.

- **1981/83**—Liangshanyidi returns freehold and contracted forest lands and swidden fields to farmers.

- **1984**—Policy on stabilization of ‘swidden and forest land.’

- **Late 1980s**—State subsidies for the production of rubber removed.
Summary of land-use policy (cont’)

• 1992—Regional opium substitution and poverty alleviation program promotes rubber and other crops in Myanmar and Laos.
• 1998—State farms reorganized into semi-private corporations.
• 1998—Natural Forest Protection Program (logging ban) prohibits cutting trees in natural forests.
• 2002—Grain for Green program encourages farmers to return sloping agricultural lands to forest through reforestation.
• Sloping Lands to Forest program. This program pays farmers to convert their swidden fallows into tea plots.
• 2006—A decision appears to have been made to stop the expansion of rubber in Xishangbanna.

These policies sought to:

• Decollectivize communal land and return it to individuals to promote market crops,
• Restrict swidden and settle shifting cultivators at lower elevations and less steep slopes,
• Integrate state farms and individuals farmers into the market economy without eliminating political and ideological forces,
• Promote rubber production.
Summary of land-use policy

- **1970s**—Thai government investigates the possibility of introducing rubber in the northeast as an alternative to cassava production.

- **1989**—Office of Rubber Replanting Aid Fund (ORRAF) supports smallholder rubber production in the northeast (< 2.4 ha),
  - technical advice,
  - free seedlings and fertilizer,
  - low-cost credit for labor costs, material inputs (especially herbicides), and other income generating activities.

- **2004**—ORRAF supports households with up to 1 to 1.25 ha (6-8 rai) of land.
Summary of land-use policy (cont’)

- ORRAF assists households with extension information, provides low-cost credit, and supports community organizations and the formation of rubber cooperatives.
- The low-cost credit of ORRAF for rubber cultivation comes from the Bank of Agriculture and Cooperatives (BAAC). These funds pay for labor, fertilizer, and other materials.
- ORRAF also supports smallholder activities such as fish ponds, livestock, crops, and handicrafts in order to aid farmers to maintain their livelihoods between the time they plant rubber and begin to tap.

These policies sought to:

- Develop a specific pattern of rubber expansion around nucleus villages targeted by ORRAF interventions.
- The first wave of rubber growers usually played a key role in building up social capital and managing rubber cooperative structures.
- Once these rubber institutions were firmly established and fully functional, ORRAF withdrew its support community.
- This experience also helped farmers to develop marketing channels and establish a viable marketing system across a network of ORRAF supported rubber cooperatives.
Drivers of Change: Laos

(Myanmar, Cambodia, Northwest Vietnam are similar)

In the absence of a dedicated extension system, the Government of Laos promotes foreign investments in the rubber sector as a win-win solution:
- to alleviate poverty in remote rural areas,
- to generate income from export commodities,
- to increase forest cover.

Rubber expansion relies on external inputs of knowledge and investments from state and private entrepreneurs from neighboring countries, particularly China, Vietnam and Thailand.

Summary of land-use policies
Influences of foreign investors on rubber institutions in Lao PDR

- **Informal negotiations:** between relatives across the borders, traditional social networks, Lao rubber workers in China/Thailand -> Smallholders

- **Formal negotiations:** cooperation agreements between countries ->
  - 1st Concessions
  - 2nd Contract farming
  - 3rd Smallholders’ credit

Emerging rubber regimes depend on the level and the quality of the negotiations

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China’s Opium Replacement Program

- Direct subsidies for plantations over 600 ha.
  - Subsidies of up to 80% of costs of project exploration and feasibility study,
  - Subsidies of up to 90% of costs of obtaining insurance and guarantees
  - Full interest reimbursement for loans from domestic banks
  - Subsidies of $22 to $66/ha/year

- Other Benefits
  - Expanded credit access at domestic and commercial banks
  - Greater freedom of cross border movement of labor, equipment, and vehicles
  - Exemption from tariffs and import VAT for opium replacement products

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Vietnam’s Goals

- Vietnam Rubber Group, the nation’s largest producer and exporter, plans to plant 200,000 hectares of trees in neighboring Laos and Cambodia,
- Bilateral agreements between governments.
Condition of emergence of different rubber regimes/arrangements

- As a result of poor governmental regulations, a large range of institutional arrangements for rubber production have emerged in the recent years.

- Smallholders, contract farming and concessions' arrangements have been defined according to who provides the 5 main factors of production: land, labour, capital, market outlet and technical knowledge.

Influence of the level of negotiation
On the emerging rubber regimes

- **National**
  - Bilateral agreements involving high ranking officials (National Assembly) ➔ large concessions in southern Lao PDR (VN),
  - Contracts with companies (CH).

- **Province**
  - Application of decisions from higher hierarchical level ➔ locate and assign state land to concessions,
  - Direct agreements with foreign companies who have to explore suitable land.

![Diagram showing the influence of different levels on rubber regimes](image)
Influence of the level of negotiation
On the emerging rubber regimes

- National
- Province
- District
  - Involvement of district staff in land exploration - LUP/LA for the companies
  - Direct investment of district and province officials.
- Village
  - Company + district staff visit all villages -> prospection – negotiation
  - Some villages request companies to come to their villages (Nalae)
  - Negotiation benefit share / infrastructure development – roads, etc.
- Household
  - Register all members of the family
  - Register land with district (company pay tax)
  - Sign contract – individual or village head

Beyond official regulations / policies: fluidity of the rubber arrangements according to local circumstances
Emerging rubber institutions
Influence of power relations on negotiation outcomes

Laos
Farmers
Contract farming
Credit
Credit relatives – farmers groups

Company
Government
Concession

Rubber Institutions: Nalae District
Negotiation mechanisms

Collaboration between actors (key role of DAFO as facilitator)
Rubber Institutions: Thakhek District
Negotiation mechanisms

- Farmers
- Credit
- Concession
- Communication problems (top-down approach)

Rubber Institutions: Sangthong District
Negotiation mechanisms

- Farmers
- Credit
- Contract Farming
- Local expertise and farmer group
Resulting rubber regimes

<table>
<thead>
<tr>
<th>Rubber regimes</th>
<th>Land</th>
<th>Labor</th>
<th>Capital</th>
<th>Market</th>
<th>Technical knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallholders 5+0</td>
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<td></td>
<td></td>
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<tr>
<td>(with own capital)</td>
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<tr>
<td>Smallholders 5+0</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>(government officials)</td>
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<td></td>
<td></td>
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<tr>
<td>Contract Farming 4+1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>smallholders (credit)</td>
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<td></td>
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<tr>
<td>Contract Farming (3+2)</td>
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<tr>
<td>Contract Farming (2+3)</td>
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<tr>
<td>Contract Farming (1+4)</td>
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<tr>
<td>Concession 0+5</td>
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</tbody>
</table>

- **How are contracts made?**
  - Officially, villagers’ voluntary commitment must be secured before provincial contracts are made
  - In implementation, top-down, incomplete village consultation, semi-coercive

- **What are the typical arrangements?**
  - “2+3” is officially promoted (v 70%/ c 30%) through provincial contracts
    - Villagers contribute land and labor
    - Company provides capital, technical extension, and market access
    - After tapping, villagers obtain 70% of the profits, company 30%.
  - Gradual shift to “1+4” in implementation (v 30%/ c 70%)
    - Villagers provide land
    - Company solely manages plantation for 3 to 5 years or until tapping, paying villagers for their labor input or relying on hired laborers from elsewhere
    - After the partition, villagers obtain 30% of the land/trees, and company 70%.
    - No clear arrangement of market channels.
    - Similar to concession.
<table>
<thead>
<tr>
<th>Rubber regimes</th>
<th>Problems and concerns for farmers in Laos</th>
</tr>
</thead>
</table>
| Smallholder    | • Checking quality of inputs (i.e. varieties)  
                   • Management of plantation (i.e. pest, frost)  
                   • Processing of latex  
                   • Marketing |
| Contract Farming| • Uncertainty of household labor supply  
                       • Uncertain profit share and contract arrangements  
                       • Lack of confidence/commitment of local farmers to contract farming |
| Concession     | • Food security and access to land (e.g. loss of communal land)  
                       • Influx of migrant labor (i.e. Vietnam, China)  
                       • Lack of standardized contract arrangements |

Rubber and livelihoods

Do people benefit from these land-use transition?
Historically NR has predominantly been smallholders’ crop

<table>
<thead>
<tr>
<th>Country</th>
<th>Upper limit for small holdings (ha)</th>
<th>Share of smallholdings in rubber planted area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>40.5</td>
<td>93</td>
</tr>
<tr>
<td>Thailand</td>
<td>40</td>
<td>90.5</td>
</tr>
<tr>
<td>India</td>
<td>20</td>
<td>88.4</td>
</tr>
<tr>
<td>Indonesia</td>
<td>25</td>
<td>85</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>20</td>
<td>64</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Vietnam</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Laos</td>
<td>25 (per family labor)</td>
<td>23</td>
</tr>
</tbody>
</table>

Agrarian transition—Two Views

- The long-term outcome of the capitalization of agriculture is the polarization of the countryside into capitalists farmers and landless laborers (Bernstein 2002).
- Capitalist farming can stimulate small-scale entrepreneurship and socioeconomic differentiation, with the attendant persistence of small family farms (Rigg 2005).
How do people benefit from these land-use transition?

- In China and Thailand where the governments provides support to smallholders, there is evidence that rubber farming can improve livelihood of the villagers (Rigg hypothesis):
  - risks associated = food security, disease, pests, weather, etc., but in short-term many people have done well economically
- In Laos, Myanmar, Cambodia, where the governments can not provide support to smallholders, rubber farming can result in worsening livelihoods (Bernstein hypothesis):
  - farmers losing access to land, becoming laborers on plantations owned by others, coercion, disputes over terms and wages, overlapping and unclear land designation, lack of alternative income sources for remote villagers

Policy implications...

- Negotiating and reinforcing contracts may be a legal way to stabilize the rules of the game for the benefit of smallholders - but in many cases poor law enforcement,
- Exploring different scenarios of change with multiple stakeholder groups - Rigg or Bernstein type trajectories could be negotiated,
- Learning from past experiences and monitoring on-going arrangements - capitalize knowledge relevant to the negotiation process,
- Empowering weak groups of stakeholders - make sure they can take part in the negotiations and influence their outcomes.