Analysis on National Policy for Sustainable Forest Management in Indonesia

INDONESIA - JAPAN 60th ANNIVERSARY SEMINAR FOR FOREST SECTOR
Changing Paradigm of Forestry Policy in Indonesia:
“Toward Promotion of Community-based Sustainable Forest Management”

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Institute for Global Environmental Strategies
Sustainable management of forest and timber supply

- Natural forest
- Sustainable management
- Timber supply
- Alternative timber supply
- Agriculture crop (e.g. oil palm)
- Forest degradation and deforestation
- Demand for land
- Tree plantation

Demand for land

Sustainable management of forest and timber supply

Timber supply
Outline

- Overview of the 3 major timber production scheme in Indonesia and the sustainability in past decades
  ① Logging concession of natural forest (IUPHHK-HA)
  ② Industrial tree plantations (IUPHHK-HT)
  ③ Tree-farming by small-holders
Vegetation in Indonesia 2016

Forest cover rate 51% (2016)

(KLHK 2016)
State’s owned land under the jurisdiction of Ministry of Environment and Forestry
64% of total land in Indonesia
Supervised by Forest Management Unit (FMU)

Total area of Indonesia
190 million ha
Total area of Indonesia
190 million ha

- Conservation & Protected forest (27%)
- Production forest (30%)
- Area for other purpose (36%)
- Convertible forest (7%)
Ecosystem restoration concession (0.3%)
Logging concession of natural forest (10%)
Industrial tree plantation (6%)
Area for other purpose (36%)
Total area of Indonesia 190 million ha

Managed by licensed private companies
Forest cover rate of each function zone

Forest cover

Forest Zone

<table>
<thead>
<tr>
<th>Forest Zone</th>
<th>Non-forest</th>
<th>Planted forest</th>
<th>Secondary forest</th>
<th>Primary forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation &amp; Protected forest</td>
<td>20%</td>
<td>5%</td>
<td>5%</td>
<td>70%</td>
</tr>
<tr>
<td>Production forest</td>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td>60%</td>
</tr>
<tr>
<td>Convertible forest</td>
<td>30%</td>
<td>10%</td>
<td>5%</td>
<td>40%</td>
</tr>
<tr>
<td>Area for other purpose</td>
<td>20%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Forest cover rate

- Conservation & Protected forest: 80%
- Production forest: 71%
- Convertible forest: 50%
- Area for other purpose: 11%
① Natural forest logging concession

19.3 million ha / 268 companies

Log production from logging concession in each regions 2016 (m3)

- Meranti (*Shore* spp.)
- Marbau (*Intsia* spp.)
- Other species

Regions:
- Sumatra
- Kalimantan
- Maluku
- Papua
- Bali, Nusa Tenggara and Sulawesi

Mixed natural species
Forest just after logging
Forest a few years after logging
Rich biodiversity and ecosystem services can be maintained in logging concession of natural forest.
Logging concession of natural forest has been decreased and degraded

Change of natural forest cover in each concessions

Change of natural forest area 2003-2015

Number of logging concession

Total area of logging concession

Log production

Total area of logging concession

Kalimantan

Papua

Sumatra

0% - 50%

50.1% - 70%

70.1% - 80%

80.1% - 95%

95.1% - 105%

105.1% - 700%
Improvement of sustainability of management of logging concession

(1) Whole area resource survey every 10 years (IHMB)

(2) Long term (10 years) management plan (RKU)

Harvesting plan 2011-2020

(3) Reduced impact logging

Annual harvesting plan (RKT)
Mapping of all harvestable trees

Mono-cable harvesting (TNC 2009)
Reduce forest-floor destruction by bulldozers

(4) Forestry certification by third-party

Number of concessions

PHPL (mandatory)
FSC (voluntary)
Industrial tree plantation

187 companies / 8.1 million ha

Number of industrial plantation

Total area of industrial tree plantation

Acacia

Other species

Mixed natural species

Sumatra
Jawa
Bali and Nusa Tenggara
Kalimantan
Sulawesi
Maluki and Papua

1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015

0 100 200 300

0 2 4 6 8 10 12 13

0 5,000,000 10,000,000 15,000,000 20,000,000 25,000,000
Monoculture plantation of fast-growing tree species
### Productivity of logging concession and industrial tree plantation in 2016

<table>
<thead>
<tr>
<th></th>
<th>Logging concession</th>
<th>Industrial tree plantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>268</td>
<td>187</td>
</tr>
<tr>
<td>Total area (million ha)</td>
<td>19.3</td>
<td>8.1</td>
</tr>
<tr>
<td>Log production (million m3)</td>
<td>5.4</td>
<td>32.0</td>
</tr>
<tr>
<td>Productivity (m3/ha)</td>
<td>0.3</td>
<td>3.9</td>
</tr>
<tr>
<td>Total value (million USD)</td>
<td>500</td>
<td>134</td>
</tr>
<tr>
<td>Log price (USD/m3)</td>
<td>4.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Productivity (USD/ha)</td>
<td>25.9</td>
<td>16.5</td>
</tr>
</tbody>
</table>

(BPS 2016), 1 IDR = 0.00007 USD
Tree farming households / Land-owning farm households

<table>
<thead>
<tr>
<th>Major planted tree species</th>
<th>No of trees planted by farming households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sengon (<em>Albizia falcata</em>)</td>
<td>328,828,537</td>
</tr>
<tr>
<td>Jati / Teak (<em>Tectona grandis</em>)</td>
<td>167,388,865</td>
</tr>
<tr>
<td>Mahoni / Mahogani (<em>Swietenia macrophylla</em>)</td>
<td>71,508,528</td>
</tr>
<tr>
<td>Akasia (<em>Acacia mangium</em> etc.)</td>
<td>46,912,612</td>
</tr>
</tbody>
</table>
Density of planted trees by farming households

Sengon (*Albizia falcata*)

Teak (*Tectona grandis*)

(Lensus Pertanian 2013)
### Log production by species 2016 (BPS 2016)

<table>
<thead>
<tr>
<th>Tree species</th>
<th>Sumatra</th>
<th>Java</th>
<th>Bali &amp; Nusa Tenggara</th>
<th>Kalimantan</th>
<th>Sulawesi</th>
<th>Maluku</th>
<th>Papua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural species</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meranti (Shorea spp.)</td>
<td>166,055</td>
<td>17</td>
<td></td>
<td>3,772,813</td>
<td>20,162</td>
<td>314,601</td>
<td>510,374</td>
</tr>
<tr>
<td>Merbau (Intsia bijuga)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Forest</td>
<td>270,733</td>
<td>359,222</td>
<td>7,065</td>
<td>1,540,704</td>
<td>79,758</td>
<td>38,212</td>
<td>216,095</td>
</tr>
<tr>
<td>Planted species</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acacia</td>
<td>19,809,629</td>
<td>106,322</td>
<td>96</td>
<td>3,202,216</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>1,524,455</td>
<td>387,002</td>
<td>2,300</td>
<td></td>
<td>52,228</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>Teak</td>
<td>6,624</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pine</td>
<td>137,748</td>
<td>57,462</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mahogany</td>
<td>43,183</td>
<td>138,507</td>
<td>654</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sengon (Albizia)</td>
<td>24,317</td>
<td>2,493,546</td>
<td>12,773</td>
<td>21,161</td>
<td>127</td>
<td>5,055</td>
<td></td>
</tr>
<tr>
<td>Rubber</td>
<td>527,457</td>
<td>2,999</td>
<td></td>
<td>3,426</td>
<td>3,700</td>
<td></td>
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<tr>
<td>Other</td>
<td>3,442,805</td>
<td>614,276</td>
<td>17,050</td>
<td>1,349,456</td>
<td>62,620</td>
<td>65,383</td>
<td>257,765</td>
</tr>
</tbody>
</table>

### Production of processed timber 2016 (BPS 2016)

<table>
<thead>
<tr>
<th>Processed Timber</th>
<th>unit</th>
<th>Sumatra</th>
<th>Java</th>
<th>Bali &amp; Nusa Tenggara</th>
<th>Kalimantan</th>
<th>Sulawesi</th>
<th>Maluku</th>
<th>Papua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip &amp; Particle</td>
<td>m3</td>
<td>22,050,525</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pulp</td>
<td>ton</td>
<td>5,990,469</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawn Timber</td>
<td>m3</td>
<td>237,793</td>
<td>1,148,779</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plywood</td>
<td>m3</td>
<td>194,750</td>
<td>141,416</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Veneer</td>
<td>m3</td>
<td>41,631</td>
<td>232,432</td>
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<tr>
<td>Barecore</td>
<td>m3</td>
<td>30</td>
<td>213,070</td>
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<tr>
<td>Fibreboard</td>
<td>m3</td>
<td>113,646</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Flooring</td>
<td>m3</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Moulding</td>
<td>m3</td>
<td>37,262</td>
<td>11,544</td>
<td>9,976</td>
<td>1,575</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>m3</td>
<td>3,334</td>
<td>47,923</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>m3</td>
<td>511,917</td>
<td>2,231,434</td>
<td>606,447</td>
<td>125,056</td>
<td>619,734</td>
<td>46,353</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>ton</td>
<td>125,167</td>
<td>339</td>
<td>1,347</td>
<td></td>
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</tr>
</tbody>
</table>
Conclusion

- Major source of log production in Indonesia has shifted from logging concession (mainly Meranti) to industrial tree plantations (mainly Acacia) and tree-farming (mainly Sengon) in past two decades.

- Logging concession of natural forest can produce valuable log and support the biodiversity richness. However, achievement of the sustainability is still in progress.

- Industrial tree plantation has high productivity (by volume), but the wood is mostly for pulp and paper.

- Tree-farming by small-holders outside Forest Zone is growing as an alternative source of sawn-wood and plywood.