Role of IPRs in the Diffusion and Transfer of Technologies, including Lesson from Work in the Trips Council

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Secretary of Transfer Technology Working Group
National Council on Climate Change of Indonesia (NCCC)

Hongkong, 12 November 2014
SCENARIO of 2020 GHG Emission Reduction: Accelerate the implementation of Green technology in Indonesia

President Commitment
G-20 Pittsburgh and COP15
To reduce the GHG Emission in 2020

26%
National effort

26%

15%

With International Supports
41%

National Action Plan to reduce GHG Emission (RAN-GRK)
Indonesia President Decree No. 61/2011
### Promoting Green Technology in Indonesia

- **SCENARIO of GHG Emission Reduction Target in 2020**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Emission Reduction (Gton CO2e)</th>
<th>Action Plan</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry and Peatland</td>
<td>0.672</td>
<td>Forest and land fire control, water and hydrology management on peat land, forest and land rehabilitation, illegal logging control, avoiding deforestation, community development</td>
<td>MoFr, MoPW, MoA, MoE</td>
</tr>
<tr>
<td>Waste</td>
<td>0.048</td>
<td>Sanitary landfill development, 3 R and sewerage system in urban areas</td>
<td>MoPW, MoE, MoA, MoPW, MoE, MoI</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.008</td>
<td>Introduction of low carbon rice variety, irrigation efficiency, organic fertilizer utilization</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>0.001</td>
<td>Energy efficiency, renewable energy development</td>
<td>MoT, MoE, MoPW, MoF</td>
</tr>
<tr>
<td>Energy and Transportation</td>
<td>0.038</td>
<td>Biofuel development and utilization, fuel efficiency improvement, mass transportation, demand side management, renewable energy, energy efficiency</td>
<td></td>
</tr>
</tbody>
</table>

| Total                       | 0.767                          | 0.422                                                                      |                  |
### Green Technology in Energy Sector

**GHG EMISSION REDUCTION TARGET IN ENERGY SECTOR**

- **Mandatory of Energy Management in energy-intensive industry (10.16 mill ton CO₂)**
- **Partnership in Energy Conservation - 1303 buildings & industry (2.11 mill ton CO₂)**
- **Energy Efficient Appliances 21,43 GWh (10.02 Million ton CO₂)**
- **PLTMH 130.4 MW (0.61 Million ton CO₂)**
- **PLTM 692 MW (3.25 Million ton CO₂)**
- **PLTS 326.78 MW (0.29 Million ton CO₂)**
- **PLTB 59.2 MW (0.06 Million ton CO₂)**
- **PLT Biomass 16.9 MW (0.01 Million ton CO₂)**
- **DME 700 villages (0.18 Million ton CO₂)**
- **Biogas 31,400 unit (0.13 Million ton CO₂)**

**TOTAL**

32.8 Million ton CO₂

**OIL & GAS**

- **657.83 MMSCFD gas for public transport in 9 cities & 21.16 ton LGV/day in 2 cities (3.07 Million ton CO₂)**
- **City Gas for 94,500 household in 24 locations (0.15 Million ton CO₂)**
- **Mini LPG Plant 2.2 MMSCFD (0.03 million ton CO₂)**

**MINERAL & COAL**

- **Post-mining reclamation 72,500 ha (2.73 Million ton CO₂)**

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### Potency of Green Technology in Indonesia

<table>
<thead>
<tr>
<th>Sources</th>
<th>Potential Resources/ Potential</th>
<th>Installed Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renewable Energy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydro Power</td>
<td>75,000 MW</td>
<td>4,200 MW</td>
</tr>
<tr>
<td>Micro and Mini Hydro</td>
<td>450 MW</td>
<td>229 MW</td>
</tr>
<tr>
<td>Geothermal</td>
<td>28,617 MW</td>
<td>1,341 MW</td>
</tr>
<tr>
<td>Biomass (Sumatra &amp; Kalimantan)</td>
<td>30,000 MW (total)</td>
<td>75 MW</td>
</tr>
<tr>
<td></td>
<td>6,784 MW (techno-economy)</td>
<td></td>
</tr>
<tr>
<td>Solar Power</td>
<td>4.8 kWh/m²/day (0.0006 MW/m²)</td>
<td>13.92 MW</td>
</tr>
<tr>
<td>Wind Power</td>
<td>9,280 MW</td>
<td>1.96 MW</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>36,050,842 kL</td>
<td>5,632,210 kL</td>
</tr>
<tr>
<td>Biofuel</td>
<td>3,112,163 kL</td>
<td>339,333 kL</td>
</tr>
<tr>
<td><strong>Ocean Energy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>New Energy</strong></td>
<td>Clean Coal technology, Coal Bed methane, Hydrogen,</td>
<td></td>
</tr>
<tr>
<td><strong>Energy Conservation</strong></td>
<td>Electrical consumption reduction: 2,042 GWh per year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reducing the electricity peak load: 466 MW</td>
<td></td>
</tr>
<tr>
<td><strong>Green Industries, green transportation, green building, green forestry, etc.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: MEMR, 2012; Mol, TNA
Indonesia has the potential to reduce CO$_2$ emissions by up to 1.2 Gt per year by 2030

**Societal perspective**

1. Small hydro
2. Clinker substitution by Slag
3. Sustainable logging practice
4. Grassland management
5. Peat management
6. Improve community practices
7. Spatial planning
8. Afforestation/reforestation
9. Fire prevention on mineral soils
10. Geothermal
11. Nuclear
12. Degraded land restoration
13. Co-generation - downstream
14. Large hydro
15. Appliances - refrigerators, commercial
16. Passenger Vehicle gasoline Bundle 4
17. Two Wheeler Electric

1. Societal perspective implies utilizing a 4% discount rate
2. The width of each bar represents the volume of potential reduction. The height of each bar represents the cost to capture each reduction initiative

**SOURCE:** Indonesia GHG Abatement Cost Curve
Government incentives:

- Obligation to purchase power from biomass and biogas
- Feed in Tariff for Geothermal, Solar PV, Biomass, Biogas
Financial Incentives

MINISTRY OF FINANCE REGULATION NUMBER 21/PMK.011/2010
Regulation of tax and customs facility for renewable energy resources utilization activities

Financial Instruments Support

- Income Tax
  - Reduced net income for 30% of total investment
  - Accelerated depreciation
  - Imposition of Income Tax on dividend paid to Foreign Taxable at 10%
  - Compensation for losses in certain circumstances

- Value Added Tax
  - Exemptions of VAT for Taxable Goods, machinery and equipment for RE utilization (not included spare parts)

- Import Duty
  - Exemptions for Import Duty of
    - Goods and Machinery for development and capital investment
    - Capital Goods Imports for construction and development of electricity industry

- Tax Borne by Government
  - Regulated in State Annual Budget Law and its implementing regulations
Financial Incentives

- Obligation to National Electricity Company to purchase power from renewable energy (hydro, biomass and biogas, wind)

- Feed in Tariff:
  - Geothermal
  - Solar PV
  - Biomass, Biogas
  - Hydro
  - Municipal Solid waste
Challenges of Green Technology Implementation

1. High Investment
2. Higher Production cost
3. Technology
   • Some technologies has been developed by domestic manufactures, such as small to medium-scale power plan and biogas technology
   • Most of green technologies are still provided and dominated by foreign countries
   • Lack of capacity in technology
4. Human Resources
   • Quantity and quality of human resources are still limited and need to be improved
   • Lack of coordination among stakeholders as well as between research institution and industries
5. Lack of financial supports for early deployment/commercial R&D
Transfer of Green Technology to Indonesia

Current situation
- Limited of transfer of technology of green technology
- Mostly only transfer of asset/equipment, with limited transfer of knowledge
- Mostly only on Capacity building for operation, assembling
- For large manufacture:
  - buy the patent
  - Detail engineering design, installation, construction, commissioning, done by the local engineering company
  - The main component still import
IPR for Green Technology in Indonesia

• Very limited IPR compare to regional and Global
• Lack connection between innovators and industries
• Government effort to encourage of increasing innovation IPR on Green Technology
  – Increase the budget for R&D and innovation
  – Encourage the synergy of innovation between government, business and academia
  – Develop the policy and regulation to R&D and innovation
  – Develop the “innovation valley” in several region in Indonesia
One of Innovation Valley in Indonesia

KAWASAN INDUSTRI INOVASI: BANDUNG RAYA INNOVATION VALLEY (BRIIV)

Ekosistem BRIV

ITB
PT Indosat
PT LEN
PT DI
PT Biofarma

PT Telkom
PT Inti
PT Pindad
PT Kimia Farma

UNPAD

Source: Simanungkalit, 2013
Develop the Prioritized of Strategic Research

<table>
<thead>
<tr>
<th>Prioritized of Strategic Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food Security</strong></td>
</tr>
<tr>
<td>Seed breeding, Agriculture technology, Integrated Agro-technology</td>
</tr>
<tr>
<td><strong>Energy Security</strong></td>
</tr>
<tr>
<td>Bio-diesel, bio-ethanol, etc; New and Renewable energy: solar, wind, hydro, biomass, ocean, geothermal, fuel cell; Energy conservation</td>
</tr>
<tr>
<td><strong>Industrial biotechnology</strong></td>
</tr>
<tr>
<td>Bio pharmaceutical production; Bio cosmetics; Herbal medicine; Product from tropical fruits</td>
</tr>
<tr>
<td><strong>Transportation and Defense Technology</strong></td>
</tr>
<tr>
<td>Sea, land and aviation to support the transportation of maritime continent</td>
</tr>
<tr>
<td><strong>Deep sea and fish processing</strong></td>
</tr>
<tr>
<td>Ocean technology survey; Deep sea fisheries; Fish processing; Packaging and marketing fish production</td>
</tr>
<tr>
<td><strong>Earthquake, Tsunami, Climate &amp; weather</strong></td>
</tr>
<tr>
<td>Natural disaster management; Building code; Weather modification</td>
</tr>
<tr>
<td><strong>Knowledge based product</strong></td>
</tr>
<tr>
<td>Hardware, software, networks, storage; Micro and nano electronic product</td>
</tr>
</tbody>
</table>

Source: Simanungkalit, 2013
Partnership on Green Technology Transfer and innovation in Indonesia

Indonesia is a big market of Green technology
- Expensive of Green Technology Investment
- Limited market

Partnership on transfer technology and innovation
- Transfer of knowledge
- Localized the green technology
- Involve private sector
- Relax the IPR

Higher local capacity
- Create cheaper green technology investment
- Create bigger market of green technology
Thank you
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