Demonstration of Additionality in Registered Projects in Thailand

CDM Capacity Building Training to Potential Thai DOEs
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Registered Projects in Thailand

Number of registered projects:
- Biomass, 19%
- Biomass (waste water treatment), 54%
- Biogas (animal waste), 11%
- Biogas (waste gas/heat utilization), 8%
- Methane recovery & utilization, 5%
- N2O decomposition, 3%
- Waste gas/heat utilization, 5%

Total: 37 projects

Total emission reductions expected by 2012:
- Biomass, 28%
- Biogas (waste water treatment), 54%
- Biogas (animal waste), 4%
- Methane recovery & utilization, 7%
- N2O decomposition, 5%
- Waste gas/heat utilization, 3%

Total: 11 million t-CO₂

Source: IGES CDM Project Database (1 September 2010)
Steps to demonstrate additionality

**Step 1.** Identification of alternatives to the project activity

**Step 2.** Investment analysis

- Does sensitivity analysis conclude that the proposed CDM project is unlikely to be the most financially attractive or is unlikely to be financially attractive?

**Step 3.** Barrier analysis

- (1) Is there at least one barrier preventing the implementation of the proposed project without the CDM; and
- (2) Is at least one alternative scenario not prevented by any of the identified barriers?

**Step 4.** Common practice analysis

- Additional
- Not additional

Source: Methodological Tool “Tool for the demonstration and assessment of additionality (version 5.2)”
## Analyses to Demonstrate Additionality

<table>
<thead>
<tr>
<th>Types</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Analysis</td>
<td></td>
</tr>
<tr>
<td>Simple Cost Analysis</td>
<td>The CDM project activity generate no financial benefits other than CER income</td>
</tr>
<tr>
<td>Investment Comparison Analysis</td>
<td>The CDM project activity generate financial benefits other than CER income (e.g. by selling electricity to the utility)</td>
</tr>
<tr>
<td>Benchmark Analysis</td>
<td></td>
</tr>
<tr>
<td>Investment Barrier</td>
<td>Similar activities have only been implemented with grants or non-commercial finance terms. No private capital available</td>
</tr>
<tr>
<td>Technological Barrier</td>
<td>Lack of infrastructure for implementation of technology and/or skilled labor for O&amp;M, risk of technological failure, non-availability of the technology used</td>
</tr>
<tr>
<td>Barriers due to prevailing practice</td>
<td>The project activity is the “first of its kind”</td>
</tr>
<tr>
<td>Other Barriers</td>
<td>If any</td>
</tr>
</tbody>
</table>

Source: Methodological Tool “Tool for the demonstration and assessment of additionality (version 5.2)”
Registered projects with or without investment analysis by year

Left: With investment analysis
Right: Without investment analysis

- Registration of projects with investment analysis are getting more likely

Source: IGES Investment Analysis Database
* Up until 1 September 2010.
## Demonstration of Additionality in Registered Projects

<table>
<thead>
<tr>
<th>Type of Investment Analysis</th>
<th>Barrier Analysis</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Applied</td>
<td>Not applied</td>
</tr>
<tr>
<td>Benchmark</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Investment Comparison</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Simple Cost</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: IGES CDM Project Database (1 Sept 2010)

- Benchmark analysis is most commonly conducted
- Most projects which conducted investment analysis apply barrier analysis as well
Projects with benchmark analysis and without investment analysis by type

**Benchmark Analysis Conducted** (Total: 17 projects)
- Biogas (Waste water, Large), 12%
- Biogas (Waste water, Small), 22%
- Biogas (Animal waste, Small), 22%
- Biogas (Waste water, Large), 33%
- Biogas (Large), 11%
- Biomass (Large), 18%
- Biomass (Small), 6%
- Biomass (Large), 18%
- Waste gas/heat utilization (Large), 18%
- Waste gas/heat utilization (Small), 6%

**No Investment Analysis Conducted** (Total: 18 projects)
- Biogas (Waste water, Large), 33%
- Biogas (Large), 11%
- Biogas (Waste water, Small), 22%
- Biogas (Animal waste, Small), 22%
- Biomass (Large), 6%
- Biomass (Small), 6%
- CH4 recovery (Large), 6%

Financial Indicator: IRR – 16 projects
NPV – 1 project

- No clear tendency by project type in whether to have conducted investment analysis or not
- IRR is used almost always as a financial Indicator

Source: IGES Investment Analysis Database
# Benchmark Rate

<table>
<thead>
<tr>
<th>Indicator Used as Benchmark Rate</th>
<th>Benchmark Rate</th>
<th>Num. of Registered Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted average of the Return on Equity (ROE) and Minimum Lending Rate (MLR)</td>
<td>8.12% 8.52%</td>
<td>3</td>
</tr>
<tr>
<td>Return on the capital assets</td>
<td>11.95%</td>
<td>3</td>
</tr>
<tr>
<td>Weighted Average Cost of Capital (WACC)</td>
<td>8.68% 11.70%</td>
<td>2</td>
</tr>
<tr>
<td>IPP (Independent Power Producer) industry hurdle rate</td>
<td>15.00%</td>
<td>2</td>
</tr>
<tr>
<td>Government bond rate + Risk premium</td>
<td>9.69%</td>
<td>2</td>
</tr>
<tr>
<td>Average of (Government bond rate + Risk premium) and Investment research Estimate</td>
<td>14.95%</td>
<td>1</td>
</tr>
<tr>
<td>Study report</td>
<td>15.00%</td>
<td>1</td>
</tr>
<tr>
<td>IPP bidding</td>
<td>15.00%</td>
<td>1</td>
</tr>
<tr>
<td>Local commercial lending rate</td>
<td>6.56%</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: IGES Investment Analysis Database
## Barrier Analysis

<table>
<thead>
<tr>
<th>Barriers described</th>
<th>With investment analysis</th>
<th>Without investment analysis</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment, Technological, Prevailing practice, Other</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Investment, Technological, Prevailing practice</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Investment, Technological, Other</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Investment, Technological</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Investment, Prevailing practice</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Technological, Prevailing practice</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Investment</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>17</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: IGES CDM Project Database (1 Sept 2010)
Typical Description of Barriers

- **Investment**
  - Difficult access to finance (e.g. banks reluctant to lend money)
  - Investment analysis

- **Technological**
  - Unavailability of technology and skills for O&M at local level and requirement of training

- **Prevailing practice**
  - “First-of-its-kind” or low market penetration
  - No regulation/incentive to employ new technology

- **Other**
  - Business culture
Summary

• Projects with both investment and barrier analysis more likely to get registered
• Benchmark analysis is most often conducted among all the investment analysis
• Various types of benchmark have been applied in registered projects
• Barriers clearly exist in general at current situation

➢ Need to assess investment analysis with different financial indicators depending on a project
➢ Barriers should be assessed taking the changing situations into consideration