Introduction to the Case Studies:
Mangrove Conservation Program in Klong Klone Sub-District and
Private Mangrove Plantation in Yee San Sub-District
Samut Songkram Province
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Topics included:

- General Background
- Background of the study area
  - Area 1 (Klong Kone)
  - Area 2 (Yee San)
- Situation
- Exercise
- Annex 1: Aquatic animals
- Annex 2: Fishing gears
- Annex 3: Charcoal production
- Annex 4: Cost and revenue of fishery production
Samut Songkram Province

Samut Songkram province is a province in the Central plain of Thailand located in the southwest coastal area near the gulf of Thailand. It takes about 72 kilometres from Bangkok. Total area is about 416.707 square kilometres or 260,441.87 Rai.

Samut Songkram consists of 3 districts namely
1. Muang
2. Ampawa
3. Bang Kon Tee
Geography of Samut Songkram

- Coastal Area
- Mangrove Forest
- Mae Klong River
Natural Resources and Environment

1) Soil: salty soil, unsuitable for agriculture
2) Water: Mae Klong river is the main water resources in the area, about 25 kilometre long.
3) Forest: Mangrove forests use for
- Study and research
- Community income sources
- Tourisms
- Fishery
Total mangrove area is >20,000 rai: natural mangrove forest 10,000 rai (2008).

Note: 6.25 rai = 1 ha or 2.5 rai = 1 acre.
Case Study 1:
Mangrove Conservation Program in Klong Klone
Klong Klone Subdistrict consists of 7 villages.
Moo 1 Ban Klong Kod
Moo 2 Ban Klong Klone
Moo 3 Ban Klong Klone
Moo 4 Ban Praek Ta Le
Moo 5 Ban Klong Chong
Moo 6 Ban Pracha Chomchuen
Moo 7 Ban Klong Chong Noi

- Total area of Klong Klone Subdistrict is 24,561.00 Rai or 39.30 square kilometres.
- Most areas are coastal resources, wetland, and mangrove forest.
- Main occupation of the community is fishery.
## Households in Klongklone

<table>
<thead>
<tr>
<th>Village no.</th>
<th>Total household</th>
<th>Fishery households</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>70</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>161</td>
<td>153</td>
<td>95</td>
</tr>
<tr>
<td>3</td>
<td>101</td>
<td>96</td>
<td>95</td>
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<tr>
<td>4</td>
<td>122</td>
<td>116</td>
<td>95</td>
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<tr>
<td>5</td>
<td>160</td>
<td>152</td>
<td>95</td>
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<td>6</td>
<td>80</td>
<td>40</td>
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<td>7</td>
<td>141</td>
<td>134</td>
<td>95</td>
</tr>
<tr>
<td>8</td>
<td>835</td>
<td>726</td>
<td>87</td>
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</tbody>
</table>
In 1952, mangrove forest in Klong Klone was about 27,000 Rai.

In 1984, the intensive Shrimp culture was boom in the area. Mangrove forest reduced to 800 Rai.

In 1989, a big problem of water pollution from the intensive shrimp farming.

In 1991, the Klong Klone community mangrove conservation program is established.

Now (2008), about 7,000 Rai of mangrove are reforested.
Background (cont.)

Current benefits obtained by the community from the Mangrove Conservation Program in Klong Klone.

- Fishery
- Eco-tourisms
  - Boating
  - Food hut services
- Study and research
- etc.
Fishery
Eco-tourism
Case Study 2:
Private Mangrove Plantation in Yee San
Background

Yee San Subdistrict consists of 5 villages.
Moo 1 Ban Kao Yee San
Moo 2 Ban Klong Bannog
Moo 3 Ban Ton Lampan
Moo 4 Ban Don Jan
Moo 5 Ban Klong Koodlek

• Total area of Yee San Subdistrict is 38,062 Rai or 60.90 square kilometres.
• Most areas are coastal resources, wetland, and mangrove forest.
• Main occupation of the community is fishery (60%), mangrove charcoal production (4%), working as hired labor (10%) and others.
Households in Yee San

<table>
<thead>
<tr>
<th>Village</th>
<th>Total households</th>
<th>Mangrove plantation households</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>195</td>
<td>10</td>
<td>5.13</td>
</tr>
<tr>
<td>2</td>
<td>91</td>
<td>7</td>
<td>7.69</td>
</tr>
<tr>
<td>3</td>
<td>154</td>
<td>9</td>
<td>5.84</td>
</tr>
<tr>
<td>4</td>
<td>109</td>
<td>2</td>
<td>1.83</td>
</tr>
<tr>
<td>5</td>
<td>167</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td>Total</td>
<td>716</td>
<td>28</td>
<td>3.91</td>
</tr>
</tbody>
</table>
Background (cont.)

- In the past before 1932, mangrove forest area in Yee San was about 22,500 Rai.
- In 1932, natural mangrove forest was encroached by the community for the mangrove plantation.
- In 1973, land right was given to the area.
- In 1999, about 17,855 Rai of mangrove plantation for charcoal production were operated by 45 households in the area.
- As the intensive shrimp farming was boom since 1984, and parallel with the problem of sedimentation in the area of mangrove plantation. Plantation was declined.
- Today (2008), about 10,000 Rai of private mangrove forest are planted for sale privately owned by about 28 households in the area.
Mangrove Forest Plantation
Charcoal production
Charcoal Production Process
Benefits obtained by the private mangrove plantation in Yee San are such as:

- Income from mangrove wood and charcoal production.
- Indirect benefit of mangrove forest:
  - Shoreline stabilization
  - Salt water intrusion
  - Flooding control
  - Carbon sequestration
  - etc.
Given Situation for Impact Analysis

- Oil price rapidly increases (Table 1).
- As a consequence, there is a higher demand of wood and charcoal from the industries surrounding both areas.
Table 1: World Crude Oil, Petrol and Diesel Price

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude oil ($/bl)</th>
<th>Petrol (B/I)</th>
<th>Diesel (B/I)</th>
</tr>
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<tbody>
<tr>
<td>1995</td>
<td>16.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>20.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>18.68</td>
<td></td>
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</tr>
<tr>
<td>1998</td>
<td>12.31</td>
<td>11.53</td>
<td>9.37</td>
</tr>
<tr>
<td>1999</td>
<td>17.45</td>
<td>12.07</td>
<td>9.19</td>
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<tr>
<td>2000</td>
<td>27.61</td>
<td>14.69</td>
<td>12.08</td>
</tr>
<tr>
<td>2001</td>
<td>23.12</td>
<td>14.74</td>
<td>12.36</td>
</tr>
<tr>
<td>2002</td>
<td>24.25</td>
<td>15.04</td>
<td>13.67</td>
</tr>
<tr>
<td>2003</td>
<td>28.16</td>
<td>17.04</td>
<td>14.49</td>
</tr>
<tr>
<td>2004</td>
<td>36.06</td>
<td>18.54</td>
<td>14.64</td>
</tr>
<tr>
<td>2005</td>
<td>50.64</td>
<td>22.86</td>
<td>19.04</td>
</tr>
<tr>
<td>2006</td>
<td>60.81</td>
<td>26.46</td>
<td>23.59</td>
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<tr>
<td>2007</td>
<td>83.17</td>
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<td>2008</td>
<td>99.84</td>
<td>33.44</td>
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</tr>
<tr>
<td>2012</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2013</td>
<td>???</td>
<td>???</td>
<td>???</td>
</tr>
</tbody>
</table>
Exercise

1. What would be the socio-economic impacts of the given situation to the goods and services of coastal habitats?
2. What goods and services should be primarily analyzed for the impact assessment?
3. What valuation techniques would you recommend to measure the value of the impacts?
4. What data would you need to conduct this case study?
5. What are the policy recommendations for the local government to help maintain the functions of coastal habitats?