MAGROVE STATUS AND MANAGEMENT IN VIETNAM
Content

1. Overview about Vietnam
2. Mangrove in Vietnam: status and values
3. Mangrove management in Vietnam
4. Demo site: Xuan Thuy National Park
PART 1

VIETNAM AT A GLANCE
VIETNAM - at glance

- Area: ~ 350,000 km², mountainous area occupies 3/4.
- Population: ~ 83 millions with 54 different ethnic minority groups. The Kinh people (or Viet) account for nearly 90%.
- 80% of people live in rural area
- Capital city: Hà Nội (North)
- Hồ Chí Minh city/Saigon (in the South) is the biggest city

Hanoi
Haiphong
Hue
Da Nang
Nha Trang
Ho Chi Minh city (Saigon)
The climate in Vietnam is divided into two distinguished areas:

- In the Southern provinces: maybe as same as Bangkok
- In the Northern provinces: distinct seasons, hot and rainy in summer (30°C to 35°C), cold and dry in winter (10°C to 18°C). In the highest mountain area (Sapa) there may be snow fall in winter
- Reason for the difference is Hải Vân mountain chain, it protects the Southern area from the cold wind
VIETNAM - our nature resources

- Coal in the North
- Petroleum in the South
- Beautiful beaches along the central coast
VIETNAM - our products

• Rice, tea, café, chilli, sea foods, canned fishes
• Crude oil, coal, natural rubber
• Textile products, shoes

However, GDP/capital is still very low (~720 US$/capital - 2006)
VIETNAM - our architectural style

Our architectural style is mixed between Chinese and French style

Antique Royal palace in Hué & semi-detached houses in old square

Opera House in Hanoi and city municipal administration buildings in Saigon
VIETNAM - our costume

Traditional costume of Vietnamese (Kinh)

Vietnamese woman long dress “Áo dài” - Unique in Vietnam

Traditional costume of Dao (one ethnic group in the north)
VIETNAM - culture & art

Singing in the boat in Huế city

Quan Ho folk-songs in the North
VIETNAM - “Tết” - Lunar new year festival

The most important holiday in Vietnam is Tết holiday (Lunar new year festival)

The old man is writing “Parallel sentences” - a slogan for New Year

Traditional foods in Tết

Flower on the street market
Thank to the tropical climate in the South and cold winter in the North, many of vegetables and fruits can be found in Vietnam.

Daily main food of Vietnamese is steamed rice (Cơm)
Most of Vietnamese people believe in the Buddha (Theravada Buddhist), difference with Thai (Mahayana Buddhist). Some are Christian, Catholic or Protestant.

Cao Đài is an unique religion (only in Vietnam)

Place of worship for national heroes

Young Santa on motorbike

Young Santa on motorbike
In Vietnam, three generations living under the same roof is very popular. Almost of Vietnamese couple have two children. Grandparents are always respected by all family members.
Children are always the first priority of society.
VIETNAM - city life style
The capital city - Hà Nội is 998 years old city. It is a quiet and small city with many beautiful lakes.
PART 2

MANGROVE IN VIETNAM: STATUS AND VALUES
# MANGROVE AREA AND LOCATION

<table>
<thead>
<tr>
<th>Region</th>
<th>Mangrove land</th>
<th>Have Mangrove</th>
<th>Without mangrove</th>
<th>Shrimp area</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East</td>
<td>65.000</td>
<td>22.969</td>
<td>27.194</td>
<td>14.837</td>
</tr>
<tr>
<td>Red River Delta</td>
<td>57.345</td>
<td>20.842</td>
<td>22.681</td>
<td>13.852</td>
</tr>
<tr>
<td>North Central</td>
<td>30.974</td>
<td>2.300</td>
<td>22.167</td>
<td>2.505</td>
</tr>
<tr>
<td>South Central</td>
<td>13.068</td>
<td>700</td>
<td>0</td>
<td>12.368</td>
</tr>
<tr>
<td>Southern East</td>
<td>67.100</td>
<td>26.092</td>
<td>37.540</td>
<td>3.468</td>
</tr>
<tr>
<td>Mekong River Delta</td>
<td>373.305</td>
<td>82.387</td>
<td>111.873</td>
<td>179.045</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>606.782</strong></td>
<td><strong>155.290</strong></td>
<td><strong>225.394</strong></td>
<td><strong>226.075</strong></td>
</tr>
</tbody>
</table>
Change in mangrove area during 1943 - 2006
Threatens to mangrove

Significant decrease in mangrove area

- Chemical during war 1962 - 1972
- Convert mangrove to Agricultural land
- Mangrove destruction for aquaculture
- Dyke construction
- Domestic construction

Population pressure
Poverty and livelihood
Profit from shrimp

- Loss of biodiversity values
- Loss of habitats
- Food chain destruction
- Soil and water degradation
Direct use values

Cooking moluscs from mangroves

Cooking Scylla from mangroves
Direct use values: Tourism
Indirect use values: Dyke protection

- Construction of sea dyke costs usually US$0.7-1.0 million/km but more expensive sections costing up to 2.0-2.5 million US$/km are already not rare
- 9/2005 constructing stronger sea dykes that would cost about US$7-10 million/km.

- The replace cost of mangrove forest for sea dike protection directly, and climate change mitigation indirectly, is about $US 5-6 million/km.
Flood protection
CARBON SEQUESTRATION

15-year-old forest

Mangrove forest could more absorb than rain forest

Mangrove forest: 90.24 tons CO$_2$/ha/year

Rain forest: 29.5 tons CO$_2$/ha/year
## Carbon Sequestration

CO₂ Absorption and O₂ Release from Important Species of Mangrove Forest

<table>
<thead>
<tr>
<th>Species</th>
<th>CO₂ Absorption (tonnes/ha/year)</th>
<th>O₂ Release (tonnes/ha/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhizophora mucronata</td>
<td>58.4</td>
<td>42.4</td>
</tr>
<tr>
<td>Rh. apiculata</td>
<td>18.9</td>
<td>13.8</td>
</tr>
<tr>
<td>Avicennia alba</td>
<td>39.3</td>
<td>28.6</td>
</tr>
<tr>
<td>Ceriops tagal</td>
<td>18.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Bruguiera gymnorrhiza</td>
<td>21.2</td>
<td>15.4</td>
</tr>
</tbody>
</table>
Erosion control

Reducing impact due to wave

- When mangrove forest is wide than 1.5km, height wave will reduce from 1m to 0.5m in lagoon coast

- Conversely, height wave is 0.75m and coast is eroded
Non-use values: Biodiversity

971 species of major terrestrial and aquatic fauna and flora groups have been recorded in Xuan Thuy National Park:

Beneficial groups of plants in the mangrove areas of Xuan Thuy

<table>
<thead>
<tr>
<th>No</th>
<th>Use</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medicinal plants</td>
<td>111</td>
<td>60,3</td>
</tr>
<tr>
<td>2</td>
<td>Wood/fuel wood plants</td>
<td>19</td>
<td>10,3</td>
</tr>
<tr>
<td>3</td>
<td>Edible plants</td>
<td>13</td>
<td>7,1</td>
</tr>
<tr>
<td>4</td>
<td>Plants for livestock</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>Plants that protect dykes, prevent waves, wind, soil erosion</td>
<td>20</td>
<td>10,9</td>
</tr>
<tr>
<td>6</td>
<td>Ornamental plants</td>
<td>17</td>
<td>9,2</td>
</tr>
<tr>
<td>7</td>
<td>Other uses: fiber plants, plants for handicrafts, raising bees, etc</td>
<td>30</td>
<td>16,3</td>
</tr>
</tbody>
</table>

Value species:

Crab: 46 species
Shrimp: 15 species
Shellfish: 4 species
Shipworm: 23 species
Fish: 52 species
Bird: 215 species
Mangrove trees (1)
Biodiversity values

Avicennia: 4 types

<table>
<thead>
<tr>
<th>Avicennia alba</th>
<th>Avicennia marina</th>
<th>Avicennia officinalis</th>
<th>Avicennia rumphiana</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
</tbody>
</table>
Biodiversity values

Kadelia: 2 types

Kandelia candel

Kandelia obovata

Fig. 1. Localities of Kandelia candel (triangles) and K. obovata (dots). Question mark refers to the doubtful localities in the Philippines. (Sheue et al, 2003)
Biodiversity values

Bruguiera – 6 types
Non use value: Historical site
PART 3

MANGROVE MANAGEMENT IN VIETNAM
LEGULATORY FRAMEWORK FOR MANGROVE PROTECTION

- Environmental protection law (revised 2005)
- Forest protection law (1999)
- Law on water resource protection (2001)
- Fishery resource protection law (2000)
- National action plan for conservation and sustainable use of wetland area during 2004-2010
- National action plan for mangrove protection and development to 2015 (2005)
ENVIROMENTAL MANAGEMENT ARRANGEMENT

THE NATIONAL ASSEMBLY

THE GOVERNMENT

MINISTRY OF ENVIRONMENT & NATURE RESOURCES/
MINISTRY OF AGRICULTURAL AND RURAL DEVELOPMENT

PEOPLE’S COMMITTEE OF CITY/PROVINCE

PROVINCIAL LEVEL:
DEPT OF ENVIRONMENT & NATURE RESOURCES MANAGEMENT/DEPT OF AGRICULTURAL AND RURAL DEVELOPMENT

DISTRICT LEVEL
ENVIRONMENTAL DIVISION/ AGRICULTURAL DIVISION
PROPERTY RIGHT REGIMES

- State management (special forest, protection forest)
- Private management (production forest)
- Community based management
Overall objective

The overall objective is to promote the protection, rehabilitation and wise use of Vietnam’s mangrove ecosystem towards sustainable development so that the protection function, values and its biodiversity could meet the need of socio-economic development and environmental protection in river estuaries and coastal areas.

Specific objectives

1. To primarily change the perception on mangrove ecosystem values for key managers at local (province and district) levels, mass organizations and communities in mangrove areas.
2. To reinforce the effectiveness of mangrove ecosystem protection, rehabilitation and development.
3. Improve perception and understandings on biodiversity of mangrove ecosystem, and conservation values of rare and precious gene sources.
4. Contribute to livelihood improvement for the people who live inside or vicinity of mangrove areas.
Objective 1

Action 1.1 Strengthen appropriate activities to transform perception: Compile educational materials; Integrate these knowledge in school; Capacity building for agencies

Action 1.2: Reinforce propaganda and universalization for social organizations and local communities in mangroves areas for immediate and long term benefits...using various methods: leaflets, training, discussion, radio and television broadcasts.
Objective 2:

Action 2.1: Reinforce and consolidate the system of wetland & mangrove ecosystems management at ministrial level (MONRE & MARD) and local levels (province and district) in an intersectoral linkage (Agriculture, Forestry, Fisheries, Construction, Tourism...)

Action 2.2: Revise and supplement national institutional structure, policy framework to perform the package of decisions and decrees on effective and sustainable management and utilization of mangrove ecosystem..

Action 2.3: Review and perform land-use plannings in provinces and districts which possess mangrove forests and make these plannings legally, scientifically and practically sound.

Action 2.4: Appropriate use, protection and rehabilitation of mangrove ecosystem, e.g. Minimize mangrove exploitation; 5-year-period mangrove rehabilitation plans...

Action 2.5: Reinforcement and development of nature reserves and national parks.
NAP

Objective 3:
Action 3.1: Speeding up scientific research activities, collaborative research, and transfer of technology to production..
Action 3.2: Broaden and strengthen international cooperation in research, protection, restoration and sustainable use of mangrove ecosystem.

Objective 4:
Action 4.1: Socialize forestry and upgrade living standard for local people in areas with mangroves
• Located in Ba Lat estuary (Nam Dinh)
• First Ramsar site in Vietnam (1989)
• Recognized as National Park (2003)

The site is about 7000 ha and comprises three islands and intervening inter-tidal mudflats.
• Core zone: strictly protected
• Buffer zone: shrimp farm
Xuan Thuy Park supports 14 habitat types
- Mangrove species is *Kandelia candel*, *Sonneratia caseolaris*, *Aegiceras corniculatum* and *Acanthus ilicifolius*.
- The Park is an important staging and wintering area for migratory waterbirds. More than 20,000 waterbirds were observed.
- Xuan Thuy supports the largest wintering population of Black-faced Spoonbill in Vietnam-50 birds.
# Initial economic valuation (2003)

<table>
<thead>
<tr>
<th>USES</th>
<th>Use Values</th>
<th>Non-Use Value</th>
<th>Quasi-Option</th>
<th>Bequest</th>
<th>Existence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct VND (ha)</td>
<td>USD (ha)</td>
<td>Indirect VND</td>
<td>USD</td>
<td>Option VND</td>
</tr>
<tr>
<td>Construction wood</td>
<td>125,800</td>
<td>7.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td>91,500</td>
<td>5.75</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Aquaculture</td>
<td>16,500,000</td>
<td>1,037.74</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Honey</td>
<td>141,000</td>
<td>8.87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine product picking*</td>
<td>3,120,000</td>
<td>196.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical products</td>
<td>19,000</td>
<td>1.19</td>
<td></td>
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</tbody>
</table>

## EXTRACTIVE USE

## NON-EXTRACTIVE USE

<table>
<thead>
<tr>
<th>USES</th>
<th>Use Values</th>
<th>Non-Use Value</th>
<th>Quasi-Option</th>
<th>Bequest</th>
<th>Existence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourism/Recreation</td>
<td>18,000</td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research &amp; Education</td>
<td>VS</td>
<td>VS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic</td>
<td>VS</td>
<td>VS</td>
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</tbody>
</table>
Thanks very much!