Rural Environment and Society in Southeast Asia

A presentation to NYS middle school teachers, June 2005

Christian C. Lentz
1) Definitional issues and translation
2) Survey of contemporary problems
3) Historicizing environment and society: modernity and the colonial period
4) A view from rural areas
1) Definitions and translation

► What is the “environment” in Southeast Asia?
► Does this term have the same meaning in SEAsian cultures as it does in the US?
► These questions invite comparisons, both for us and for our students.
Definitions and translation

- What does “environment” mean?
  - Do we include or exclude people?
  - Are people natural?
- Definitions do not reflect East/West binary but more rural/urban, traditional/modern...
- Argue that ecology, environment and nature are terms that are inextricably culture bound.
Definitions and translation

- Indonesian language demonstrates same tension b/w including/excluding humans in “environment”

- *Lingkungan* vs. *Lingkungan hidup*

- Term is used among formally educated people, largely middle class, urban residents (i.e. newspaper readers)
How do people in rural Southeast Asia understand the “environment”? 

- Argue that “env” is more embedded in society 
- Has economic/social/religious/cultural significance 

Look for “env” in terms such as forest, grassland, river, garden; in other words, descriptors with functional significance.
Definitions and translation

► Compare with modern understanding of “env” as autonomous sphere separable from human activity

► “nature” is a socio-cultural category

► Environment: *set of interacting ecological and anthropomorphic relationships* encompassing surrounding flora and fauna.
2) Survey of Env. Problems

2a) Loss and degradation of agricultural land
2b) Clean water / air availability and pollution
2c) Impact of megaprojects
2d) Decline in area and species richness in marine environments
2e) Decline in area and species richness in terrestrial environments
2a) Loss and degradation of agricultural land

- Population centers tend to congregate in areas of long, historical settlement, esp. deltas and alluvial plains
- Ex: Bangkok, Surabaya, Hanoi, Manila
- Dynamics of urban expansion (Erik)
2a) Urbanization and ag land

- Map of land use
- Old data (1969) still instructive
- Note urban centers of Bangkok and Hanoi overlap with river deltas
- River deltas very important for rice agriculture
2b) Air/Water

- Note urban growth on Java
- Settlement on Borneo illustrates how settlements and traffic follow water
  - Land use therefore shows watersheds
  - Problems of fire
2c) Megaprojects: Bakun Dam, Malaysia
2c) Megaprojects: Resettlement & landscape transformation in Indonesia (E. Borneo) and Vietnam (C. Highlands)
2d) Marine Environment: Mangrove & Coral

- Mangrove forests ring calmer seas of region
- Provide nursery habitat & shore stabilization
- Threatened by shrimp farms
2d) Marine Environment: Mangrove & Coral

- Coral reefs found in clear waters of region
- High species richness
- Tight nutrient cycling
- Threatened by damaging fishing practices and global warming
2e) Terrestrial environments: forest

<table>
<thead>
<tr>
<th>Land area</th>
<th>Natural forest cover ('000 sq km)*</th>
<th>Loss of natural forest cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>%†</td>
</tr>
<tr>
<td>Myanmar‡</td>
<td>65,755</td>
<td>32,862</td>
</tr>
<tr>
<td>Thailand</td>
<td>51,089</td>
<td>17,888</td>
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<tr>
<td>Cambodia</td>
<td>17,652</td>
<td>13,477</td>
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<tr>
<td>Laos</td>
<td>23,080</td>
<td>14,467</td>
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<tr>
<td>Viet Nam</td>
<td>32,550</td>
<td>9,683</td>
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<tr>
<td>Malaysia</td>
<td>32,855</td>
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<tr>
<td>Indonesia</td>
<td>181,157</td>
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<tr>
<td>Philippines</td>
<td>29,817</td>
<td>10,991</td>
</tr>
<tr>
<td>Total</td>
<td>433,955</td>
<td>242,583</td>
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</table>

*The Forest Resources Assessment 2000 did not identify natural forest cover separately; therefore this was calculated by subtracting 'Forest Plantations' from 'Total Forest' (Table 2, FAO, 2003), as suggested by Emily Matthews in 'Understanding the FRA 2000', p. 4, Forest Briefings No. 1, World Resources Institute, 2001.
†Proportion of total land area covered.
‡Proportion of forest area lost.
§The inferred gains in natural forest cover in Myanmar between 1990 and 2000 are not credible. They were derived from the 1990 natural forest baseline data published in Table 19.1, p. 307, World Resources 1994–95, World Resources Institute, 1994. However, the FRA 2000 provided higher estimates of forest cover for 1990 than the earlier FRA reports (a 13% upward adjustment in Asia) and it is possible that the 1990 estimates of natural forest cover in Myanmar may have underestimated its extent and resulted in a 'false' gain in natural forest cover during 1990–2000.


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Deforestation narratives: conservation and state

Introduction

Pockets of forest are cleared and planted with crops, as here in the Padang Highlands near Sibolga in West Sumatra. It is unlikely that this forest will ever regrow.

Once roads are built, so migrant settlers arrive, build a house, clear forest for subsistence crops and then cash crops, while the forest edge recedes further and further into the distance.
Deforestation: temporary vs. permanent
Why are Southeast Asia’s forests important?

- Large areas of primary tropical forest;
- In terms of area, highest rate of deforestation in the world since 1980;
- Home to indigenous people, reliant on resources;
- Exceedingly high biodiversity and species richness;
- Political leaders and entrepreneurs see forest as a natural resource to be exploited for purposes of national development and/or personal enrichment; Drives frontier-making.
Forest types: variety

Tropical Forests of Indonesia

Legend:
- Wet evergreen
- Mixed deciduous
- Degraded mangrove
- Inundated areas
- Degraded forest
- Monthly flooded
- Lowerland evergreen
- Degraded rain forest
- Montane monsoon forest
- Montane evergreen forest
- Rice arm
- Forest clearance IUCN category I-IV
- Protected areas IUCN other categories
- Extant zone
- Flooded
Charismatic megafauna: 
*babirusa* (pig-deer) & *orangutan* (man of forest)
4) Historical perspectives: modernity, colonialism, landscape change

► Teak production in Southeast Asia (esp Java and Burma)
  - Nancy Peluso: *Rich Forests, Poor People*

► Plantation development across region (ex: Sumatra)
  - Ann Stoler: *Capitalism and Confrontation*

► Protected areas began in this era.
Teak Production: Burma and Java

Living in a Time of Transition

Timber industry: elephant lifting logs, Rangoon, ca. 1908.

JAVA

Teakhoutvloten in de Solo-rivier, ca. 1915

Het vlotten van hout was tot ver in de 19e eeuw, en deels ook nog in de 20e eeuw, het normale houttransport over lange afstanden. Nadat het hout uit het bos gesleept was, werd het op vlotten van bamboe en andere lichte houtsoorten vastgevoerd (teak is zwaarder dan water en zou dus zonder een dergelijk raamwerk niet blijven drijven). Daarna werd het naar een aantal hoofdstapelplaatsen gevoerd, waar een deel tot grotere vlotten werd samengevoegd en over zee naar Batavia gezonden. Vanwege mogelijk slecht weer en zeerovers was dat wel riskant. De houtvlotters leefden tijdens de tocht in hutten op het vlott.
Plantations: rubber, coffee, tobacco, oil
Colonialism and modernity

Progress? Improvement?

Would argue that same processes of capital accumulation, state territorialization, new ideas of environment, local adaptation and resistance drive contemporary land use changes;

Between colonial and nation-state eras, was a half century pause in high rates of resource extraction (national revolutions and Cold War): began anew in 1970s-80s.
5) A environmental view from rural areas

- Argued need to understand contextual environmental perspectives;
- Environmental “problems” may be seen differently;
- Historical roots of landscape changes;
- Encourage comparisons with Upstate New York.
Annual changes: seasons and monsoons

The Indian Ocean Basin

Circulations

The southern Indian Ocean circulation is similar to that in the northern Indian Ocean, but the Atlantic Ocean current branches into two major components: the South Equatorial Current and the Agulhas Return Current. The former flows north along the equator, while the latter flows south into the Indian Ocean. The Agulhas Return Current is responsible for bringing warm, salty water from the Indian Ocean to the South Atlantic Ocean, where it meets the cold, nutrient-rich water of the Antarctic Circumpolar Current. This upwelling of nutrient-rich water allows for the growth of plankton, which serves as a food source for many marine species. The Agulhas Return Current also plays a role in the global thermohaline circulation, which helps to regulate the climate of the Earth.
Climate disturbance

- Seasonality of rainfall (duration and volume) is crucial to farmers
- Climate change poses large risk
  - Increased levels of disturbance
Agriculture in US and SEA: inviting a comparison

- US agriculture: small portion of population (< 4%) actively involved vs. majority in SEA
- US ag: large size of average holdings 487 acres in 1997 (USDA) vs. 7.5 acres in SEA
  - New York State: avg size of 207 acres in 2003 (USDA)
### Agricultural labor in SEA

#### Table 4.1: Percent of Economically Active Population Engaged in Agriculture

<table>
<thead>
<tr>
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<tr>
<td>Brunei</td>
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<tr>
<td>Cambodia</td>
<td>78.2</td>
<td>74.0</td>
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<td>Indonesia</td>
<td>66.3</td>
<td>58.9</td>
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<td>Laos</td>
<td>78.8</td>
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<td>Myanmar</td>
<td>59.6</td>
<td>51.8</td>
<td>65.6</td>
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<td>53.2</td>
<td>46.0</td>
<td>41.5</td>
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<td>2.2</td>
<td>1.9</td>
<td>0.4</td>
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<td>Thailand</td>
<td>79.9</td>
<td>75.4</td>
<td>62.1</td>
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<td>Vietnam</td>
<td>76.4</td>
<td>70.6</td>
<td>71.6</td>
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Agricultural land in SEA--rice

Table 4.7
Land Use ('000 ha)

<table>
<thead>
<tr>
<th></th>
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<td>8</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>14.2</td>
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<tr>
<td>Cambodia</td>
<td>3046</td>
<td>3056</td>
<td>1356</td>
<td>1800</td>
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<tr>
<td>Indonesia</td>
<td>19500</td>
<td>21260</td>
<td>9005</td>
<td>10531</td>
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<tr>
<td>Laos</td>
<td>880</td>
<td>901</td>
<td>732</td>
<td>596</td>
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<tr>
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<td>6660</td>
<td>5600</td>
<td>5896</td>
<td>88.5</td>
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"Rice" in English, Vietnamese, and Indonesian

<table>
<thead>
<tr>
<th>English</th>
<th>&quot;RICE&quot;</th>
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<tbody>
<tr>
<td></td>
<td>Field</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>Lúa</td>
</tr>
<tr>
<td>Indonesian</td>
<td>Padi</td>
</tr>
</tbody>
</table>
SEA ag: irrigated (*sawah*) & dryland (*ladang*)
Spatial dimension of agriculture

- Upland areas are primarily dry-land
- Lowland areas are primarily irrigated
- Historically, uplands semi-autonomous
- Two zones are connected and formed relationally
Green Revolution

- Part of Cold War (Red vs. Green Revolution)
- Focus on yields per unit area through development and cultivation of “high yielding varieties” of rice (esp)
- Costs: reduced genetic diversity (increase pest/disease susceptibility); increased rural stratification, dependence on technology, water use, and land concentration.
Broader significance of agriculture

- Structures “environmental” relationships such as use of forest/marine resources and their trade;
- Agricultural calendar influences broader social activities (“total calendar”)
  - Bali: indigenous calendar of 210 days—follows rice growth cycle;
  - Bali: *subaks* are irrigation districts w/ religious leaders deciding on flows;
  - Sumba: festivals and ceremonies follow rice calendar