Country report on rice cultivation practice: Vietnam

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Vietnam:
- Population: 86 mil. people
- Total area: 331,000 km²
  - ¾ of area is mountains
  - Cultivation land occupies ~ 28%
  - Cultivation Land per capita:
    - In Mekong Delta and East-Southern regions: 1,000 m²/person
    - In other regions: 400 m²/person
General Information

- Rice is the most important food plant in Vietnam

Before 1975 (period of the wars):
- Total rice cultivation land: 4.5 mil. ha
- Low productivity: 0.7 tons/ha.
- Total yield: less than 10 mil. tons.

After 1975:
- Total rice cultivation land: 5.5 – 5.7 mil. ha.
- 1975-1986: Low productivity because of: low quality of soil, disaster, pestilent, insect

National Economy: Centrally Planned and Subsidy based

1/3 Rice consumption: Imported from other countries
General Information

- **From 1986**: National Economy = Market Orientation
  Important policy: Allocating land to farmers

**Rice productivity:**
- In 1980s: 3.0 tons/ha/year
- In 2000s: 4.9 tons/ha/year

**Total yield**: ~ 30 mil.tons/year
  (3 times more, compared to 1975)

**1989**: Exported rice to other countries

**From 1997 to present:**
- Average annual export of rice: **4 mil.tons/year**
  (Vietnam became the Second position rice exporter in the World)
### General Information

**Area, Productivity and Yield of Rice in Vietnam during the period from 1955-2009**

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (mil.ha)</th>
<th>Productivity (tons/ha)</th>
<th>Yield (mil.tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>4.42</td>
<td>1.44</td>
<td>6.36</td>
</tr>
<tr>
<td>1965</td>
<td>4.83</td>
<td>1.94</td>
<td>9.37</td>
</tr>
<tr>
<td>1975</td>
<td>4.94</td>
<td>2.16</td>
<td>10.54</td>
</tr>
<tr>
<td>1980</td>
<td>5.54</td>
<td>2.11</td>
<td>11.68</td>
</tr>
<tr>
<td>1985</td>
<td>5.70</td>
<td>2.78</td>
<td>15.87</td>
</tr>
<tr>
<td>1990</td>
<td>5.96</td>
<td>3.21</td>
<td>19.14</td>
</tr>
<tr>
<td>1995</td>
<td>6.77</td>
<td>3.69</td>
<td>24.96</td>
</tr>
<tr>
<td>2000</td>
<td>7.67</td>
<td>4.24</td>
<td>32.53</td>
</tr>
<tr>
<td>2005</td>
<td>7.33</td>
<td>4.89</td>
<td>35.79</td>
</tr>
<tr>
<td>2009</td>
<td>7.44</td>
<td>5.23</td>
<td>38.89</td>
</tr>
</tbody>
</table>
General Information

• However, rice productions are differently distributed in the country:
  - **Red river Delta & Mekong Delta**: main country Rice Production areas
  - **Other regions**: Self-sufficient rice production
### General Information

**Areas, Productivity and Yield distributed by Regions in Vietnam**

<table>
<thead>
<tr>
<th>Region</th>
<th>Area (Million ha)</th>
<th>Productivity (tons/ha)</th>
<th>Yield (Mil.tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total the Country</strong></td>
<td>7.44</td>
<td>5.23</td>
<td>38.89</td>
</tr>
<tr>
<td>1. Red River Delta</td>
<td>1.16</td>
<td>5.88</td>
<td>6.80</td>
</tr>
<tr>
<td>2. Northern Mountain</td>
<td>0.67</td>
<td>4.55</td>
<td>3.05</td>
</tr>
<tr>
<td>3. Northern Central</td>
<td>1.22</td>
<td>5.12</td>
<td>6.25</td>
</tr>
<tr>
<td>4. Central HighLand</td>
<td>0.21</td>
<td>4.65</td>
<td>0.99</td>
</tr>
<tr>
<td>5. East Southern</td>
<td>0.31</td>
<td>4.31</td>
<td>1.32</td>
</tr>
<tr>
<td>6. Mekong Delta</td>
<td>3.87</td>
<td>5.29</td>
<td>20.48</td>
</tr>
<tr>
<td>Period</td>
<td>Research Objective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘60-’70s</td>
<td>The criteria on selection of rice seeds have been based on outward aspect (physical) of rice plants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘80s</td>
<td>Change on research objective by stabilization of productivity towards seeds having good resistance to pestilent insect.</td>
<td></td>
<td></td>
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<tr>
<td>‘90s</td>
<td>Concentration of efforts on Improving Productivity and Quality of rice seeds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000s</td>
<td>Research on rice seeds based on improved rice seed quality in combination with improved resistant capacity.</td>
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</table>
Rice Variety

- Depending on Local Specific Climates, Soils & Traditions: Different areas – Different rice varieties.

1. In the North (Red River Delta, Mountainous & Northern Central) mainly used the following varieties:
   - Local varieties: Tam Xuan Đai, Tam Xoan Thai Binh, Tam Den Hai Phong, Tam bang Phu Tho, Du Huong, Nep cai Hoa vang, Tep lai...
   - Imported Chinese or Originated Chinese varieties: Short Moc Tuyen, Short Bao Thai, M90, Bac Yu 64, Cross-Breeding 5, Nhi Yu 63, Khang Dan 18, Short Ay 32...
   - Originated IRRI’ varieties: Selected or Cross-Breeding from: IR24, IR 17494, IR 1820, IR 36, IR 46, IR 2053-26-3-5-2, IR 2588, IR 19746-11-33, IR 8423-132-622,...
Rice Variety

2. In the South (East-Southern, Mekong Delta, Central HighLand) there’re following varieties:

- **Local varieties**: Early Thom, Nang Thom Nha Be, Thom Binh Chanh, Nang thom Đuc Hoa, Nang thom cho Dao, Nang Huong, LC90-4, …

- **Varieties originated from IRRI**: Selected or Cross-Breded from: IR 49517-23, IR 59606, IR 64, IR 68, IR 66, IR 66707, IR 56279, IR 32893, IR 48, IR 8423, IR 50401, IR 44592, IR 9729-6-7-3, IR 62032…
Rice Cultivation Practices

- **In Northern Mountainous (region 1):**
  - *“Milpa” cultivation*: Depends on raining water, using dry varieties, without fertilizers & insecticide/Plant protection – Very Low productivity.
  - **Terraced fields**: Depends on raining water, using dry varieties, without chemical fertilizers & insecticide/Plant protection, Very few compost - Very Low productivity.
Rice Cultivation Practices

- **Red River Delta (Region 2)**
  - Paddy rice cultivation: Based on active irrigation water provision; High intensification; Using high productive varieties; Overuse of chemical fertilizers & Pesticide: **High productivity.**
  - Almost 90% of growing time: the rice plants are in 10-15cm of field water.
  - Some recent new practices, applied for mitigating Climate change:
    - In the Period of rice seedling transplanting growth: keeps rice filed dry/damp in 2 periods:
      - First period: during 7-10 days after 10 days from rice transplantation.
      - Second period: during 7-10 days after 30 days from rice transplantation.
    - In the Period of rice seedling Reproducing growth: Keeps rice filed in 4-5cm water in the period of time from 45 days after transplantation until 15-20 days before the harvest.
Rice Cultivation Practices

- **The Central/Coastal region (Region 3):**
  - In Mountainous areas:
    Depending on raining water, using dry varieties, without chemical fertilizers & insecticide/Plant protection, Very few compost - Very Low productivity.
  
  - In coastal plain areas: Paddy rice cultivation Based on active irrigation water provision; High intensification; Using high productive varieties; Overuse of chemical fertilizers & Pesticide: Main & High productivity
Rice Cultivation Practices

- Mekong Delta region (Region 6):
  - 75% cultivation area in Active irrigation water provision: High intensification; Using short-term & high productive varieties; Overuse of chemical fertilizers & Pesticide: High & very high productivity; During most of growing time rice plants are filled with water.
  - 25% cultivation area depends on raining water (Cultivation during March-April to Nov.-Dec.) ; Main intensification; Extremely Short-term varieties; Main level of use of Overuse of chemical fertilizers & Pesticide: High productivity During 100% growing time rice plants are filled with water.
Management of Rice Residues

Rice Residues: Rice husk, Bran, Rice straw

1. **Rice husk**: Using rice husk as fuel, paving material for raising chicken/poultry, energy for burning bricks or pottery and porcelain…

2. **Bran**: Using bran for raising animal/pigs, chickens, ducks…

3. **Rice straw**:
   - In Northern and Central parts of the country people using rice straw as fuel, food for cattle or burning on the field. Some areas: Using rice straw for production of bio-fertilizer.
   - In Mekong Delta rice straw is using as food for cattle and normally burying on the field.
Rotation Crops

• **Northern Mountains (region 1)**
  ✓ 2 rice crop: 50% area
  ✓ 1 rice crop + 1 subsidiary/vegetable crop: 20% area
  ✓ 1 rice crop: 30% area (Terraced field & “Milpa cultivation”)

• **Red River Delta (region 2):**
  ✓ 2 rice crops: 50% cultivation area
  ✓ 2 rice crops + 1 subsidiary/vegetable crop: 40% area
  ✓ 1 rice crop + 1-2 subsidiary/vegetable crops: 10% area

• **Northern Central (region 3)**
  ✓ 2 rice crops: 50% cultivation area
  ✓ 1 rice crop + 1 subsidiary/vegetable crops: 30% area
  ✓ 1 rice crop: 20% area
## Rotation Crops

- **Central Highlands (Region 4)**
  - 2 rice crops: 30% cultivation area
  - 1 rice crop + 1 subsidiary/vegetable crop: 30% area
  - 1 rice crop: 40% cultivation area

- **East-Southern region (region 5):**
  - 2 rice crops: 60% cultivation area
  - 2 rice crops + 1 subsidiary/vegetable crop: 30% area
  - 1 rice crop + 1 subsidiary/vegetable crop: 10% area
Rice crops

- *Mekong Delta region (region 6)*
  - In Alluvial soil & freshwater: 40-45% area
    - 2-3 rice crops
    - 2 rice crops + 1 subsidiary/vegetable crop
    - 2 rice crops + fish/shrimp integration

- In raining water with salty contamination: 55-60% area
  - 2 rice crops
  - 1 rice crops + fish/shrimp integration
  - 1 rice crop
Soil Organic Carbon
## Socio-economic Status of Rice Farmer

**What’s income from rice cultivation?**

<table>
<thead>
<tr>
<th>Regions</th>
<th>Cultivation land per capita (m² or ha)</th>
<th>Average rice Productivity per ha/year (tons/ha)</th>
<th>5.9 tons/ha productivity based Rice Yield (tons) per capita/year (tons)</th>
<th>Average price USD/ton (supposed)</th>
<th>Total income/person (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3, 4</td>
<td>(400 \text{ m}^2 = 0.04 \text{ ha})</td>
<td>5.29</td>
<td>0.212</td>
<td>1,000</td>
<td>212 $</td>
</tr>
<tr>
<td>5, 6</td>
<td>(1000 \text{ m}^2 = 0.10 \text{ ha})</td>
<td>5.29</td>
<td>0.529</td>
<td>1,000</td>
<td>529 $</td>
</tr>
</tbody>
</table>

Income of rice farmers in Mekong Delta: **529$/year**  
Income of rice farmers in other regions: **212$/year**  
(including input costs, in the situation without disease, natural disaster...)

Conclusion

Rice farmers are facing lot of challenges regarding Annual Natural disasters, Diseases…and others relevant to different issues such as: FDI, WTO, Industry Development ... They are most vulnerable while have less access to a good education system, information, less opportunities, and less power…

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