The Philippines
Impact of the Green Revolution on Agriculture
Rice: The Primary Crop
Major Events of the Green Revolution

• 1960s- the government of the Republic of the Philippines with the Ford Foundation and the Rockefeller Foundation established IRRI (International Rice Research Institute)

• 1962- the IRRI crossed Dee-Geo-woo-gen and Peta rice strains

• 1968- IR8, or “miracle rice,” was formed

• 1981- the use of miracle rice reaches 81% of total rice crops
Benefits

- IR8, “miracle rice,” produced ten times the amount of rice as traditional varieties
- As a result of the switch to farming IR8, annual rice production in the Philippines increased from 3.7 to 7.7 million tons in 2 decades
- The large increase in rice production allowed the Philippines to become an exporter of rice for the first time in the 20th century
<table>
<thead>
<tr>
<th>N. BULACAN</th>
<th>LAGUNA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
<td><strong>Year</strong></td>
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<tr>
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Table 1 - Means and Coefficients of Variation of the Variables Used in the Analysis

<table>
<thead>
<tr>
<th>Farmers' yield (kg)</th>
<th>Yield frontier (kg)</th>
<th>Ratio of farmers' yield to yield frontier</th>
<th>Ratio of farmers' yield to yield frontier</th>
<th>N of farmers' yield (kg)</th>
<th>Pesticide (kg/ha)</th>
<th>Labor (pre-harv.) (MDS)</th>
<th>Tractor days</th>
<th>Age</th>
<th>Schooling</th>
<th>Family size/ha</th>
<th>Distance from main canal (km)</th>
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<tbody>
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<td>(59.2)</td>
<td>(70.6)</td>
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**Notes:**
- The table represents the means and coefficients of variation for various variables used in the analysis.
- The data is summarized for different years and locations.
- The variables include farmers' yield, yield frontier, ratio of farmers' yield to yield frontier, N of farmers' yield, pesticide, labor, tractor days, age, schooling, family size, and distance from the main canal.
- The values are presented with their respective standard deviations in parentheses.
Environmental and Agricultural Problems

- Chemical fertilizers used in conjunction with miracle rice eroded soil
- Increased rice production led to increased water consumption
- Pesticides and fertilizers used in rice farming polluted water and caused siltation
- Declining water quality poses a threat to future rice production, due to the high amount of clean water required to grow rice
- The Philippines did not have sufficient funding to improve irrigation systems → fell behind neighboring countries
- Vulnerable to recurring natural disasters, which posed a large threat to the agriculture-based economy
Rice Production Afterwards

• 1973- the Philippines experienced domestic/international problems causing a downfall in economic development that continued until 1986,
• Tropical storms and drought adversely affected yields
• Rising debts→ Crop loan supply depletion→ Falling income→ Poor agricultural production
• Farmers were squeezed by rising debts and declining income
Present and Future

• New developments:
  • 33 new strains of rice since IR8
  • IRRI developing rice that can survive underwater for <2 weeks
  • Transition to organic fertilizers

• Concerns:
  • Overfarming and chemical pesticides
  • Output levels declined after initial boom

