Changing the nervous mind of small-scale farmers who are reluctant to invest for their development

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Title of submitted papers

- W.1.3.27
  Increasing water productivity and saving energy by high yield rice ratooning in Myanmar
  Kazumi Yamaoka, Khin Mar Htay, Resfa Fitri and Erdiman

- W.3.1.19
  New strategy to drastically increase water productivity through high yielding perennial rice ratooning in Ghana
  Kazumi Yamaoka and Joseph Ofori

A Message from Japan and Asia to the World Water Discussions

- Written by Kazumi Yamaoka et al in 2003 in occasion of 3rd World Water Forum held in Kyoto, Japan

Equation of Green Revolution

Green Revolution = Irrigation development (X) × Introduction of high-yield varieties (Y) × Fertilizer input (Z)

Crop yield response of rice to available water

Questionnaire field surveys in Ghana
Yield stagnates, Import value surges

Data: FAOSTAT

Agricultural machinery for small scale farmers

Power tillers  Rice harvester  Rice polisher

Proposal of pilot project for new finance scheme

Simulation of repayment and loss in case of default

Equal redemption of principal every half year for 3 years (6 terms)
Annual interest rate: 5%  Annual depreciation rate (machinery): 6%

Simulation of repayment and loss in case of default

Equal redemption of principal every half year for 3 years (6 terms)
Annual interest rate: 20%  Annual depreciation rate (machinery): 40%
### How to share the risk burden in case of default

- Sharing the risk burden in case of default
  - First foreclosure: GHS5,000 deposited as collateral
  - Second foreclosure: Residual value of machinery to buy
  - Losses shared between bank (50%) and company (50%)

<table>
<thead>
<tr>
<th>Year Interest rate (%)</th>
<th>15</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default (low %)</td>
<td>8%</td>
<td>8.5%</td>
<td>9%</td>
</tr>
<tr>
<td>Default (high %)</td>
<td>9%</td>
<td>9.5%</td>
<td>10%</td>
</tr>
<tr>
<td>Total interest payment</td>
<td>20.75</td>
<td>25.7</td>
<td>30.65</td>
</tr>
<tr>
<td>Loss in case of default</td>
<td>1,500</td>
<td>1,900</td>
<td>2,300</td>
</tr>
<tr>
<td>Loss in case of default</td>
<td>1,200</td>
<td>1,600</td>
<td>2,000</td>
</tr>
<tr>
<td>Loss in case of default</td>
<td>1,000</td>
<td>1,400</td>
<td>1,800</td>
</tr>
</tbody>
</table>

- Japanese company deposits GHS5,000 in bank account as a source of money and security in case of default.

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