Department of International Studies
GSFS, The University of Tokyo

Research Topic:

System of Rice Intensification (SRI) Practices and Promotion in Irrigated and Rain-fed Areas of Cambodia

Presented by: CHES Sophy

J-SRI Meeting, Sept 27, 2012
1- Introduction
2- Research Problems and Objectives
3- Research Questions and hypothesis
4- Methodology
5- Primary Results
6- Conclusion
INTRODUCTION

• In Asia, irrigated rice accounts for about 50% of the total amount of water diverted for irrigation (Bouman, 2001).

• Water for irrigation getting scarcer is major challenge to rice production (Bouman and Tuong, 2001).

• Also, rainfall patterns in many areas are becoming more unreliable (Satyanarayana, et al, 2007).

• It said that SRI can increase yield by 50-100% with the water reduction by 25-50% (Uphoff, 2008).
RESEARCH PROBLEMS AND OBJECTIVES

- Cambodia is one of SRI practicing countries.
- One of major SRI principles is to intermit irrigation (Dobermann, 2004)
- Water management is important in practicing SRI.
- SRI has been disseminated to farmers in rain-fed areas (Tsurui, 2010)
- In Cambodia, 80% of the nation’s rice growing areas is exclusively rain-fed (Based on NCDM)

1st Objective:
Compare the results of the SRI practices in between Irrigated and Rain-fed Areas
SRI requires good water management, it’s necessary to know the water accessibility of SRI farmers.

But experts say many irrigation schemes not in full use so most fields not yet connected to canals (LWD Annual Report 2011).

Then it is important to know the water situation in both areas concerning with the SRI practices.

2nd Objective:
Study the water availability in irrigated and rain-fed areas
Besides irrigation system, extension work is also crucial in promoting SRI practice.

Cambodian Gov’t reinforces commitment to promote SRI that can push rice production growth (Chan, 2010).

However, USDA (2010) said that future growth rate of rice production is uncertain due to:

- Under funding of agricultural extension programs
- Irrigation expansion threatened
- Extremely low production

3rd Objective:

Explain the policies and activities on the SRI promotion from the stakeholders
RQ1: *What are the differences of SRI practices in irrigated and rain-fed areas?*

RQ2: *When and how deep can farmers get the water for their paddy fields?*

RQ3: *How do the stakeholders perform in order to promote the SRI practice?*
RESEARCH HYPOTHESIS

1- SRI practices in both areas are not much different since irrigation system in irrigated areas cannot help much.

2- Water availability is unreliable even in irrigated areas.

3- SRI promotion has been done by many NGOs in many different kinds of activities.
METHODOLOGY

In Cambodia, Takeo and Kampong Speu Provinces with both irrigated and rain-fed areas where farmers are practicing SRI.
**Data collection**

- **Primary Data:** In-Depth-Interview, questionnaires, field visiting and observation
- **Secondary Data:** document reviewed, journals and previous researches related to SRI
- **Key-informants:** SRI Farmers (SF), Non-SRI Farmers (NSF), Gov’t institutes and NGOs
- **Sampling:**

<table>
<thead>
<tr>
<th>Provincial Department of Agriculture (PDA) and Provincial Department of Water Resources and Meteorology (PDOWRAM), NGOs</th>
<th>PDA, PDOWRAM and NGOs</th>
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</thead>
<tbody>
<tr>
<td>Kampong Speu Province</td>
<td>Takeo Province</td>
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<tr>
<td>Irrigated Area</td>
<td>Rain-fed Area (1)</td>
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<tr>
<td>NSF</td>
<td>SF</td>
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**Analytical Framework**

**Comparison of SRI practices in Irrigated and Rain-fed Areas**
- Degree of SRI adoption
- SRI yields
- Commitment

(RQ1)

**Water Availability for SRI Practice**
- Irrigating Time
- Water Depth
- How to irrigate

(RQ2)

**Promotion of SRI Practice**
- Existing policies
- New policies
- Action plans
- Stakeholders
- Past Achievements

(RQ3)

**SRI Practices and Promotion**
PRIMARY RESULTS
Information on Study Areas

Irrigated Upstream
Average area: 37a
Irrigation: Gravity

Irrigated Downstream
Average area: 40a
Irrigation: Gravity and pumping

Rain-fed (1)
Average area: 44a
Irrigation: Pumping and Gravity

Rain-fed (2)
Average area: 60a
Irrigation: Pumping and Gravity
1- Compare the results of the SRI Practices in between Irrigated and Rain-fed areas

Comparison of SRI and Conventional Yields

<table>
<thead>
<tr>
<th>Area</th>
<th>Farmers</th>
<th>Seasons</th>
<th>Varieties</th>
<th>Methods</th>
<th>Average Yield (t/ha)</th>
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<tbody>
<tr>
<td>Irrigated Downstream</td>
<td>B1-B10</td>
<td>Rainy (2011)</td>
<td>LRV</td>
<td>Conventional SRI</td>
<td>2.46 3.66</td>
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<tr>
<td>Rain-fed (1)</td>
<td>C1-C10</td>
<td>Rainy (2011)</td>
<td>LRV</td>
<td>Conventional SRI</td>
<td>2.16 3.09</td>
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<tr>
<td>Rain-fed (2)</td>
<td>D1-D10</td>
<td>Rainy (2011)</td>
<td>LRV</td>
<td>Conventional SRI</td>
<td>2.56 3.78</td>
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### Water Availability in Irrigated Areas

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- Less water in canal since less rain
- Much water in canal since much rain
- Less water in canal since less rain
- Least water in canal since no rain
- Some water in canal since less rain
- Least water in canal since no rain

Pumped water from nearby River was another source for irrigation. This case is only for some paddy fields’ location.

Transplanting was delayed and seedlings become older.
**Irrigated Upstream**
- How: Gravity (majority)
- From: Canal
- Depth: 5-15cm
- Age of seedlings: 18-21 days

**Irrigated Downstream**
- How: Gravity (majority) and pump
- From: Canal and river
- Depth: 5-20cm
- Age of seedlings: 20-22 days
# Water Availability in Rain-fed Areas

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Pumped water from nearby River or Pond was another source for irrigation. This case is only for some paddy fields’ location.

Transplanting was delayed and seedlings become older.
Rain-fed (1)
- How: Pump (majority) and Gravity
- From: Reservoir and Rain
- Depth: 5-25cm
- Age of seedlings: 21-25 days

Rain-fed (2)
- How: Pump (majority) and Gravity
- From: Pond, River and Rain
- Depth: 5-20cm
- Age of seedlings: 30-49 days
This Paddy field got water from nearby River. They were transplanting and plowing at the same time due to the older seedlings.

This plot had no water after transplanting due to no access to other sources of water.

These two plots were different due to water accessibility.

Transplanting not yet finished due to no water.
### 3- Activities on the SRI promotion from the stakeholders

**Interview Lists of SRI implementing NGOs or Donors:**

<table>
<thead>
<tr>
<th>No.</th>
<th>NGOs or Donors</th>
<th>Interviewed person</th>
<th>Projects</th>
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<tbody>
<tr>
<td>1</td>
<td>Life With Dignity (LWD)</td>
<td>Disaster Risk Reduction Coordinator</td>
<td>Promoting Community Response to Climate Change Adaptation</td>
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<tr>
<td>2</td>
<td>Oxfam America</td>
<td>Program Officer</td>
<td>Funding Local NGOs to implement SRI projects</td>
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<td>3</td>
<td>Partnership for Development in Kampuchea (PADEK)</td>
<td>Program manager and Program officer</td>
<td>Integrated SRI into community development</td>
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<tr>
<td>4</td>
<td>GIZ-Cambodia</td>
<td>GIZ Advisor</td>
<td>Regional Economic Development Program-Green Belt, Siem Reap</td>
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<tr>
<td>5</td>
<td>Mlup Baitong</td>
<td>Trainer</td>
<td>Working with Oxfam America and GSA on Climate Change Adaptation</td>
</tr>
<tr>
<td>6</td>
<td>General Secretariat of Agriculture (GSA)</td>
<td>Rice Seed Production Specialist</td>
<td>Building capacity about SRI at all levels, developing all required documents and Raising awareness on the benefits and the importance of SRI</td>
</tr>
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SRI PROMOTION

Nine SRI Principles:
1. Good quality seed usage
2. Dry Bed Sowing
3. Land Preparation
4. Transplanting or Direct Seeding
5. Seedling Application
6. Soil Fertility Management
7. Water Management
8. Pest and Weed Control
9. Harvesting and Storage

Promotion Methods:
1. Training
2. Field Demonstration
3. Farmer Field School
4. Farmers to Farmers
5. Seed Provision
6. Group Establishment
7. Mass Media

Purposes of Promotion:
- SRI can adapt with Climate Change (Drought or Flood)
- Seed Promotions (Seed against drought)
- Promote small household agriculture and rain-fed agriculture
- Economic Development (Farmer Level)
CONCLUSION

1- Higher yields obtained in both areas by practicing SRI, although it is not 100% increase.

2- Water accessibility in both areas highly depends on Rainfall. Just in irrigated areas, canals help farmers easily access to water.

3- SRI has been disseminated as a part of community development and climate change adaptation.
References:


THANK YOU FOR YOUR ATTENTION!