

A photograph of a rice field with young rice plants in a grid pattern, used as a background for the slide.

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Research Topic:

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

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CONTENT

- 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 says 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

RESEARCH QUESTIONS

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?

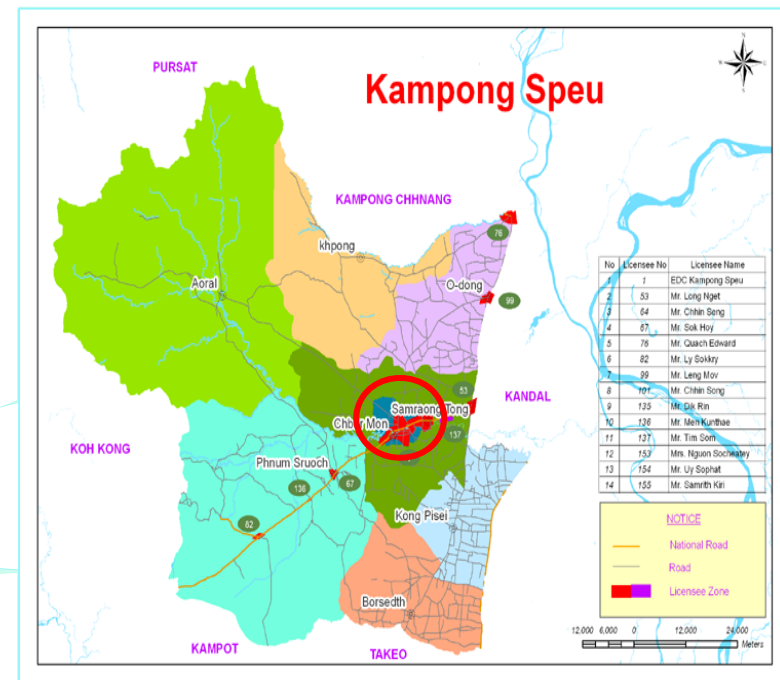
RQ3: *How do the stakeholders perform in order to promote the SRI practice?*

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.

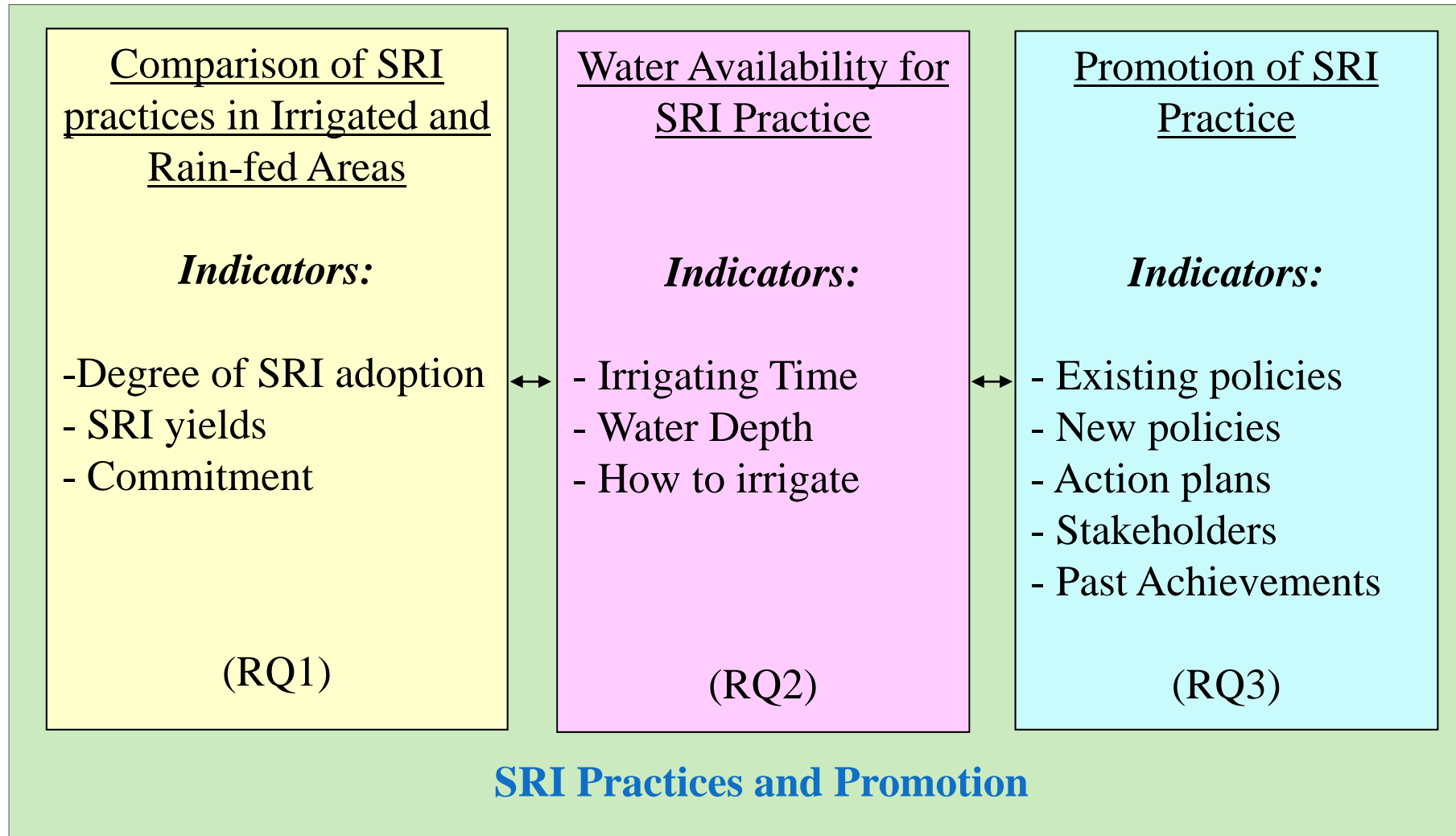


Data collection

- *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:*

Kampong Speu Province				Takeo Province	
Irrigated Area		Rain-fed Area (1)		Rain-fed Area (2)	
NSF	SF	NSF	SF	NSF	SF
6	20	3	10	3	10
Provincial Department of Agriculture (PDA) and Provincial Department of Water Resources and Meteorology (PDOWRAM), NGOs				PDA, PDOWRAM and NGOs	

Analytical Framework



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

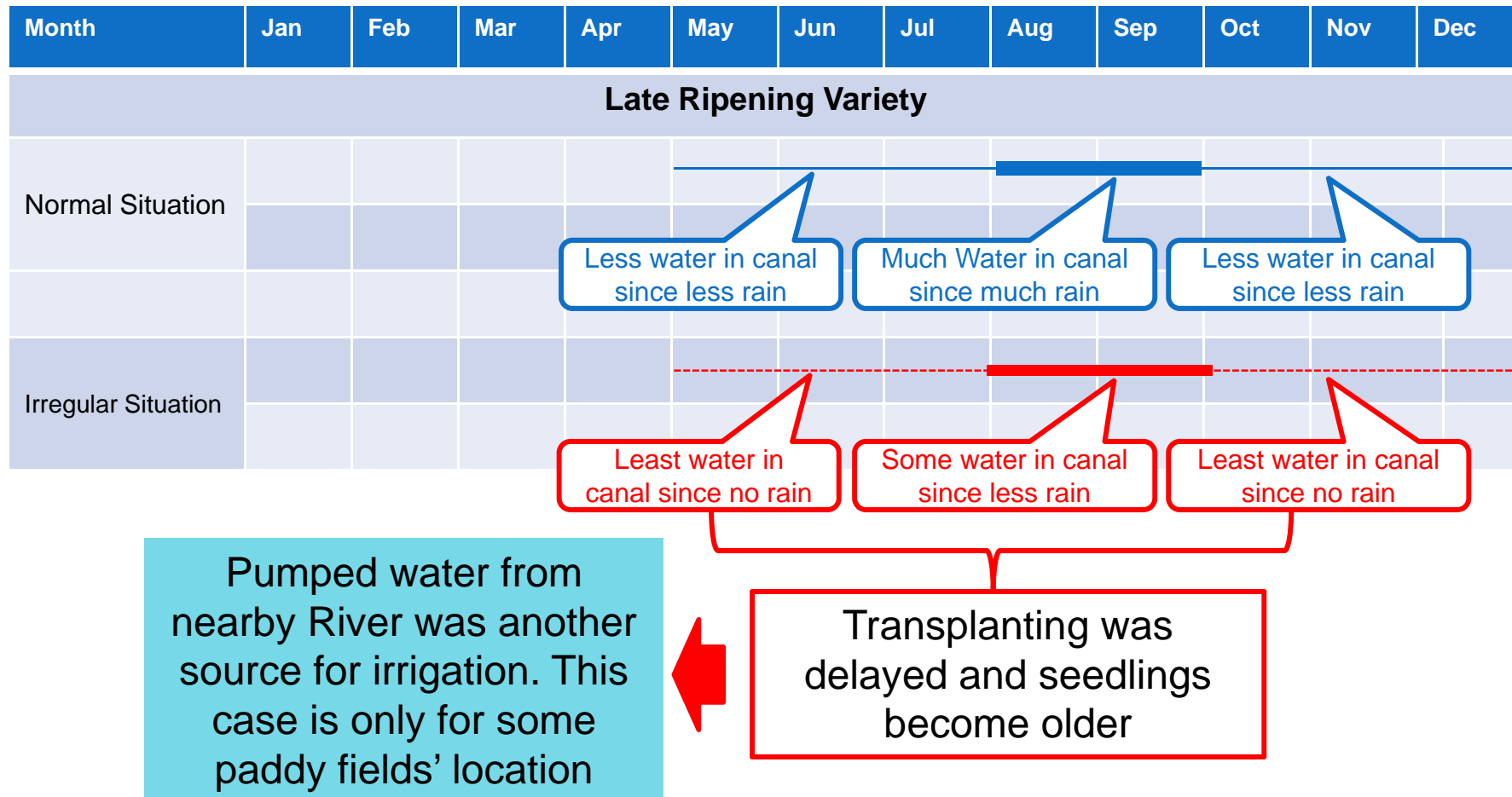
1- Compare the results of the SRI Practices in between Irrigated and Rain-fed areas

Comparison of SRI and Conventional Yields

Area	Farmers	Seasons	Varieties	Methods	Average Yield (t/ha)
Irrigated Upstream	A1-A10	Rainy (2011)	LRV	Conventional SRI	2.21 3.26
Irrigated Downstream	B1-B10	Rainy (2011)	LRV	Conventional SRI	2.46 3.66
Rain-fed (1)	C1-C10	Rainy (2011)	LRV	Conventional SRI	2.16 3.09
Rain-fed (2)	D1-D10	Rainy (2011)	LRV	Conventional SRI	2.56 3.78

2- Water Availability in irrigated and rain-fed areas

Water Availability in Irrigated Areas





Irrigated Upstream

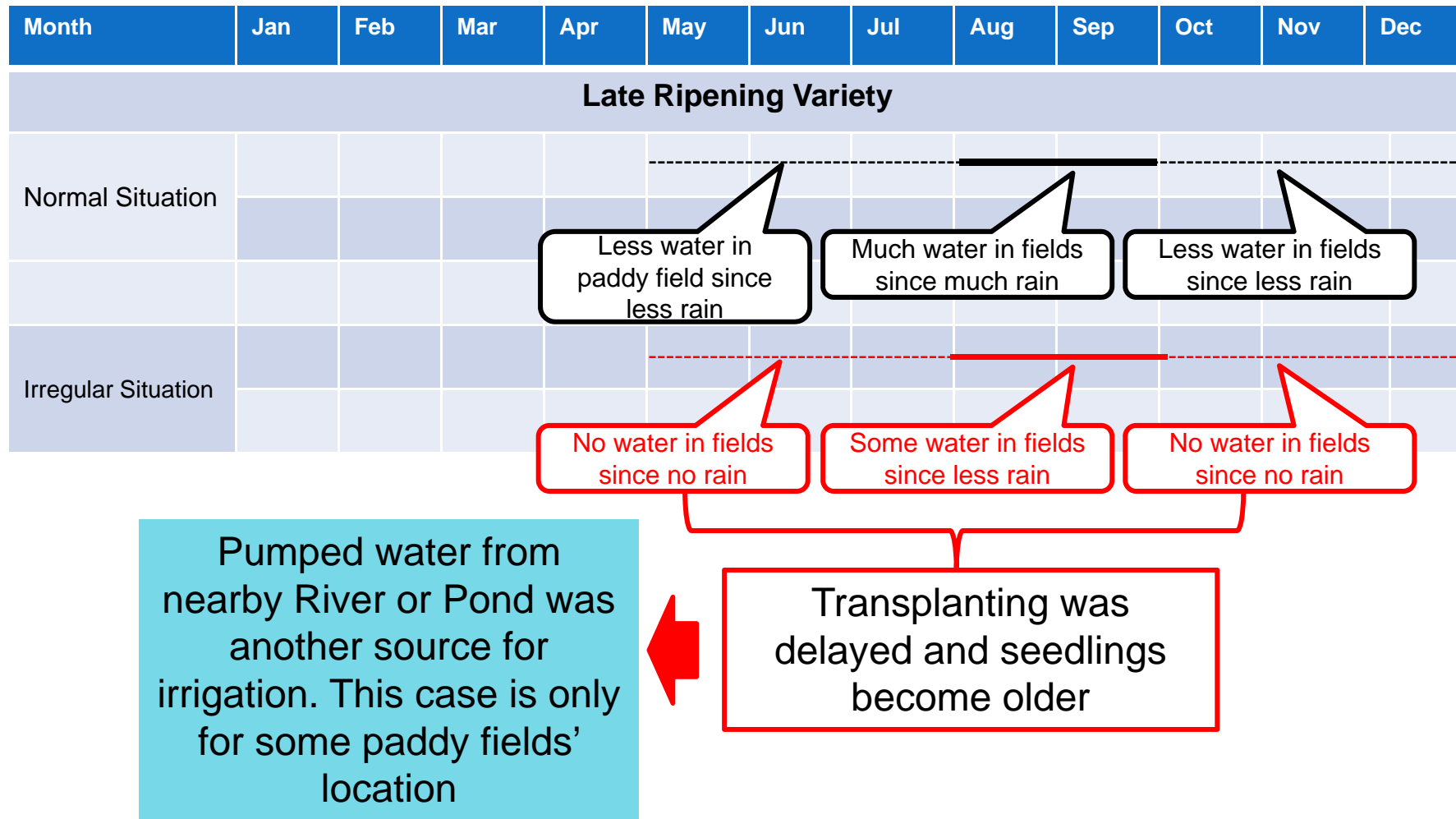
- How: Gravity (majority)
- From: Canal
- Depth: 5-15cm
- Age of seedlings: 18-21 days



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





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:

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

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:

Ministry of Planning. (2008). *Mid-Term Review 2008 of National Strategic Development Plan 2006-2010*

Tsurui, J. (2010). Improvement in Practicing System of Rice Intensification (SRI) Principles by Farmers in Rain-fed Area of Cambodia. 2nd ICERD Abstracts Book. (p.52).

Dobermann, A. (2004). A critical assessment of the system of rice intensification (SRI). *Agricultural System* 79 (2004): 261-281.

USDA. (January, 2010). Cambodia: Future growth rate of rice production uncertain. Retrieved from <http://www.pecad.fas.usda.gov/highlights/2010/01/cambodia/> on January 12, 2012

Chan, Sarun. (April, 2010). During his opening speech of the Annual Conference of the Ministry of Agriculture, Forestry and Fisheries (MAFF) on April 4, 2010. Retrieved from <http://sri.ciifad.cornell.edu/countries/cambodia/index.html#websites> on January 12, 2012

Satyanarayan, A., Thiyagarajan, T.M., and Norman Uphoff. (2007). Opportunities for water saving with higher yield from the system of rice intensification. *Irrigation Science* (2007) 25:99-115. DOI 10.1007/s00271-006-0038-8

Nguu, Van Nguyen. (n.d.). Sustainable intensification of rice production for food security in the near future. A summary report. Secretary of International Rice Commission

Bouman, B.A.M., and Tuong, T.P. (2001). Field water management to save water and increase its productivity in irrigated lowland rice. *Agricultural Water Management* 49 (2001):11-30

Uphoff, N. (2008). *System of rice intensification (SRI) as a system of agricultural innovation*. *Jurnal Tanah dan Lingkungan*, Vol.10, No.1. April 2008. ISSN 1410-7333.

THANK YOU FOR YOUR
ATTENTION!

