ADAPTATION TO CLIMATE CHANGE
IN RAINFED LOWLAND RICE:
A CASE OF CAMBODIA

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“Improving livelihoods and overcoming poverty in the drought-prone lowlands in SEA”

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CONSORTIUM FOR UNFAVORABLE RICE ENVIRON IN ASIA (CURE)

CURE Phase2 (7 countries), CURE-Drought (5 countries)
Rice production in Cambodia

<table>
<thead>
<tr>
<th>Year</th>
<th>Wet season (WS)</th>
<th>Dry season (DS)</th>
<th>Total (WS+DS)</th>
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<td>Har. area (mil ha)</td>
<td>Yield (t/ha)</td>
<td>Prod. (mil t)</td>
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<tr>
<td>2011</td>
<td>2.29</td>
<td>2.92</td>
<td>6.70</td>
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<td>2012</td>
<td>2.48</td>
<td>2.87</td>
<td>7.14</td>
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Cultivation practice
- Mostly transplanting
- Direct seeding/Broadcasting

Water regime
- Rainfed
- Irrigated/Recession/Supplementary irrigation

Source: MAFF Department of Statistics (2012, 2013)

70-80% of rice land is rainfed lowland, where water environment (drought/flood, where/when/how severe) is always concerned.

Seng Vang et al 2014. “A Policy Dialogue on Rice Futures” 7-9 May 2014, Cambodia (ACIAR forum)
RENEWAL OF CROP CALENDAR MATCHING CC

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<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Growing period (days)</th>
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2. Short duration double cropped rice-rainfed (shows potential window for each cropping activity)

Decision-tree guideline

Assessment of the fluctuating water environ (weather prediction, water avail, GIS etc) is useful for out-/up-scaling

Christian Roth et al 2014. “A Policy Dialogue on Rice Futures” 7-9 May 2014, Cambodia (ACIAR forum)
Adaptation to climate change

1. Climate-ready rice: more tolerant to drought & flood
2. Mechanized dry seeding: more resilient to the delay in WS

Son Bunna et al 2014 (left) & Dule Zhao et al 2014 (right)
“A Policy Dialogue on Rice Futures” 7-9 May 2014, Cambodia (ACIAR forum)
IDEA OF “CLIMATE SMART VILLAGE” IN CCAFS

Climate Change, Agriculture and Food Security (CCAFS):

CGIAR Research Program, linking CGIAR and Future Earth, led by CIAT

CSV: enhancing farmer’s ability to adapt to CC, manage risks & build resilience

Key Interventions in a Climate-Smart Village

Where are the CCAFS’s Climate-Smart Villages in SEA

Vietnam
- Site 1: Ma, Vinh Kien, Yen Bai province
- Site 2: Central region
- Site 3: Mekong River

Laos
- Site 1: Banh Ekxang, Phonghong, Vientiane Province
- Site 2: Banh Pallom, C. Savannakhet Province

Cambodia
- Site 1: Svay Chour, Andek Heb, Battambang province

Courtesy of Dr. Reiner Wassman (IRRI, CC specialist)
1. Climate change will have a bigger impact on rainfed lowlands (than irrigated), through drastic change in water environ (drought/flood/saline water)

2. Good assessment is a basis of good adaptation strategy. Drought/flood/saline/land-use maps are needed for rice technology development (breeding, agronomy)