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Practitioner's and policy-makers exchange on climate change adaptation in agriculture

Cambodia

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*Practitioner's and policy-makers exchange on climate
change adaptation in agriculture*

1. Major crop agricultural industries and production systems

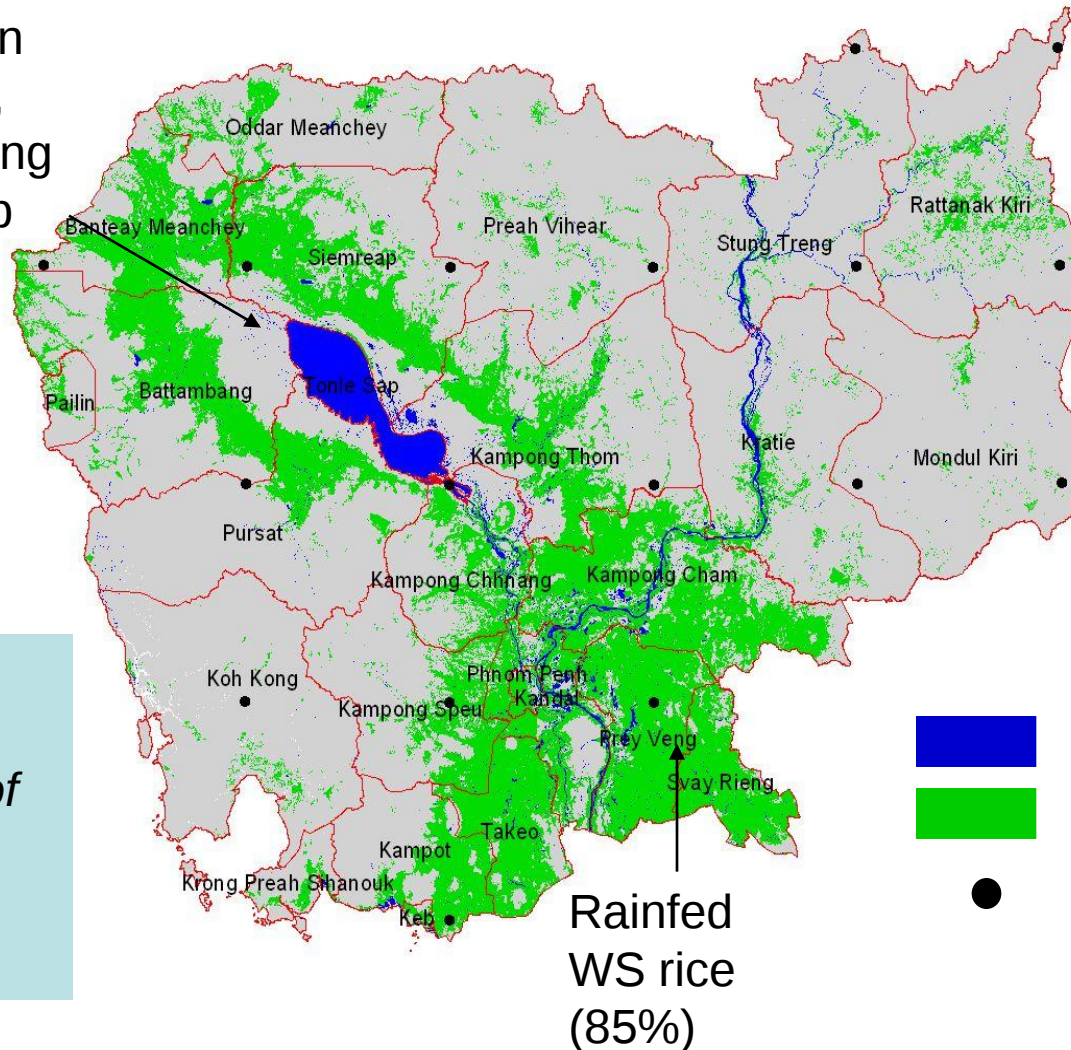
- Agriculture contributes more than 30% of the GDP
 - agricultural crops consists of 63%
 - fisheries, forestry and livestock contributes to the remaining 37%
- 60% of the rural population derive their livelihoods from the agricultural sector
- Agriculture predominantly rain-fed with 7% of the land under irrigation
- Among the agricultural crops, rice is the primary crop covering about 90% of the cropped land
- Rice is cultivated by 80% of farmers, 60% of which are subsistent
- Other main crops include maize, mung beans, cassava and soya beans, which make up

Distribution of agriculture land in Cambodia in 2008

Recession
rice (8%),
surrounding
Tonle Sap

Most of rice field
are non-irrigated
(rainfed system)

*Rice alone
contribute to
about 80% of
total
agriculture
production*



- Lake/Main Rivers
- Agricultural lands
- Grid PRECIS

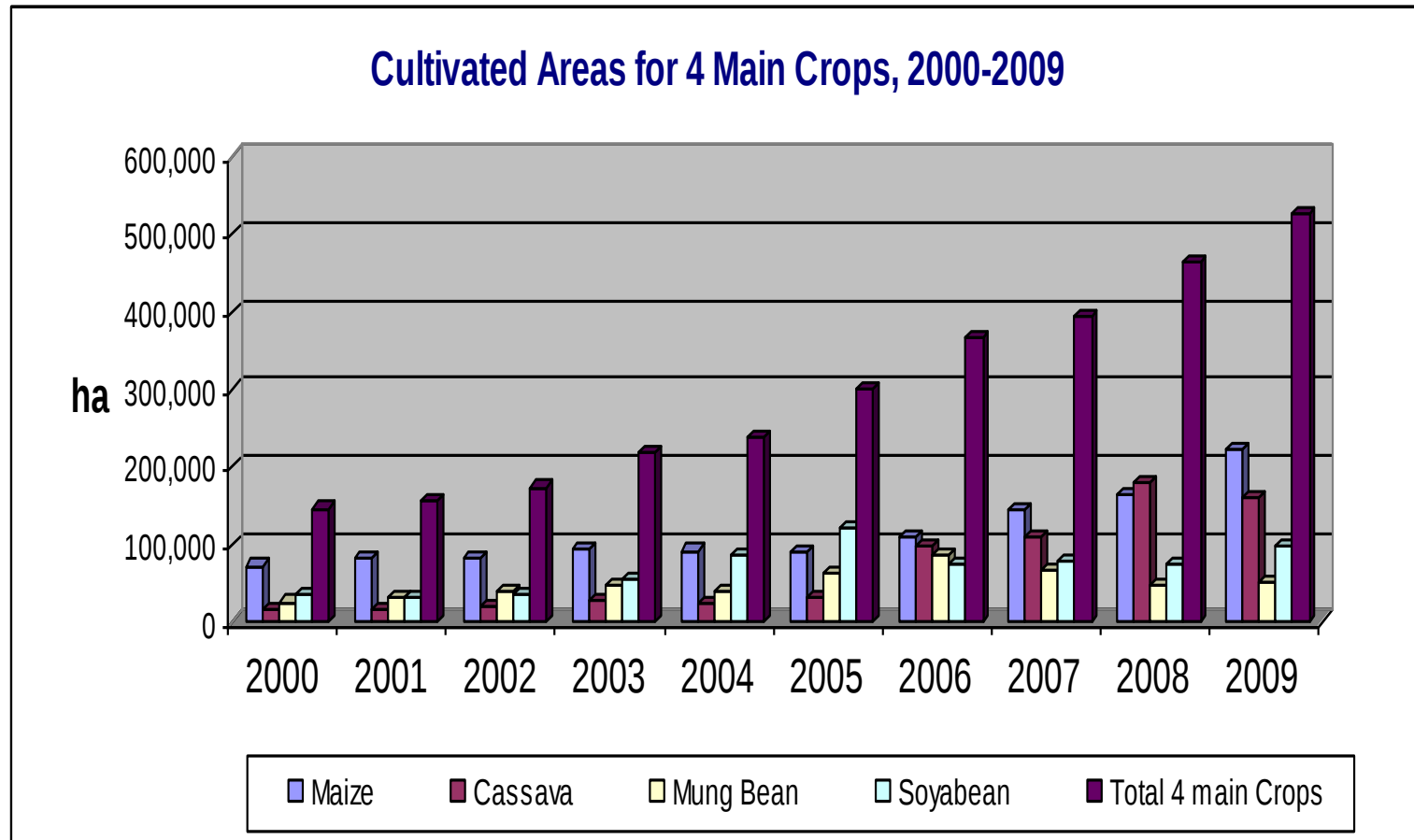
Rice Production from 2005 to 2009

	2005	2006	2007	2008	2009
Cultivated Area (ha)	2,443,530	2,541,433	2,585,905	2,615,741	2,719,080
Harvested Area (ha)	2,414,455	2,516,415	2,566,952	2,613,363	2,674,603
Average Yield (T/ha)	2.48	2.49	2.62	2.75	2.84
Production (T)	5,986,179	6,264,123	6,727,127	7,175,473	7,585,870

By MAFF 2009-2010



1. Major crop agricultural industries and production systems



2. Current and emerging climate-related threats/risks to food security

- Based on data 1960-2000, Cambodian climate (rainfall and temperature) has already change, and the future rainfall pattern will continue to change depending on emission scenarios
- Under high emission scenarios (SRESA2)
 - Dry season rainfalls (DS) DJF and MAM will decrease with high probability and wet season rainfall (WS) JJA and SON may increase but with lower probability than the DS rainfall. This suggests that the onset of rainy season may delay in the future under this emission scenario.
 - DS rainfall DJF will decrease until 2025 and then increase again in 2050 and 2080

2. Current and emerging climate-related threats/risks to food security

- Under low emission scenarios (SRESB1)
 - Similar with SRESA2 DS rainfall will decrease with higher probability.
 - Different with SRESA2, DS rainfall DJF will increase in 2025 and then decrease again in 2050 and 2080
- Change in rainfall pattern will affect many sectors including the agricultural sector.
- Villagers report of an increased frequency on floods, droughts and severe storms which cause substantial damage to rice and other crops

2. Current and emerging climate-related threats/risks to food security

- Variability in crop production in Cambodia is significantly correlated with climate variability
- Therefore dependence on rain-fed agriculture makes this sector extremely vulnerable
- Extreme climatic events such as floods and droughts already causing a great deal of destruction and having an impact on agricultural productivity.
- Floods have been reported as the most single impact on rice production
Based on the past 5 years data (1997-2002), rice production loss occurred mainly due to the occurrence of flood (>70%), drought (~20%) and others such as pest & disease (~10%)

2. Current and emerging climate-related threats/risks to food security

- Ketsana alone destroyed over 67,000 hectares of rice crop and caused a destruction of over US\$56.5 million in agriculture, livestock and fisheries
- Long-term impacts on rice could include increased incidences of pests and diseases, heat intolerance and water salt intolerance
- Expected long-term impact on fisheries, which is central to Cambodian livelihoods and contributes to 9-12 % of the GDP (World Fish Centre)
- Climate change will therefore impact of Cambodia's ability to feed itself and will impact most on the livelihoods of those most dependent on agriculture.

3. Existing risk management and adaptation efforts

Government Initiative with support from Donors

- Various initiatives since 1995 UN Framework Convention on Climate Change (UNFCCC)
- 1st country in the region to complete the National Adaptation Plan of Action (NAPA) (2005), endorsed by government in 2006. 20 priority adaptation projects
- Initial Communication Report to the UNFCCC (2001); 2nd Communication (pending)
- National Climate Change Committee (NCCC) made up of 19 ministries &
- Climate Change Office promoted to Department (MoE)
- Various ministries establishing CC units
- First National CC Forum organized in Phnom Penh.

3. Existing risk management and adaptation efforts

Policy Response

- National Strategic Development Plan calls for NAPA implementation
- The Rectangular Strategy – II (Sept 2008)
 - CC recognized as “major threat to Cambodia’s economy and growth” prospects,
 - Commits to participate in global efforts to tackle CC
- Strategy for Agriculture and Water, National Strategy on Disaster and Preparedness, Strategy for Democratic Development;
- Most donors addressing climate change in their country strategies and interventions

3. Existing risk management and adaptation efforts

Response by Main donors include:

- US\$9 million. Cambodia Climate Change Alliance (CCCA) 2010-2012- UNDP, EU, SIDA, DANIDA
- US\$20 million. Pilot Programme for Climate Resilience (PPCR) – 2010-2012. Multi donor, managed by World Bank & ADB
- Other initiatives by Green Mekong Initiative (Japan), Cool Earth Initiative (Japan), other NGOs

3. Existing risk management and adaptation efforts

Adaptation projects:

- Promoting Climate Change Resilient Water Management and Agriculture Practices in Rural Cambodia by MAFF, supported by UNDP & GEF
- Up-coming Coastal Zone adaptation project implemented by UNEP (CCCA & GEF),
- Community based Adaptation project implemented by SGP (AusAid & GEF)
- Climate change adaptation strategies for farming communities in Cambodia, Bangladesh, Lao and India, implemented by CARDI (CSIRO)
- Initiatives by other donors and NGOs

3. Existing risk management and adaptation efforts

Adaptation Efforts should go towards:

- Creating climate change awareness within farming communities, govt institutions, NGOs etc
- Increasing capacity in the use of climate forecast information in setting up better cropping strategies and agribusiness activity,
- Conservation and management of water catchments, watersheds and forests, conservation agriculture
- Adaptation measures which also contribute to emission reduction such as introduction of technology that increase water use efficiency via System Rice Intensification (SRI),
- More sources of incomes for communities and alternative livelihoods through crop diversification and from mitigation activities (e.g. biogas for cooking and biomass energy in rice mills, composting etc).

3. Existing risk management and adaptation efforts

Adaptation Efforts should go towards: Continue

- Prioritizing structural intervention programs (where and when a particular intervention should be in place to minimize the impact of increasing climate risk such as constructing dam, irrigation facilities),
- Expanding agriculture areas to regions with lower climate risk,
- Creating climate insurance for vulnerable communities,
- Generating more varieties resistant to drought, flood and high salinity, and
- Developing and implementing long term research on climate modeling, mitigation and adaptation technologies.

4. Questions

- How do we practically build the resilience of Cambodian agriculture to the impact of climate change?
- What is being done in the region to address the impact of climate change on agriculture and water resources management?
- What have been the lessons learned so far in these sectors?
- Are there any appropriate technologies that we can use in climate change adaptation within the agricultural sector and water resources management?
- What tools are available that can be used to increase climate change awareness within farming communities?
- How do we access the information on time to remote area ?