2nd Mekong Climate Change Forum

Adaptation to Climate Change in the Transboundary Context

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Siem Reap, Cambodia

Experience of CCAI Demonstration Site Project in Prey Veng Province, Cambodia

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1. Project description

Name of project: ***CCAI Demonstration Site Project in Cambodia. Study on Preliminary Climate Change Adaptation Planning for Implementation in the four districts in Prey Veng Province***

- Location: *Prey Veng Province*
- Duration: *One year and extension for one year*
- Main implementing agency/organization: *CNMC*
- Participating agency/organization: *MoE, MOWRAM, MAFF and Local Authorities*
- Number of team members: 7
- Beneficiaries: *National and Sub-national (local communities)*

2. Background of Project

- Vulnerability and adaptation assessment component as the main one of the SNC has addressed the impact of vulnerability and adaptation (V&A) and identified during the stocktaking exercise outputs of the NAPA.
- Prey Veng province is one of the provinces most vulnerable to floods with records of droughts and floods from 1982 to 2008 clearly indicate that provinces that are vulnerable to floods are equally vulnerable to droughts.
- The demonstration site project is located in the intermediate phase (2009-2010) of the four districts in Prey Veng Province was selected to implement the Preliminary Climate Change Adaptation Planning in Cambodia. This project was started to implement in late 2010 by expected outputs through each activities of the study.

- ***Project design & formulation:*** CNMC and CCD of Ministry of Environment (MoE) has experienced and designed the project by closely involved with local authority.
- Based on prior experiences CCD of MoE in preparing INC, SNC and NAPA in working on sub-national level as such PED, PDA, PDWRAM, community development participatory by commune chiefs and district governor to learn about the details and needs of the real situation, looking for ability to assist the local community.
- They were developed a project idea note, and then prepared full project proposal to MRC secretariat to perform the work with those beneficiaries.
- The Vulnerability and Adaptation Assessment is introduced for conducting baseline assessment by focusing on small group discussions and consultations with stakeholders.
- Designed and selected the site based on criteria development of Peam Ro, Peam Chor, Preah Sdach and Mesang Districts.

3. Goal & objectives

- To assess the impact of extreme climate events on socio-economic condition, climate hazards, to assist and support to local authority and stakeholders in local planning and decision making, supporting methods and tools for adaptation planning to address climate change;
- To conduct vulnerability and adaptation assessment in district level in order to develop action plan for adaptation to climate change for community based practice in integrating local knowledge and their experiences;
- To build capacity and awareness raising on climate change focusing on the vulnerability and adaptation assessment for local authority, provincial departments, districts level and stakeholders. To learn lessons and share experience from demonstration site project of MRC CCAI for the future development in country.

4. Methodology

- Primary and secondary sources: data and information gathering from both review of the publication such as reports, documents, policy, and field survey related to the socio-economic, population, natural resource, biodiversity, environment, climate hazards, CC activities status;
- Impact of extreme climate events and vulnerable index on district/community;
- Climate modeling and downscaling from selection of both emission scenarios by climate data using reanalysis data from PRECIS or MAGICC/SCENGEN program for the province;
- Climatic mapping by surfer program and included GIS in Prey Veng province was developed and used for the vulnerability and adaptation assessment;
- SPSS program/Excel spreadsheet used for analysis from field survey data and information.

5. Key results & highlights

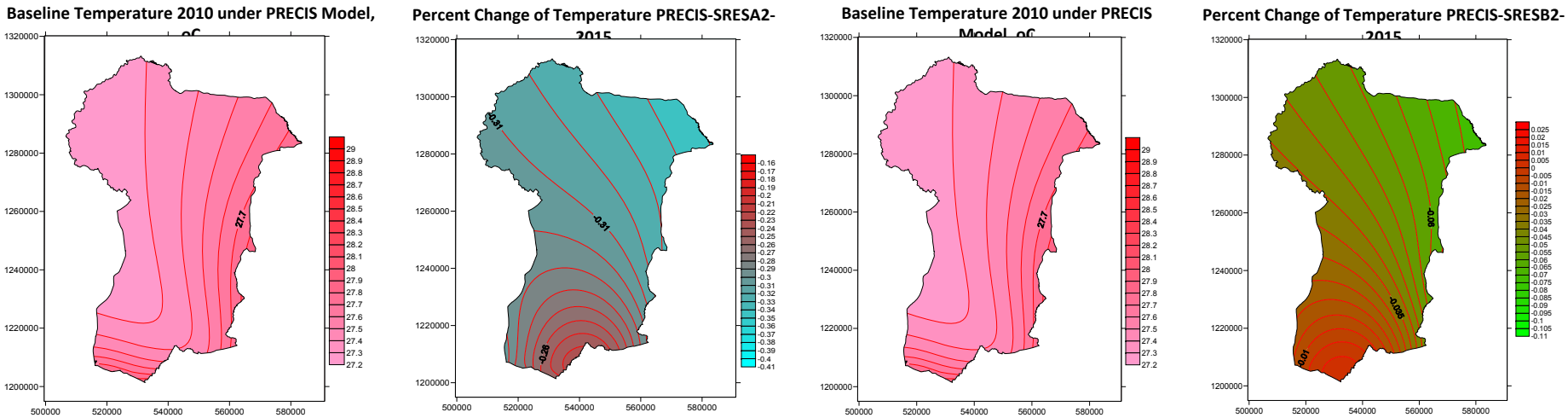
- ***Outcome 1:*** Identifying key problem, baseline and compilation in supporting methods and tools for climate change adaptation assessment
- ***Outcome 2:*** Impact of climate change, and vulnerability and adaptation assessment, and adaptation planning practices for Prey Veng province focusing on the four districts target
- ***Outcome 3:*** Improved capacity building and awareness raising to adapt to climate change for all stakeholders at different level in Prey Veng Province in use of methods and tools for different adaptation planning.

- **The ECHAM4 GCM model of PRECIS suggested that temperature in Prey Veng province would increase due to the increase in CO_2 concentration. However the increase in temperature:**
  - **Under scenario SRESA2** increase to about 0.82°C, 2.50°C and 3.82°C in 2050, 2075 and 2099 respectively.
  - **Under scenario SRESB2** suggested that increase of temperature from the current year temperature and it would be increasing about 0.07°C, 0.83°C, 1.84°C and 2.65°C in 2025, 2050, 2075 and 2099 respectively.
- **The changes in rainfall under the two emissions scenarios is deferent from those estimated by ECHAM4 GCM:**
  - **Using SRESA2**, annual rainfall from 1,400 to 1,850 mm of Prey Veng province, increase in rainfall is between 0.8 and 2.4% while in central part of province is about 1.4% in 2050, In changing rainfall in 2099 would be increased between 0 and 1.4% in 2099 from North to South of province.
  - **Using SRESB2** annual rainfall will increase from central part to North about 1.5% in 2015 and decreasing between 1.2 and 3.5% while in central part of province is about 2.5% in 2050, and still decreasing about 0.8% in South part of province in 2099.

5.1 Climate Map Development

5.1.1 Climate Map of Temperature

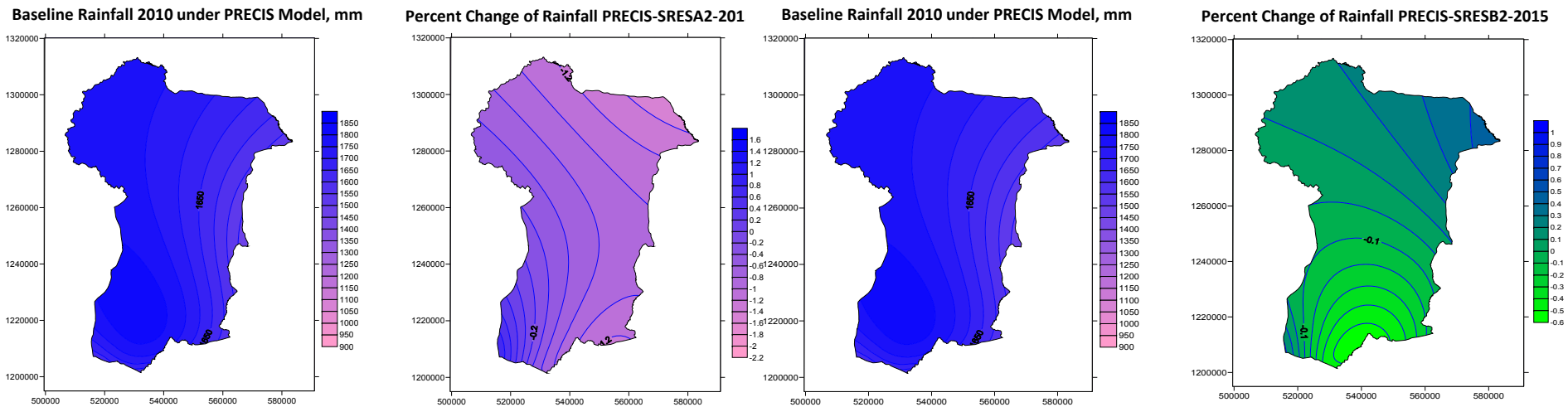
- Mean Annual Temperature at Current Conditions (Mean of 1985-2010), and Degree Change of Mean Annual Temperature for 2015, 2025, 2050, 2075 and 2099 Using PRECIS, ECHAM4 GCM Model and Emission Scenario of SRESA2 and SRESB2.



5.1.2. Climate Map of Rainfall

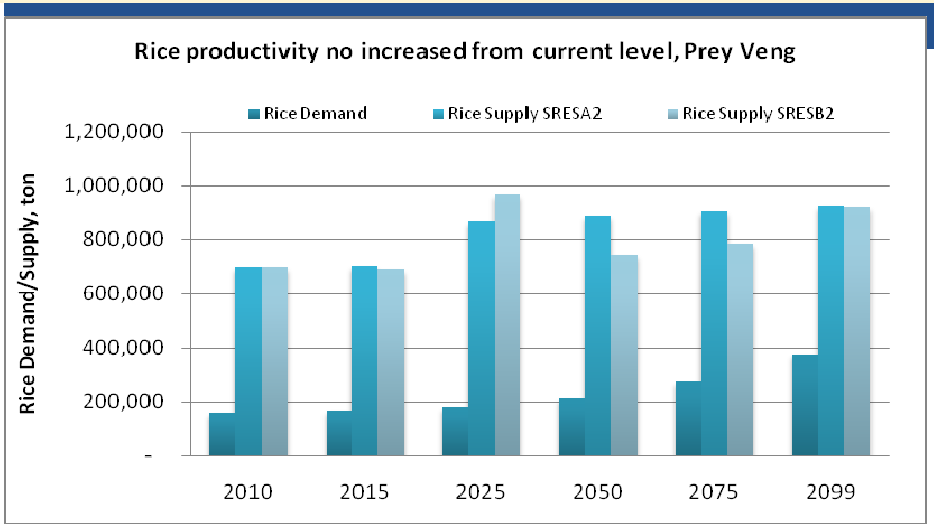
- Mean Annual Rainfall at Current Conditions (Mean of 1985-2010), and

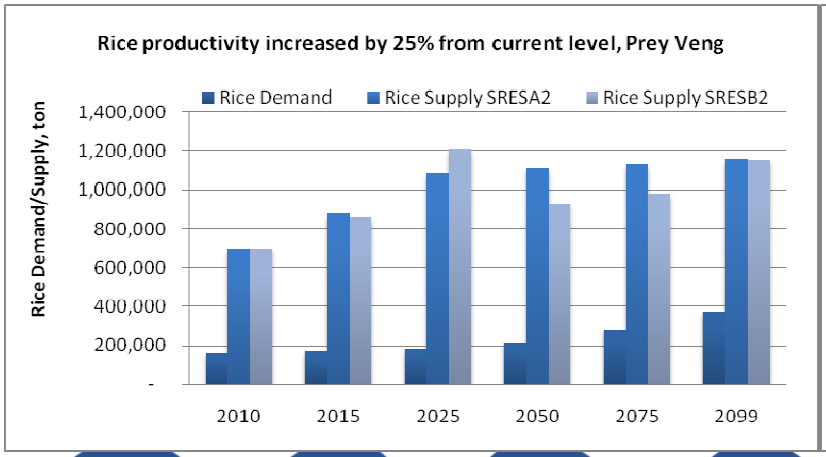
Degree Change of Mean Annual Rainfall for 2015, 2025, 2050, 2075 and 2099 Using PRECIS, ECHAM4 GCM Model and Emission Scenario of SRESA2 and SRESB2

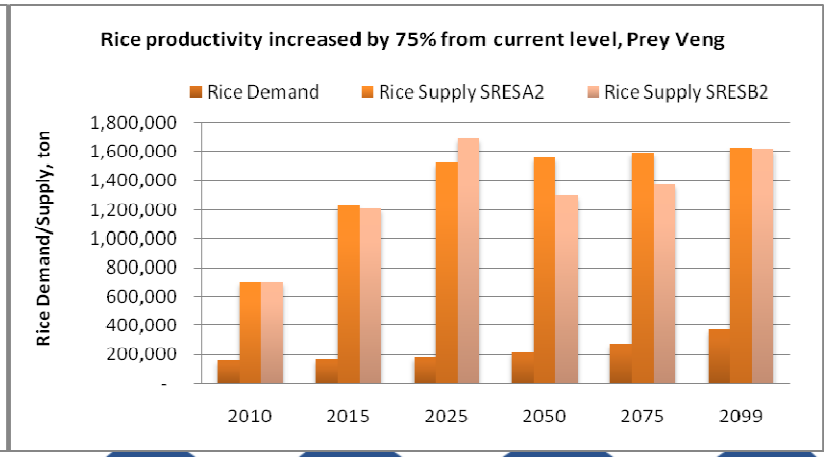


5.2 Impact of Climate Change on Rice Production in PV

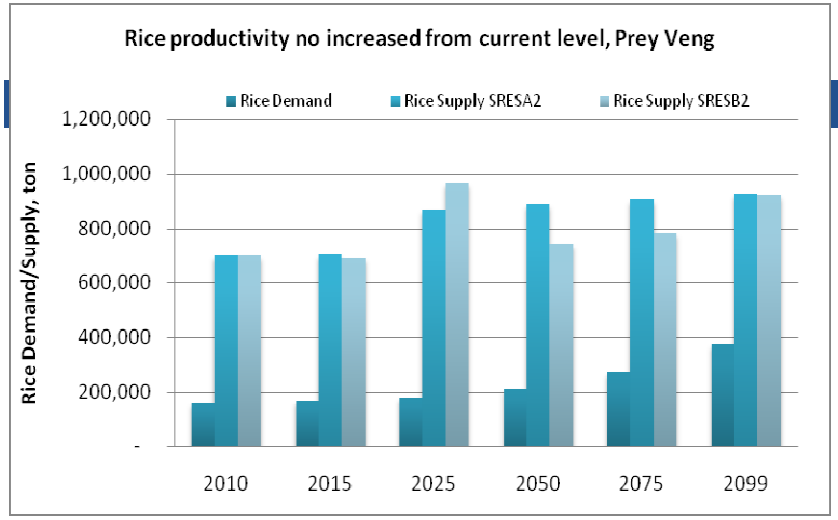
Rice demand and supply projection in Prey Veng province by increased productivity under two emission scenarios

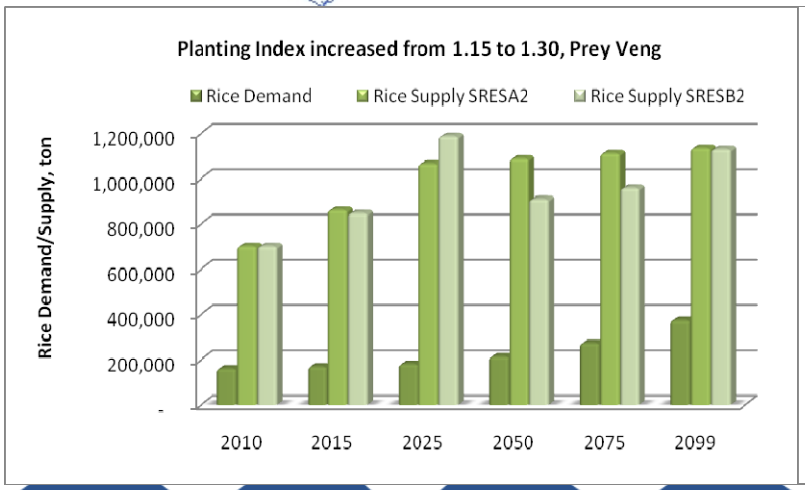


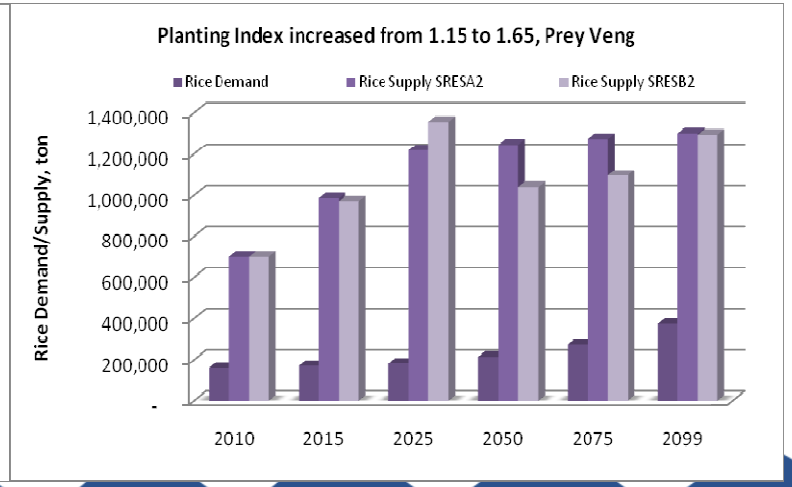




Rice demand and supply projection in Prey Veng province by increased planting index under two emission scenarios







5.3. Adaptation Options

- ***For short term and medium term programs:***

(i) Improvement and development of new high yielding varieties;

(ii) Improvement of crop management and traditional practices;

(iii) Development of capacity to adapt to current extreme climate such as development of early warning system to extreme climate, development maps showing the provinces of rice growing areas prone to flood and drought;

(iv) Introduction of technology that increase water use efficiency for agricultural activities;

(v) Development of irrigation system in many parts of low land areas; and

(vi) Increasing planting index in suitable areas in province.

For long term, the important activities:

(i) institutionalizing the use of climate information in agriculture management and development

(ii) prioritizing structural intervention programs be in place to minimize the impact of increasing climate risk such as constructing dam, irrigation system, and

(iii) developing and implementing long term research on climate modeling and adaptation technologies.

5.4 Pond Restoration under CCAI Demonstration Project in PV (2013)

6. Conclusions of the project

- The CCAI demonstration site project was structured as an information exchange between the key stakeholders and the scientific national project team
- Increasing the capacity of stakeholders to understand CC, climate hazard, climate modeling for agriculture on rice production relationships
- Stakeholder engagement and capacity building plan
- Impact of climate change on agriculture sector in rice production, Prey Veng province
- Impact of extreme climate events
- Past and future climate change in Prey Veng province
- Gender mainstreaming into climate change adaptation as role of gender during conducting vulnerability and adaptation assessment.
- CC Adaptation Planning Initiative at sub-national level to fulfill their program goals and carry out the project implementation as demonstration site in Prey Veng province as a model and rescaling up to other more vulnerable provinces dependent on the NAPA document.

7. Lessons Learned and Recommendations

- **Technical aspects**
  - Adaptation planning, vulnerability assessment,
  - Capacity building
  - Mainstreaming adaptation planning to local agenda, sub national
  - Impact assessment on rice production
  - Climate modeling (PRECIS and GCM models)
  - Climate mapping development
- **Implementation aspects**
  - Team set up (not enough team members)
  - Coordination, cooperation and share information and data
  - (national, sub national and local level)
  - Stakeholder engagement (gender mainstreaming and roles of gender)
- **Lessons from the report** (CC models and base line, methods and tools for data collection and impact assessment …), learned from other projects/programs within the country and outside the country; exchange field visits; pond rehabilitation

7. Lessons Learned and Recommendations

- More study on climate change adaptation, impact and it climate modeling.
- Technical and financial supports for implementation and timeframe.
- Further studies for water resource sector and more details verification are therefore recommended for future and more factors that contribute to variability of yield under changing climate.
- Exchange experiences from adaptation projects in country and CCAI demonstration site of member countries
- Cambodia (e.g., agricultural sector) has already integrated CC into sub national development plan
- Logical Framework for M&E is needed for the 2nd batch.

8. Way forward to replication, up scaling and mainstreaming

- Experience & lessons learned from 1st batch to 2nd batch
- Rehabilitation of pond
- Up scaling of time and location e.g., from PV to BTB
- Gender (sub national)
- Mainstreaming into development plan at sub-national and local levels
- CC adaptation plan initiatives
- Trainings and awareness raising and development of extension materials, and
- Actions/Assistance from CCAI.

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Thank you

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