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Event partners:



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

Thailand:
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1. Major crop agricultural industries and production systems

- Traditionally an agrarian economy with rice as its main product.
- Agribusiness, both privately and government-owned, expanded from the 1960s.
- Intensive integrated production systems of subsistence farming continue, and have led to increased recognition of social, cultural and environmental values.
- 20.4 million hectares of farm land, with about 10 million hectares under rice cultivation.
- Agricultural sector has consistently employed about 50 percent of Thailand's 30 million-strong work-force.
- Thailand leads the world in exporting rice, rubber, canned pineapple and black tiger prawns.
- Thailand is likely to remain one of the world's major agricultural countries in social, environmental and economic terms.

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

- In 2003, SEA START RC initialized climate change scenarios using the Conformal Cubic Atmospheric Model (CCAM) at the Southeast Asia regional level.
- Investigated the impact of climate change on hydrological conditions and rain-fed agriculture in the Lower Mekong Basin.
- Future climate scenarios were developed for increasing atmospheric CO₂ concentrations – 360, 540 and 720 ppm.
- Region slightly colder with CO₂ concentrations of 540 ppm, slightly warmer with CO₂ concentrations of 720 ppm.
- Hot period of the year will be longer, cold period significantly shorter.
- The length of the rainy season will remain the same, but with higher rainfall intensity.
- This is to some extent already happening.

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

- Agriculture in Thailand is heavily dependent on climatic conditions – only around one fifth of the entire area under cultivation is irrigated.
- Results of studies, based on climate data from four General Circulation models, suggest similar declining trends in rice and maize yields over time.
- Severity of impacts varies depending on climate conditions, soil types and crop practice.
- Maize yields – 5 percent decrease in Nakhon Sawan province, 44 percent decrease in Nakhon Ratchasima province.
- Rice yields – 57 percent decrease in Roi-et province, 25 percent increase in Surin province.
- Reduced flowering and harvesting periods as well as crop yields in general.
- Indirect impacts such as the spread of diseases and insect infestations – Asian rice gall midge move from 500 to 1,000 meters above sea level.

3. Existing risk management and adaptation efforts

Government Sector:

- Institutional Framework:
 - In 2004, ONEP became the national climate change focal point.
 - In 2007, the National Board on Climate Change Policy and the Climate Change Coordinating Unit were established under ONEP.
 - Greenhouse Gas Management Organization established under MoNRE, acts as Designated National Authority (DNA) for Clean Development Mechanism (CDM) projects.
- Policy Framework:
 - Strategic Plan on Climate Change 2008-2012, first comprehensive response, approved by the Cabinet on 22 January 2008.
 - ONEP commissioned Chiang Mai University's Public Policy Research Institute to develop Thailand's National Master Plan on Climate Change 2010-2019.
 - Draft master plan completed in November 2009, public consultations already conducted in the North, Northeast and Southern regions, one public consultation remaining in the Central region.

3. Existing risk management and adaptation efforts

Government Sector:

- Core Strategy 1: Create adaptive capacities to be able to respond and reduce the impacts of climate change.
 - Preparedness, monitoring, pilot projects, rehabilitation.
- Core Strategy 2: Support reductions in the emission of greenhouse gases and increase carbon sinks upon a foundation of sustainable development.
 - Fuel, electricity and transport efficiency, low-carbon cities and services, industrial efficiency, agriculture and forestry to reduce emission and increase absorption.
- Core Strategy 3: Integration of climate change management.
 - Knowledge management, databases and tools, management preparedness and multilateral participation, Thailand's preparedness for international negotiations.

3. Existing risk management and adaptation efforts

Government Sector:

- Proposed Projects:
 - Climate Change and Food Security Research
 - Map Areas Lacking Sufficient Plant Nutrients Within Key Cultivation Zones
 - Efficient Water Use for Rice and Perennials Research
 - Improve Rice, Sugarcane and Cassava Varieties with Farmer Participation
 - Monitor the Spread of Diseases, Insects and Weeds
 - Reduce Capital Costs for Bio-energy and Bio-mass Energy
 - Reduce Nitrous Oxide Gases from Nitrogen Fertilizer in Key Export Crops
 - Promote Low-carbon Agriculture Alternatives for Farmers
 - Greenhouse Gas Emissions from Raising Livestock Research
 - Provide Credit to Farmers in Order to Adapt
 - Integrate Government Agencies Related to Agriculture, Livestock and Fishery Under Frameworks for International Cooperation

3. Existing risk management and adaptation efforts

Non-governmental Organizations:

- Local, Thai non-governmental organizations have tended to focus primarily on issues of equity and rights, such as trading of carbon credits.
- Local, Thai non-governmental organizations focusing on climate change adaptation are few, those carrying out climate change adaptation projects in the agricultural sector are very few.

3. Existing risk management and adaptation efforts

Non-governmental Organizations:

- Thai Working Group for Climate Justice (TCJ):
 - Currently conducting a detailed review of Thailand's National Master Plan on Climate Change 2010-2019, coordinating with ONEP to ensure effective and representative public participation.
- Sustainable Agriculture Foundation (Thailand):
 - Has conducted a detailed literature review covering the potential impacts on the agricultural sector, and principles and models for climate change adaptation in the agricultural sector.
- Earth Net Foundation and Green Net Coop:
 - Has conducted a six month project in Chiang Mai and Yasothon provinces to gather the thoughts and opinions of farmers regarding possible approaches for preparing to adapt and respond to climate change. Currently applying similar working methods and processes in working with communities in some of the foundation's other project sites.

3. Existing risk management and adaptation efforts

Academic Institutions and Research Centers:

- Quicker to focus their attention on climate change and its impacts than local, Thai non-governmental organizations.
- A considerable amount of research has been carried out:
 - Developing models to predict how Thailand's weather will change under the influence of global warming.
 - What impact such changes are likely to have upon the production of economically important crops, such as rice, sugarcane and cassava.
- However, studies specifically focused on climate change adaptation are much less common.

3. Existing risk management and adaptation efforts

Academic Institutions and Research Centers:

- Khon Kaen University:
 - Dr. Vichiar Kerdsuk, Research and Development Center.
 - Research project began in December 2008 and will run until December 2010.
 - ‘A Study into Risks, Vulnerabilities and Adaptation Approaches in Agricultural Systems and Agricultural Societies in the Context of Potential Climate Change Impacts: A Case Study of Field and Paddy Crop Agricultural Systems in the Chee-Moon Basin Area’.
- Southeast Asia START Regional Center (SEA START RC):
 - Pivotal role in addressing climate change and climate change adaptation.
 - Has been working together with both the government sector and non-governmental organizations.
 - ‘Economic Evaluation of Response Options to Sea Level Rise and Sea Level Extremes for a Coastal Agriculture Community’, Krabi province.
 - ‘Synergies Between Ecosystems and Community Livelihoods: Climate Change Adaptation in the Context of Sustainable Development’, Kalasin province.

4. Case Study – Tha-chin River Basin Sustainable Development Project

Overview:

- Many past projects and initiatives have focused on promoting better management of natural resources and improved energy security.
- Their outputs and outcomes effectively constitute progress towards climate change mitigation and climate change adaptation strategies.
- Collaborative project implemented jointly by MoNRE and UNDP.
- The Tha-chin River Basin supports the livelihoods of communities from four different provinces.
- But environmental quality had been deteriorating for some time, especially water quality in the Tha-chin River itself.
- Wastewater discharged from human settlements, agriculture and industry.

4. Case Study – Tha-chin River Basin Sustainable Development Project

Project Objectives:

- To develop a set of evidence based indicators for sustainable development.
- To build the capacity and strengthen the operation of relevant local actors from a variety of sectors, in order to support the integration of sustainable development into different routine activities.
- To encourage decision-makers and policy-makers in the river basin to recognize the importance of and give priority to sustainable development approaches.
- To raise public awareness and interest regarding sustainable development approaches, and to promote understanding regarding the importance of the evidence based indicators.

4. Case Study – Tha-chin River Basin Sustainable Development Project

Activities and Outcomes:

- Evidence based indicators for sustainable development – covering organic agriculture, renewable energy, clean technology, green services and public procurement.
- Improved capacity and operation amongst relevant local actors – including organic agriculture learning centers, integrated organic agriculture demonstration plots, a technology transfer center and an initiative to promote the use of renewable energy in swine farms.
- Linkages established between policy frameworks and concrete practice.
- Social marketing initiative to disseminate knowledge and good practice, and to stimulate market demand for organic and green agricultural produce.