Annual Report 2014-2015
RCE Greater Phnom Penh

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1. RCE-GPP General Information

RCE Greater Phnom Penh (RCE-GPP) was established and acknowledged by United Nation University-Institute of Advanced Study (UNU-IAS) in December 26, 2009. It builds public awareness on the importance of creating harmony between agricultural development and natural environment conservation. The stakeholders are Royal University of Agriculture (RUA) and Institute of Environmental Rehabilitation and Conservation, Cambodia Branch (ERECON CaM), which work as coordinators of RCE-GPP in the Secretariat Committee; Ministry of Agriculture, Forestry and Fisheries (MAFF); Ministry of Rural Development (MRD); Ministry of Education, Youth and Sports (MoEYS); Ministry of Environment (MoE); elementary schools, local communities and private sector partners in target areas. In addition, Tokyo University of Agriculture (TUA), Institute of Environmental Rehabilitation and Conservation (ERECON) and Association of Environmental and Rural Development (AERD) also contribute as an external advisory panel of RCE-GPP. The activities of RCE-GPP has been focusing on promoting "Education for Sustainable Development (ESD)" in Greater Phnom Penh, especially regarding "Food, Agriculture and Environment Education". In Cambodia, attention has been paid to "Education for Sustainable Development (ESD)" in the agricultural sector for achieving food safety, as well as environmental conservation. Especially, local farmers and students in the elementary schools who would become farmers in the future have been being focused on.

Although there are some factors constituting sustainable rural development for economic growth and environmental conservation, "Food, Agriculture and Environment Education" has been mainly focused on in the area of Greater Phnom Penh. In the concept of ESD, RCE-GPP and ERECON have been collaborating on the projects entitled: "Promoting ESD through Food, Agriculture and Environment Education in Elementary Schools and Rural Communities in Cambodia", "Building Capacity of Institutions to Help Farmers Better Adapt to Climate Change and Variability in Cambodia" and "Safe Vegetable Production in Cambodia and Vietnam: Developing the HARE-Network to Enhance Farmer Income, Health, and Local Environment".

2. RCE-GPP Project Report 2014-2015

From April 2013 to October 2015, 2 more projects from various stakeholders have been being added into RCE-GPP and the contents of the activities were related to the concept of ESD. Therefore, the three collaborative projects are "Promoting ESD through Food Agriculture and Environment Education for Elementary Schools and Rural Communities in Cambodia", "Building Capacity of Institutions to Help Farmers Better Adapt to Climate Change and Variability in Cambodia" and "Safe Vegetable Production in Cambodia and Vietnam: Developing the HARE-Network to Enhance Farmer Income, Health, and Local Environment".

2.1) Promoting ESD through Food, Agriculture and Environment Education in Elementary Schools and Rural Communities in Cambodia

In the collaborative project entitled "Promoting ESD through Food, Agriculture and Environment Education in Elementary Schools and Rural Communities in Cambodia", the activities focused on *'Forming farmers' groups and promoting organic farming based on natural resource circulation'*, *'Promoting the distribution and sales of products with low chemical input'* and *'Promoting food, agriculture and environment education for agricultural successors'* under the collaboration of government, university, local NGOs and local communities. However, 'Food, Agriculture and Environment Education' has been implemented not only in elementary schools but also in rural communities.

The achievements until October 2015 are as following:

- Some compost boxes are being repaired and school organic gardens were already established at 10 elementary schools in Kampong Cham province under the supports of farmers' group and school teachers.
- Farmers' group was formed to implement and promote sustainable agriculture through natural resource circulation.
- The meeting on discussing vegetable production and marketing strategy was held in order to consult the relevant problems for solutions in farms to support and encourage local farmers to produce vegetable with low chemical input.
- Technical trainings on sustainable agriculture based on natural resource circulation with low chemical input were conducted in Cambodia, Thailand and Japan.
- Sustainable agriculture based on natural resource circulation with low chemical input was promoted to local farmers as non-member of the group through workshop and model farms.
- Pellet compost center was established and the regulations of center management were compiled.
- The shop of Samroung Safe Agricultural Product (SSAP) was built as well as the shop's managing regulation and market channel systems have also been being formed. Apparently, farmers at the target area in Samroung commune, Kampong Cham province are producing organic vegetable and crops to sell on the market.

4th year Project evaluation 2015

Evaluators visited Project area during 4th year Project evaluation 2015

School gardens

Promoting ESD for Elementary school students

Meeting with SSAP shop's members

Selling vegetable with low chemical inputs at SSAP shop

2.2) Building Capacity of Institutions to Help Farmers Better Adapt to Climate Change and Variability in Cambodia

The project of "Building Capacity of Institutions to Help Farmers Better Adapt to Climate Change and Variability in Cambodia" is hereinafter called 'BUILD-FARM-ADAPT' funded by Cambodia Climate Change Alliance Trust Fund (CCCA-TF). The project has been implemented by Royal University of Agriculture (RUA) in collaboration with Chea Sim University of Kamchaymear (CSUK) and Queensland University (Australia) in three districts (Pea Riang, Ba Phnom and Kamchaymear) of Prey Veng Provinces. The target groups are 'farming communities' living in vulnerable area and Provincial Departments of Agriculture (PDAs). The objective of the project was an initiative to help vulnerable farming communities in potential disaster-prone areas resolve and alleviate climate-based agricultural production problems in a sustainable manner. New farming technologies—potential technology improvements for more sustainable agricultural production—were introduced to the target areas of the project for assessment by researchers and farmers.

The six most important achievements are:

1). A total of 100 on-farm field demonstrations were established throughout the project target area to assess the introduced technologies for improved adaptation to climate change and climate variability.

2). Through a combination of farmer exchange visits and community meetings in the target areas, the knowledge and awareness of the improved adaptation technologies were shared with more than 1,000 households; secondary level awareness (through farmer-to-farmer exchange) would be much greater than this.

3). To provide an understanding of the relationships between weather conditions and technology impact/agricultural productivity, a total of 26 families in the target communities were engaged in the collection of climatic data during the period of the project, 23 families recording rainfall data, and 3 families maintaining full sub-weather stations (where rainfall and temperature conditions were recorded).

4). 180 students from various universities and institutes and some staff from ministries and other institutions, etc. were invited to join the Seminar on "*Climate Change: Challenge and Opportunities from Academic and Pragmatic Perspective*" held on 16-19 September, 2015. The seminar was designed to integrate the project output and other available knowledge and expertise to provide broader perspective about climate change and adaption to a wider range of students, researchers, and officers. Various presenters were invited to present their working outputs what they have done relating to climate change. The objectives of the seminar was to provide theoretical and practical knowledge on climate change mitigation and adaptation, food, water and energy nexus both from international and local experts, practitioners and policy-makers; and to learn from the mitigation and adaptation practices in rural Cambodia. All participants, especially students went to visit the project sites and conducted the questionnaires with the local communities related to climate change, adaptation and mitigation, and then after the field visit, they gave their reflection what they had leant and known from the field observation in the seminar. All participants were satisfied and gained more knowledge and experiences from the seminar.

5). Documents published by the project included: *(1) Review of Climate Modeling and Climate Change Adaptation in Cambodia, 2012 (English Version)*; *(2) Impact of Climate Change Variability and Adaptation on Agricultural Sector in Prey Veng Province, 2012 (English Version)*; *(3) Impact of Climate Change Variability and Adaptation on Agricultural Sector in Prey Veng Province, 2012 (Khmer Version); (4) Farmer Perceptions and Cost-Benefit Analysis of Field Based Demonstration Technologies for Disaster and Climate Change Adaptation, Prey Veng Province, 2013 (English Version)*; and *(5) Sub-Weather Analysis of Ba Phnom, Kamchaymear and Pea Riang Districts, Preng Veng Province, 2013 (English Version)*.

6). Seven additional topics covered by the project included: *(1) Tools and procedures for extension worker (PRA, RRA and participatory diagnosis)*; *(2) Basic utilization of GPS and GIS*; *(3) Forage crop establishment and management for small farm households (feed utilization and cattle fattening techniques)*; *(4) Potential of drip irrigation and vegetable production for small farm households*; *(5) Theory of climate change variability and its impact (greenhouse gas emission, crops and livestock*

production, etc.); *(6) Theory of adjustment principles of primary systems to adapt to climate change*; *7) Training in the joint utilization of cassava as an animal feed as well as cash crop (training provided to project assistants and extension workers).*

Field visit at the project sites

Interviewing community leaders on the Climate Change Adaptation

Student's Group discussion to share their reflection from field visit

Participants joining seminar on Climate Change

2.3) Safe Vegetable in Cambodia and Vietnam: Developing the HARE-Network to Enhance Farmer Income, Health and Local Environment

Royal University of Agriculture (RUA) has cooperated with University of California Davis to implement the project entitled "Safe Vegetable Production in Cambodia and Vietnam: Developing the HARE-Network to Enhance Farmer Income, Health and Local Environment" in Svay Proteal Commune, Saang District, Kandal Province, Cambodia. The goal is to empower small farmers with integrated experiential education and training for sustainable vegetable production that limits postharvest losses and increases food safety, market access and especially income. The outcomes from project implementation are as follows:

- Relationship and Capacity Building of Cambodian academics to carry out safe vegetable production research and demonstration projects were developed.
- Sustainable cost-effective systems that stabilize yields enhance the local environment, promote farmers and consumer health and satisfy market demands.
- Farmers' post-harvest skills to get high-quality vegetables to market were improved.

- Micro-finance/micro-enterprise strategy for women through Joint Lending Groups (JLG) was implemented to support agriculture input.
- Education/Marketing team and private company HARPO-safe vegetable marketing in order to sustain products were collaborated.
- Capacity-Building was implemented with universities students and government officials.
- Effect of different vegetable cultural practices on weed, soil physical and chemical properties, post-harvest quality, and economics.

Moreover, project had been further expanded its training on 25-26 September 2015 to promote safe vegetable in four villages which there were 114 farmers (61 female) in Battambong province. The purpose of this training is to disseminate and promote the research result that has been done in RUA and from the countries partners in project. The main objectives are as follow:

- Introduce the vegetable postharvest handling techniques such as harvesting methods, time of harvesting, harvesting tool and field handling.
- Provide the knowledge of packaging and packinghouse operation (sorting, grading, cooling and storage techniques)
- Introduce the net house technology which is success case in Kandal province by the vegetable farmer to grow without using chemical pesticide
- Introduce the saving group using saving for change model of Oxfam.
- The training methodology is lecturing, demonstration and hand on activities.

Introducing about saving group and nethouse

Demonstrating and handing on precooling, grading and packaging activities

3. Conclusion

For raising awareness on ESD, promoting on “Food, Agriculture and Environment Education” is being conducted at the elementary schools and local communities in Samroung commune, Kampong Cham province. Also, the capacity building on ESD has been implemented to the local farmers. For building local farmers’ confidence, excursion to other farms for more sustainable agricultural experience or sustainable farming practices

in Thailand or Cambodia provided farmers with more ideas to improve their practices. It was effective to deepen perception for local farmers.

The activities of RCE Greater Phnom Penh are in line with the global aspiration of sustainable production and consumption embracing the pillars of sustainability-economic, environmental and social. Therefore, ESD is the most important key word of sustainable development not only for economic benefit, but also environment development. We believe the mainstream of RCE-GPP will contribute to social development. Through the activities, ESD is introduced in schools and the school curriculum integrates sustainable farming and ESD. Accordingly, the activities of RCE Greater Phnom Penh are contributing to green growth, sustainable production, and sustainable consumption, to achieve global sustainable development.

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