

RCE Greater Phnom Penh: Promoting ESD through Food, Agriculture and Environment Education in Elementary Schools and Rural Communities

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RCE Greater Phnom Penh

Agriculture is one of the important sectors of the Cambodian national economy, with more than 70 percent of the population engaged in the agricultural sector (MAFF, 2009). Phnom Penh is the capital of Cambodia and has more than 1.3 million inhabitants. Rapid development of agricultural technologies, dependant on chemicals such as synthetic fertilizers, herbicides or pesticides, has significantly increased agricultural production since the late 1990s. However, the overuse of agricultural chemicals is damaging long term soil fertility and the productivity of farmlands. Agricultural chemicals released from farmlands downstream are also degrading water quality. This means that intensive farming practices dependant on agricultural chemicals are causing various problems for the natural environment and human health. In response, attention has been paid to education for sustainable development (ESD) in the agricultural sector for achieving food safety, as well as for environmental conservation in Cambodia.

RCE Greater Phnom Penh (RCE GPP) was established in December 2009 to promote ESD in Cambodia. It builds public awareness around the importance of creating harmony between agricultural development and natural environment conservation. The stakeholder organisations are: Royal University of Agriculture (RUA) and Institute of Environment Rehabilitation and Conservation, Cambodia Branch (ERECON CaM), which work as coordinators of RCE Greater Phnom Penh 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), the Institute of Environment Rehabilitation and Conservation (ERECON), and the Association of Environmental and Rural Development (AERD) sit on an external advisory panel of RCE GPP.

RCE GPP and ERECON have been collaborating on a project entitled "Promoting ESD through Food, Agriculture and Environment Education in Elementary Schools and Rural Communities in Cambodia", which will be described in detail throughout this chapter.

Background

Phnom Penh, the capital of Cambodia is the economic, industrial, commercial, cultural, tourist and historical centre of the country. The number of people living in the capital has been steadily increasing, from 1.28 million in 2004 to 2.1 million in 2010. The average annual growth is at 16.37 percent. The rapid increase in population causes many problems related to the environment, life quality, education and health, among others. Although education is the key to developing human resources to help resolve those problems, improving the education system in Cambodia is difficult, due to a lack of teachers, school facilities and financial resources. The net admission ratio for elementary school is 93.3 percent. However, the net enrollment ratio for lower secondary school is 34.8 percent and for higher secondary school only 14.8 percent (MoEYS 2007, 2008). Female students from rural areas or students from lower income families are all grossly underrepresented in education statistics. The majority of students who don't continue onto secondary school often start working in the agricultural sector. In the area of Greater Phnom Penh, the provinces of Kampong Cham, Kampong Chhnang, Kampong Speu, Kandal, Pray Veng and Takeo have education systems that are very insufficient when compared to the system in Phnom Penh. In these rural areas, poverty is a barrier for children to continue their study at elementary or secondary schools as farmers often ask their children to stay at home to work the land.

Despite the challenges inherent in improving the education system, the regional environmental challenges related to the use of agricultural chemicals, chemical fertilizers, herbicides and pesticides have helped to draw attention to the transformative potential of ESD and sustainable farming practices in rural development. In the area of Greater Phnom Penh, food, agriculture and environment education was the main focus of the collaborative project. The project would not just target elementary schools but also rural communities. Activities were 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. All of these activities were undertaken in collaboration with



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government, universities, local NGOs and the local community.

Planning and Implementation Elementary Schools

As education is the key for developing human resources and skills, the Cambodian government and many international and non-governmental organisations try to provide better education in the country. However, more time and support is needed to achieve the same level of education as other Asian countries. In Greater Phnom Penh, schools outside the city lack buildings, desks, chairs, books and materials for studying. Many families in rural areas are poor and their children are spending less time in the classroom than their higher income counterparts, as they have to work in the fields or seek additional jobs elsewhere. In some schools, the teachers – who are grossly underpaid – charge their students unofficial fees.

In collaboration with government, universities, local NGOs and the local community, the project partners began promoting food, agriculture and environment education in 16 primary schools in Phnom Penh and Kampong Cham as a pilot. The types of education implemented included: establishing school gardens; composting; holding seminars on sustainable development in agriculture through composting and organic farming; and conducting surveys to evaluate perceptions around organic agriculture and environmental conservation for sustainable development at elementary schools. In addition to its focus on students, it was suggested that education or training for teachers in this regard should also be strengthened.

Local Farmers

These days, traditional agricultural systems have been replaced by mono-culture systems that are heavily dependent on agricultural chemicals. To promote and enhance the understanding of sustainable development in agriculture among local people, including farmers, the project partners focused specifically on local farmers' acceptance of sustainable farming practices. Activities included: promoting sustainable farming practices by demonstrating how to make compost, pellet compost, liquid fertilizer and bio-pesticides; leadership training; and workshops to enhance understanding of sustainable

development in agriculture. Regular surveys were also conducted to help evaluate the acceptance levels of sustainable farming practices by local farmers throughout the project.

Outcomes and Evaluation Elementary Schools

Education on food, agriculture and environment was enhanced through the collaborative efforts of the government, universities, local NGOs, the local community and elementary schools in Phnom Penh and Kampong Cham. In elementary schools specifically, the following activities were conducted: leadership training; establishment of school gardens as well as compost boxes; and holding seminars to deepen the perception of sustainable development in agriculture through composting and organic farming. Questionnaire surveys were conducted to evaluate the perception of organic agriculture and environment conservation for sustainable development at elementary schools. The project successfully increased teachers' motivation and understanding more than 75 percent from the beginning of the project. Student understanding also increased. To sustain or increase teachers' and students' motivation and understanding, offering knowledge, practices, materials and equipment are very important.

The results of an evaluation done by external evaluators of the project are summarized in Table 1. As teachers, in particular, and students in elementary schools integrate sustainable agriculture in school curriculum, high sustainability of the activity can be expected.

Table 1
Results of evaluation done by external evaluators

Viewpoint	Outcome
Relevant	Activities on the food, agriculture and environment education at elementary schools are appropriate as many students become farmers
Effectiveness	Teachers and students have learned about education for sustainable development through sustainable agriculture
Impact	Teachers and school administrators see the benefit of the activities
Sustainability	Teachers, in particular, and students integrate sustainable agriculture in school curriculum

Local Farmers

As the level and degree of farmers' participation in the project is important for their level of acceptance of sustainable farming practices, interviews and questionnaire surveys were conducted to gauge the attitude of local farmers and their participation in the collaborative project.

Although many local farmers attended the 1st workshop, the evaluation showed low levels of true engagement in the issues. After one year passed and the farmers had learned about the use and application of composting, local farmers were more interested in using organic fertilizers, such as compost, pellet compost or liquid bio-fertilizer, so as to decrease their expenses for chemical fertilizers. In addition, local farmers became more active after understanding the benefits of organic fertilizers through the experience of applying those organic fertilizers themselves, as well as attending excursions to farms where sustainable practices have been conducted. Farmers' participation became very high and local farmers were willing to adapt sustainable farming practices. It was considered that building local farmers' confidence through various activities and enhancing farmers' communication with each other is remarkably important to increase local participation as well as acceptability.

The results of the evaluation are summarized in Table 2. Local farmers have learned from the activities and are planning to continue the system even after the activity term completes, as local farmers are very satisfied with the experience they gained.

Table 2
Results of evaluation done by external evaluators

Viewpoint	Outcome
Relevant	There are strong linkages between sustainable farming and sustainable livelihood
Effectiveness	The numbers of 450 key farms and those owners (farmers), along with the products with organic fertilizer and low chemical input are likely to be achieved as planned by the end of the activity term
Impact	The activity shows concrete and tangible benefits to the farmers
Sustainability	Farmers have learned from the activity and are planning to continue the system even after the activity term completes, as they are very satisfied with the experience they gained

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Conclusion

The RCE GPP activities described in this chapter are highly relevant, as they are directly linked to government policy regarding green agriculture and the real needs of increasing agricultural productivity while achieving clean and green practices. These efforts respond to the challenges of the rapidly increasing population in the area and are in full support of government strategy. The activities are also fully aligned with the global goals of sustainable production and consumption and embrace the three pillars of sustainability - economic, environmental, and social. Through these 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. Although this project was a pilot project implemented at the sub-district level, it is expected to be scaled up to the provincial or regional levels with the collaboration with the Ministry of Agriculture, Forestry and Fisheries of Cambodia.

References

- MAFF, 2009. Annual report of agriculture in 2008 and direction of 2009-2010. Ministry of Agriculture, Forestry and Fisheries, Cambodia.
- MoEYS, 2007/2008. Education statistics of MoEYS. Ministry of Education, Youth and Sport, Cambodia.