# Agricultural Education in Cambodia

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## 1. Introduction

Agricultural sector in Cambodia contributes about 45 percent to the GDP, and more than 80 percent of the population earns their livings from the agriculture. Apparently, a process of agricultural development is considered to be an effective approach to promote the economic growth with a broadest possible base. Nonetheless, the development of this sector is mainly constrained due to the exceptionally low productivity if compared with the neighboring countries. Research on agricultural development in developing countries has clearly shown that the fundamental problem of agricultural growth is an agricultural education as it plays a vital role in providing qualified manpower for agricultural requirements and conducting agricultural research, thus providing farmers with new techniques of production and new input. Indeed, innovation of technology and management capacities for more intensive and modernized agriculture becomes paramount to maximize agricultural output to ensure food security and to alleviate rural poverty in the country. Needless to say, this can be accomplished through the upgrading of human resources employed in the sector at all levels from the basic education to higher education.

The main objectives of this paper are to discuss agricultural education systems, problems and issues of agricultural education and strategies for the development of agricultural education in Cambodia.

## 2. Agricultural education systems in Cambodia

Generally speaking, there are two kinds of agricultural education in Cambodia, namely formal and non-formal agricultural education.

### 2.1. Formal agricultural education

Shown in Table 1 are the number of staff, graduates and current student enrollments of each agricultural institution in Cambodia.

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Table 1. The number of staff, graduates and current enrollments of agricultural institutions in Cambodia (as of 2000)

| Institutions | Number of Staff | Graduates | | | Current enrollment | | | |
|---|---|---|---|---|---|---|---|---|
| | | Elementary level | Intermediate level | BSc. | Elementary level | Intermediate level | BSc. | MSc. |
| PLNSA | 180 | 930 | 1819 | | 34 | 389 | | |
| KCNSA | 117 | | 141 | | | 255 | | |
| MVU | 9 | | | 84 | | | 90 | |
| RUA | 207 | | | 1572 | | | 813 | 13 |

PLNSA : Prek Leap National School of Agriculture
KCNSA: Kampong Chham National School of Agriculture
MVU : Moharussey Vedic University
RUA : Royal University of Agriculture

### 2.1.1. Agricultural education in schools

There are no definite agricultural courses offered in the agricultural education curricula in Cambodia. Indeed, many countries in the region have already introduced agricultural teaching in the agricultural education curricula, even starting from primary schools. Incorporation of agricultural courses into the curricula of general education is thought to be very important since a great majority of the students in Cambodia, especially in rural areas, are engaged in farming after the completion of their general education. In this effect, the agricultural education will provide students with knowledge and skills in the basic agricultural sciences to enable them to be proficient and literate farmers.

### 2.1.2. Agricultural education at elementary and intermediate levels

The elementary and intermediate levels of agricultural education in Cambodia have been conducted by two schools of agriculture, namely Prek Leap National School of Agriculture (PLNSA) and Kampong Chham National School of Agriculture (KCNSA) . The duration of elementary and intermediate levels is 1 and 3 years, respectively.

### 2.1.3. Higher education in agriculture (undergraduate and graduate degrees)

Higher education in agriculture in Cambodia is offered by the Royal University of Agriculture (RUA) and Vedic Moharussey Vedic University (MVU) located in Prey Veng Province.

#### a. Roles of RUA in agricultural education

***Undergraduate degree.*** The current curricula of RUA include agronomy, animal science and veterinary medicine, forestry, fisheries, agricultural technology and management, agricultural economics and rural development and agro-industry.

***Graduate Degree.*** RUA offers a course leading to Master Degree on integrated farming system. RUA plans to offer graduate degrees in agronomy, animal sciences and veterinary medicine, computer science and natural resources management in the forthcoming academic years.

***Continuing education.*** A wide range of short training courses have been and being organized by the University for staff of the Ministry of Agriculture, Forestry and Fisheries, agricultural extension agents, other organizations involved as well as farmers. In principle, there are two kinds of programs.

-*Degree Program*: The program has been specifically designed for those holding diploma certificates from the governmental institutions and private sectors involved.

-*Non-degree Program*. This program has been designed to offer a wide range of short training courses to government officers, and agricultural extension agents in the fields of agricultural techniques, environment, management and administration so that they can become to effectively implement their duties. Meanwhile, the University offers directly to farmers with short training courses at gathered sites and/or training centers about fundamentals of agriculture in order to improve the farmer's knowledge and agricultural technologiges such as utilization of high producing crop varieties, land use and management, pest control, identification of simple symptoms for disease control, animal feeding, economics of fruits and vegetable production, sanitation for agricultural products, processing and community organization.

#### b. Roles of RUA in research and development

Undeniably, effective teaching of agriculture requires more than just subject matter competence. Accordingly, it is compulsory for the University to conduct agricultural research in the region for the sake of better education as well as agricultural products improvement. To this end, research on such paramount themes as job analysis in agriculture, comparison of farmers' incomes and expenses throughout the country have been thoroughly studied by RUA in close cooperation with local and international organizations as well as consortium universities in the world.

### 2.2. Non-formal education (agricultural extension)

Agricultural extension is the most important non-formal education for farmers. At present, there are many agencies providing extension services including the Department of Agricultural Extension, Non-governmental Organizations (NGOs), commercial traders and input suppliers. The agricultural extension in Cambodia has recently gained more advocates from donors as there is a rapid increase in number of extension agencies. The extension activities are mainly carried out by extension workers working closely with farmers. The basic feature of extension programs is based on an efficient flow of useful information. Farmers provide extension staff with information about their farming systems and production problems, whereas the extension workers give information to the farmers on new varieties and practice that have been developed by agricultural researchers. The principal objectives of the agricultural extension are to help educate farmers in basic knowledge of agriculture so as to improve the production of rice, other crops, poultry, and other animals. The salient extension programs include integrated pest management, integrated soil management, and integrated animal disease management.

The Department of Agricultural Extension, under the aegis of Cambodia Australia Agricultural Extension Project, is the main governmental agency performing extension activities throughout the country. However, the extension activities have been carried out only in the targeted provinces due to the high ratio between extension workers and farming population.

## 3. Problems and issues of agricultural education

### 3.1. Infrastructures

Most of the agricultural institutions are still short of practical farms, laboratories and classrooms.

### 3.2. Equipment and teaching materials

The curricula of most of agricultural educations focus on lectures due to the lack of equipment in laboratories. Meanwhile, teaching materials have also been found to be constraints.

### 3.3. Staff capacity

Most of the staff and lecturers are young and have limited experience. The linkage between the theory and practice is considered to play an important role in enhancing the quality of agricultural education.

### 3.4. Budget allocated for institutional development

Each institution depends entirely on the governmental support because the private sector does not show any interest in investing in agricultural education. As a consequence, highly qualified manpower tends to work for the private sector because of the big gap in salaries offered by the private and public sectors.

## 4. Strategies for improving the agricultural education in Cambodia

Previously, the agricultural education was performed in compliance with the governmental demands for human resources. However, after the economic reform in 1990s, the agricultural education has needed to be re-designed for national and market demands. The study on job analysis in agriculture conducted by RUA has clearly shown the demands for manpower in agriculture (Table 2).

Table 2. The future demands for manpower in agriculture (2002-2007)

| Qualification | Quantity | |
|---|---|---|
| | 2002 | 2007 |
| Graduate level | 82 | 180 |
| Undergraduate level | 856 | 1,200 |
| Intermediate level | 1,200 | 900 |
| -Elementary level | 228,250 | 228,250 |
| -Young farmers graduated from schools | 200,000 | 200,000 |
| -Model farmers | 150,000 | 15,000 |
| -Labors | 3,250 | 3,250 |

Management, organization, communication and coordination skills, in addition to specialized skills, are also compulsory for the contribution towards the agricultural development. To achieve this goal successfully, it is imperative for all agricultural institutions to develop key strategies for betterment of agricultural education. More importantly, the curricula should be reformed in line with the conditions of soil and water in Cambodia context and the national and market demands of the country.

### 4.1. Curriculum development

The credit-based curricula, being more flexible, should be developed and implemented. The curricula should provide the sequential development of the knowledge required for professional practice, the development of skills in critical analysis and problem solving. Likewise, the general education curricula should be reformed by incorporating the agricultural courses. However, in doing so, it is necessary to train the agricultural education

teachers before the courses are incorporated into the curricula.

**4.2. Improvement of infrastructures, equipment and teaching facilities**

Infrastructures such as classrooms, experimental laboratories and stations, and research institutions should be appropriate and parallel with the demands of training/education, being at least consistent with a minimum standard. Experimental laboratories must be well equipped in order for students to have access to conduct practical and research work, thus becoming qualified researchers and extension workers. The lecturers, on the other hand, can also use the equipment to conduct basic and applied research activities in addition to their teaching activities.

**4.3. Teaching staff capacity improvement**

The success of agricultural education, to a greater extent, is contingent upon the quality of the lecturers/teachers. In this sense, they must be competent to effectively transfer their knowledge to students. The rapid and effective approach to improve the staff capacity is to start graduate programs in the country. Cambodia should not rely entirely on other countries to train research level manpower in agriculture. This approach not only requires less input but also helps increase the professional satisfactions and commitments of research activities to identify and solve problems facing in the country where the conditions and contexts may differ from the other developed countries. Furthermore, faculty members and students exchange programs with other international institutions should be promoted in pursuit of the academic excellence.

**4.4. Enhancement of research capacities**

The agricultural universities must play key roles as centers of exploration and discovery. As such, the faculty members must do research in their particular fields no matter how simple or small in scale. The research would enable them to keep pace with developments in the dynamic field of agricultural sciences and technology and to have effective teaching of agriculture. Undeniably, in doing so, adequate financial resources are required for the agricultural institutions.

## 5. Conclusion and recommendations

It is obvious that the development of agricultural education in Cambodia has confronted many problems, including the lack of oriented and responsive curricula, poor infrastructure, equipment and facilities, staff capacity, budget allocations. Therefore, there is an urgent need to invest in the agricultural education since it plays a key role in ensuring the implementation of the governmental policies aimed at food security and rural poverty alleviation. Although investing in agricultural education is costly and time-consuming, it has a multiplier effect if trained personnel is properly employed as extension agents, trainers/teacher, researchers, program managers, and policy makers as well as in the private sector.