

The Cambodian Upland Agriculture Curriculum Development

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Introduction

Cambodia is located in the center of Indochina peninsula, face to the gulf of Thailand, and has borders with Thailand, Vietnam and Laos. Cambodia has tropical monsoon climate, which have wet and dry season. The land is flat for the most part in the central of the country, and has mountainous and upland area in the southwest, the north and the northeast. The total land area of Cambodia is 181 035 square kilometers. The population of Cambodia is 13.5 million and around 80 per cent is living in the rural area.

Agriculture is the largest sector of the Cambodia economy and contributed about 40 per cent of the Gross Domestic Product (GDP) in the last five years planning period for 2001 to 2005. Growth in the agricultural sector is vital to meet the basic goals of the Royal Government of Cambodia (RGC) of providing sustainable growth with equity and justice.

At the present the upland areas of Cambodia are facing increased population, deforestation, soil erosion and uneven development. Logging and illegal clearing for farming have already destroyed the forest in many places of Ratanakiri, Mondulakiri, Stroeung Traing and other provinces. Unsuitable farming practices and natural resources exploitation are causing serious degradation in the upland. Rising population through immigration and low crop yields force farmers to clear more land.

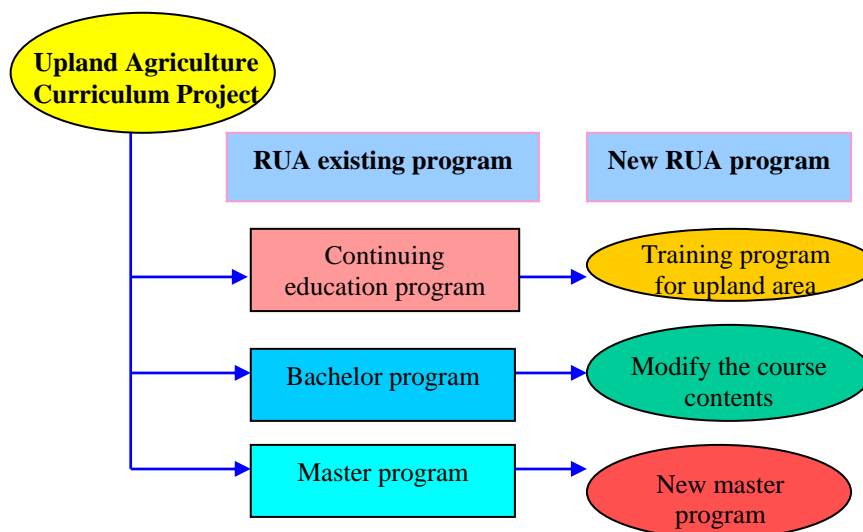
Royal University of Agriculture (RUA) is a public administrative institution. Our mission is to train and educate people in the field of agriculture, rural development, land management and other related fields. At the present RUA offers Associate, Bachelor and Master programs, in agronomy, animal sciences and veterinary medicine, forestry, fisheries, agricultural technology and management, agro-industry, agricultural economic and rural development, land management and land administration and integrated management of agricultural and rural development. Most of RUA curriculum of studies is more focus on lowland agriculture.

According with the current situation of Cambodia and the government development policies and strategies, RUA try to share the responsibly for the upland areas by producing human resource that be able to work for the development of upland agriculture and also link between the upland to the lowland areas.

With the Upland Agriculture Curriculum Development Project, RUA team has been learned and share experiences of upland agriculture with the teams of Thailand, Vietnam and Laos.



Curriculum development Framework



Existing RUA curriculum

Master Program

Master Program: Integrated Management of Agricultural and Rural Development (IMARD)

Duration: 2 years (4 semesters)

The farming systems of rural farmers in Cambodia are known to be complex and subjected to a multitude of exogenous influences. This raises the need for a holistic and integrated systemic approach, with which professionals can consider the various functions of rural areas, and work out more effective impacts of the development projects activities. The implementation of such a new approach of rural and agricultural development requires trained people with specific and multi-disciplinary skills for designing, decision-making, and managing rural and agricultural development policies, programs and projects.

The most important value of the IMARD program is the integration of economic and social sciences with applied agricultural and environmental sciences, i.e. plant, animal, aquaculture, soil and food sciences. Such an integration of knowledge and skills would be very useful for the students to successfully develop and manage projects, programs and activities for future rural and agricultural development in a sustainable way.

Course Structure

Semester 1: Basic agricultural production-oriented subjects including micro-economics in order to understand farmers and their decision making process as well as to fulfill the scientific and technical requirements of an integrated program.

1. General agriculture and agro-industry
 - Soil and fertility management
 - Crop production systems
 - Animal production systems
 - Aquaculture production systems
 - Post-harvest technology and commodity chain
2. Agricultural economics

- Macro-and micro economic theories and their application in agriculture
 - Farm business management and agricultural marketing
 - Rural enterprises and micro-finance
3. Transversal skills
 - Introduction to scientific written and verbal communication
 4. Field work
 - The first group field work is devoted to studying the diversity of biophysical conditions and cropping systems in a small agricultural region.

Semester 2: Basic farming system-oriented subjects including development theories and an agrarian system approach in order to identify the diversity and evolution of agricultural production systems.

1. Methodology of agricultural research in Social Sciences
 - Applied statistics and research design for social sciences
 - Farming system research and development
2. Agricultural development
 - Comparative agricultural development & theories
 - Agrarian societies: culture, society, history and development
 - Agricultural sector and policy analysis
3. Graduate seminar
 - This seminar aims at encouraging students to ask the scientists and guest persons about their experiences and opportunities in their profession as well as to discuss individually the possible research topics for their internship to be carried out during the 4th semester.
4. Transversal skills
 - Concept of general and human resources management
5. Field work
 - The second group field work is conducted on surveying of farming systems in a selected rural area, especially in Takeo and Battambang provinces, where the farming systems are known to be complex.

Semester 3: Basic development-oriented courses including social changes, agricultural extension and project management in order to plan and manage activities in the rural development.

1. Project planning and management in rural development
 - Project identification and design
 - Project implementation and management
 - Project financial management
 - Project monitoring and evaluation
2. Applied social sciences for agriculture in rural and Peri-urban areas
 - Theories and strategies for technical, social and institutional changes
 - Community organization, leadership, group dynamics, conflict management
 - Multi-stakeholders irrigation system design and management
 - Land use, land tenure, cadastre service and introduction to GIS
3. Transversal skills
 - Development of pedagogic, facilitation and negotiation skills
4. Field work
 - The third field work is conducted with the aim of assessing the needs of rural communities in order to propose a development project.

Semester 4: Master Thesis Research. The last semester is devoted to the preparation of master thesis, carried out either in research labs or development projects or institutions for at least six

months. The thesis research, despite being valid for 12 credits, requires great efforts to be able to complete within the framework.

Bachelor Program in Agronomy (4 years program, minimum 140 credits)

1st and 2nd Semester is under the foundation year program (45 credits)

No	3rd Semester		4th Semester	
	Subject	Credits	Subject	Credits
1	Principle of Soil	3(2.2)	Plant Breeding II	2(1.2)
2	Entomology	2(1.3)	Plant Physiology	3(2.2)
3	Plant Ecology	2(2.0)	Land use & Development	2(1.2)
4	Cropping System	2(1.2)	Soil and Plant Analysis	2(1.3)
5	Plant Nutrition	2(1.2)	Seri cultural Science	2(1.3)
6	Weed Science	2(1.2)	Apiculture Science	2(1.2)
7	Plant Breeding I	2(1.2)	Language	1(0.2)
8	Language	1(0.2)	Elective 1	6
9	Elective	4		
Sub-Total		20	Sub-Total	20
5th Semester			6th Semester	
1	Plant Pathology	2(1.2)	Plant Protection	2(1.2)
2	Tropical Crop I (Industrial Crop)	3(2.2)	Experimental Design in Agricultural and Data Analysis	2(1.2)
3	Seed Production and Storage	3(2.2)	Tropical Crop II (Rice Culture)	2(1.2)
4	Statistic and Experimental Design	2(1.2)	Tropical Crop III (Rubber Culture)	3(2.2)
5	Farming System Research	3(2.2)	Language	1(2.0)
6	Soil Conservation and Management	2(1.2)	Elective	10(-)
7	Horticulture I (Vegetable)	2(1.2)		
8	Language	1(0.2)		
9	Elective	4		
Sub-Total		22	Total	20
7th Semester			8th Semester	
1	Horticulture II (Fruit tree)	2(1.3)	Thesis Research	12(-)
2	Horticulture III (Ornamental Plant)	2(1.2)		
3	Elective	8(--)		
Total		12		

Elective Courses

No	Subject	No	Subject
1	Micro Economic	9	Animal Production
2	Macro Economic	10	Rural Development
3	Water Management	11	Agro- Forestry
4	Aquaculture	12	Agricultural Machineries
5	Rural Socio- Economic	13	Agricultural Extension
6	Farm Business Management	14	Leadership Development in Agriculture
7	Pasture and Forage	15	Mushroom Production
8	Environment		

Short Course Training

Beside the degree program, RUA also has the short courses training program. This program offered for NGOs, Provincial Governmental officer and farmers.

Training Needs Assessment in the Upland areas

Last year, with the support from the Upland Agricultural Curriculum Project, RUA team has been conducted the research survey on upland in the Modulkiri and Ratanakiry Province. The survey found that the agricultural technologies of farmers are more traditional and need to improve. Some specific training that local people need is:

- Upland Agricultural Production
- Organic Cashew Nut Cultivation
- Integrated nutrient management
- Erosion control and management
- Rubber culture
- Soil and water conservation
- Agro-forestry systems
- Livestock and poultry production
- Community forestry management
- Non timber forestry management
- Agricultural marketing

Among these training needs, in 2007 RUA has been delivered 2 courses to the Provincial governmental staff, NGO and Farmers: Upland agricultural production course and Organic cashew nut cultivation course.



Training on organic cashew nut cultivation



Training on upland agriculture production

New Curriculum Development

The BS curriculum that RUA employ at present was developed during the year 2000. This curriculum has been use for many years. At present this curriculum may not much appropriate with the current situation of Cambodian context. The academic council of RUA plans to revise and develop the new curriculum of all BS program in RUA next year (2008). This is a very good opportunity for the upland team that can introduce and share the experiences and knowledge of upland agriculture to the development of new curriculum.

New curriculum will include both low land and upland agriculture. The graduates from this program will be able to work separately for the development of law land or upland agriculture and also work for the linkage between upland and low land together.

The MS curriculum (IMARD) is a new program. This program is more appropriate with the current situation but this program not emphasizes much more on the upland area. So for the development of upland agriculture at MS level, RUA team would like to modify the existing curriculum by add more courses related with the upland and also improve the contents of some courses that already exist, to make sure that the contents are included the upland issues.

According with the training needs assessment in upland area, RUA would like to develop the new training courses for Provincial governmental officers, NGO and also local communities. This training program will improve the capacity of local people in upland area.

Conclusion

Upland area of Cambodia is small compared with the lowland area, but it is very important for the development of Cambodian society. With the 2 years participation in the upland curriculum development project that supported by Rockefeller foundation and CMU, RUA team can get the good experiences and knowledge about the development of upland agriculture of Thailand, Vietnam and Laos. It is necessary that RUA need to extend their responsibility to upland agriculture. To solve this problem for the long term strategy, RUA needs to develop the capacity of upland agriculture by sending their staff to study in MS and/or Ph.D. program at CMU or HUAF. For the short term strategy RUA needs to train the staff on specific subjects related with the upland agriculture and also needs to conduct the research on upland agriculture. We do hope that Rockefeller foundation and CMU will continue to support the second phase of upland agriculture curriculum project.