

Role of International Cooperation Center for Agricultural Education (ICCAE) in Capacity Building for Sustainable Agriculture

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Abstract

The International Cooperation Center for Agricultural Education (ICCAE) was established in April 1999 and is one of the five centers for international cooperation established in Japan, but the only one dedicated to agriculture. In pursuit of its vision of becoming a leading center for international cooperation in agriculture education, the Center's Project Development Division implements activities towards the conduct of evaluation studies, development of agricultural projects and technologies, training of human resources, and creation of scientific solutions to address problems related to agriculture and environmental issues through international cooperation. The other division, which is in charge of Network Development, endeavors to develop and coordinate a human resource database for teachers and researchers in domestic universities, research institutes, and high schools in the field of agricultural sciences in order to achieve effective international cooperation in agricultural education. In addition, it establishes well-working consortia and cooperative networks between and among international and/or domestic organizations. Over the past years, ICCAE has been involved in projects such as the development of higher education in agricultural universities in Cambodia and Namibia, and the African Institute for Capacity Development (AICAD). The Center's collaboration with the Japanese International Cooperation Agency (JICA) is also crucial in the human resource development of countries in Africa. The activities promote the project's goal to strengthen practical education and research in the universities to assist in the alleviation of poverty in each developing country. ICCAE continuously explores ways to enhance linkages with international institutions to promote cooperation in the area of agriculture. Establishment of linkages has been found to be very effective and efficient way of ensuring cooperation in Asia and Africa. The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) and ICCAE look forward to further collaboration in the project with Royal University of Agriculture in Cambodia.

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Introduction

This paper is composed of two parts. The first part introduces the function of ICCAE in international cooperation in developing countries. The second part presents the Center's experience in implementing curriculum development assistance to the Royal University of Agriculture in Cambodia as one of the component activities of ICCAE in higher education.

I. The ICCAE: Its functions and Activities

The ICCAE was established in Nagoya University in April 1999. Its vision is to be a leading center for international cooperation in agriculture education. ICCAE is one of the five centers for international cooperation established in Japan, but is the only one dedicated to agriculture (Table 1). Its missions are 1) to contribute

to human resource development for solving agricultural issues in developing countries as the national center; 2) to coordinate international cooperation projects with institutions as an international center; 3) to establish human resource databases and managing methods for effective international cooperation; and 4) to conduct research in agricultural cooperation projects for the well-being of people in developing countries. Within three years since its establishment, ICCAE aimed to be the national center for human resource development to address agricultural issues in developing countries through international cooperation in agricultural research and education. Having achieved its first target on time in 2002, ICCAE is now working towards achieving its goal of acquiring the status as an International Center for human resource development in Japan within two years.

Table 1. International Cooperation Centers established

Centers	Year of Establishment
Center for the Study of International Cooperation in Education (CICE), Hiroshima University	1997
International Cooperation Center for Agricultural Education (ICCAE), Nagoya University	1999
International Research Center for Medical Education (IRCME), the University of Tokyo	2000
International Cooperation Center for Engineering Education Development (ICCEED), Toyohashi University of Technology	2001
Center for Asian Legal Exchange (CALE), Nagoya University	2002

To realize the Center's missions, ICCAE consists of two divisions that take charge of several functions including field survey, project development, project evaluation, human resource database, network development, and training with four permanent staff (two professors and two associate professors). A Director heads the Center.

The Division of Project Development 1) surveys, analyzes and evaluates the needs, requests, and projects of developing countries that focus on international cooperation in agriculture and agricultural education to improve agriculture and rural life; 2) develops agricultural projects and technologies to meet the field and rural life needs of developing countries, considering traditional agricultural practices and environmental issues; 3) cooperates in human resource development at any level of education; and 4) creates scientific solutions for addressing agricultural problems in the field through international cooperation.

The Division of Network Development 1)

develops a human resource database for teachers and researchers in domestic universities, research institutes, and high schools in the field of agricultural sciences; 2) researches and develops methods for coordinating use of the database in order to achieve effective international cooperation in agricultural education; and 3) establishes well-working consortia and cooperative networks between and among international and/or domestic organizations.

The ICCAE has two posts for Visiting Fellows in order to conduct joint research or cooperation on the projects in ICCAE. One of these positions is for Japanese scientists or professionals under one year contract. The other is for foreign scientists or professionals for a period of three to twelve months. ICCAE usually invites three foreigners with three to five month-stay a year.

The main activities of ICCAE in international cooperation are summarized in Tables 2 and 3.

Table 2. Main activities of ICCAE

Project	Activities
Project for Capacity Building of the Faculty of Agriculture and Natural Resources, University of Namibia (JICA, 2002-present)	Conducted preliminary survey; trained 3 teaching staff; dispatched 1 long-term and 3 short-term experts.
African Institute for Capacity Development (AICAD) Phase 2 (JICA, 2000-present)	Conducted preliminary survey; participated as member of the JICA support committee; dispatched a long-term research advisor and short-term experts.
Collaboration with Royal University of Agriculture, Cambodia, in Higher Education and Capacity Building (ICCAE, 2000-present)	Hosted 5 visiting fellows from RUA; implemented curriculum development assistance; supported the establishment of the master's course.
External Evaluation of JICA Agricultural Projects in Nepal (JICA, 1999-2000)	Conducted joint evaluation with the Graduate Schools of International Development and of Bioagricultural Sciences, Nagoya University.
External Evaluation on the SG 2000 Program (Sasakawa Africa Association, 2001-2002)	Evaluated SG 2000 Program in 9 African countries.
Database of Human Resource in Agricultural Cooperation (ICCAE, 1999-present)	Developed the database registering more than 2500 human resources.

Table 3. Training by ICCAE

Training Courses	Activities
Group Training Course; GIS (Geographic Information System) Technology for Sustainable Management of Natural Resources and Agricultural Products (JICA, 2000-present)	Trained 6 research fellows in agricultural sciences for 5 weeks a year.
JICA Rice Research Techniques Course (JICA, 1999-present)	Trained 6~7 research fellows once a year.
Group Training Course in Bioindustries (JICA, Japan Bioindustry Association, 1999-present)	Trained 10 research fellows once a year.

II. Curriculum Development and Capacity Building for Royal University of Agriculture (RUA)

The development of a new curriculum and capacity building for Royal University of Agriculture (RUA), Cambodia, are cited as one of the representative activities of ICCAE in higher education.

RUA was founded in 1964 during the Prince Norodom Sihanouk regime as one of the nine (9) national universities and had been playing a key role in offering agricultural higher education in Cambodia. Statistically, 200 students graduated from the RUA from 1965 to 1975. Unfortunately, RUA was completely closed and converted into an ammunition factory during Pol Pot's regime from 1975 to 1978 (APIP 2000; MAFF 1999).

Designing new and appropriate curricula has been recognized as one of the most important issues for RUA (APIP 2000; MAFF 1999). It took as long as eleven years to complete the new curricula after the former Soviet Union withdrew from Cambodia in 1990 because little effort had been directed to curriculum development before 1999.

Russian lecturers designed the former curricula when the former Soviet Union supported the university from 1985 to 1990 (MAFF 1999). In 1990, when the former Soviet Union support suddenly withdrew from Cambodia, the university (Institute of Agricultural Technology at that time) faced a lot of problems, especially the replacements of the teachers. In order to alleviate the urgent needs, the young graduates from the Institute were appointed as teachers notwithstanding their lack of teaching and research experience. The newly appointed lecturers continued using the curricula designed by the Russian lectures, although the Khmer was used as the medium of instruction. The former curricula

were used until the first semester of the academic year 2000-2001, although there were some changes introduced by French non-governmental organizations (NGOs) such as Groupe de Recherche et d'Echanges Technologiques (GRET) and Veterinaires Sans Frontieres (VSF) (MAFF 1999).

The ICCAE has been assisting RUA in developing the new curricula since 2000. The RUA and ICCAE jointly studied higher educational systems and curricula of other universities throughout the world. The ICCAE staff visited RUA to study the status of RUA and the higher education in Cambodia in February and June of 2000. The Center then invited an RUA staff as an ICCAE Visiting Fellow for the joint study from August to October 2000. ICCAE proposed a number of recommendations concerning the new curricula and educational system. The RUA accepted the recommendations with few modifications, and completed the new curricula and educational system in 2001, which were then introduced in the second semester of the academic year 2000-2001.

As a starting point for discussion on curriculum development, the first draft of "Academic Catalog for Undergraduates" was used, which included the curricula and educational system. This first draft was provided by RUA with assistance from a French project called Programme d'Appui a la Formation Agricole et Agronomique au Royaume du Cambodge (PAFAARC) as suggested from a project of the National Action Plan for Agricultural Higher Education by the Food and Agriculture Organization of the United Nation (FAO) (MAFF 1999).

New Curriculum

The main points of curriculum reform were as follows:

- 1) The term of school attendance was shortened from four and a half years to four years;
- 2) The hour-based curriculum was changed to a credit-based system;
- 3) The number of credits required for a BS degree was reduced from 170 (hours converted into credits) to 144 credits;
- 4) Electives were introduced for the first time, and the status of English and French courses were changed from compulsory to elective; and
- 5) The list of subjects was changed completely.

The additional major changes included the development of a mission statement for the university and a policy for the instructional program together with a manual describing the processes from admission to graduation. There were, however, some recommendations that could not be realized in a short time, such as strengthening practical subjects, and shifting thesis supervision from extramural to intramural persons, which must be matched with human resource development.

Introduction of the credit system into the new curriculum was the chief objective of RUA in the curriculum revision. The credit system, which is convenient for indicating the outcome and substance of education, is widely adopted by higher education institutions around the world.

RUA received a number of advantages by introducing the credit system such as:

- 1) Credits clearly show the quality and the quantity of academic achievement;
- 2) Students are able to study at their own pace as full-time or part-time students, so that some students may simultaneously have a job;
- 3) Students are able to take leave of absence from school and to return to school later while retaining their credits; and
- 4) A credit transfer system can exist.

Credits must reflect the quality of education and assure a university degree. It is clear that the credit system needs to be universal. The university has a responsibility to ensure the

quality of education. However, RUA students are not really satisfied with the quality of education because of insufficient practical activities, a shortage of human resources, a lack of textbooks and teaching materials, and inadequacy of educational facilities and equipment. In RUA, the quality of credits is limited mainly to the quality of the education. Improvement in the quality of education is vital to ensure accreditation. The impact of the introduction of credit-based curricula will be limited unless the quality of education is improved.

Establishment of master's course

RUA is the only university that achieved curriculum development among the nine national universities in Cambodia. It is expected as the forerunner of reforming the higher education system and consequently gaining approval to establish the master's course of graduate school. ICCAE started the joint study on the education system, management of the graduate school, and the master's course curriculum with RUA by inviting the Dean of RUA as Visiting Fellow from 2001 to 2002. As a result of this study, RUA opened the master's course of graduate school in October 2002. ICCAE also trained the RUA staff in administration aspects in cooperation with the administrative office of Nagoya University.

The key issues for RUA to live up to the expectations of the government, society, and students from now on are as follows:

- 1) **Capacity building of staff.** It is very important to provide quality higher education to students. The number of staff who has the degree is one of the indicators to analyze the quality of staff. There are only 6 and 13 permanent lecturers having PhD and MS Degrees, respectively, out of 106, and 6 and 12 contract lecturers having PhD and MS Degrees, respectively, out of 47 in RUA. It is therefore, urgent for RUA to pursue the dispatch of staff to overseas universities or institutions for degrees. The number of MS degree holders in RUA is expected to increase as RUA opened the master's course in 2002. Without improvement in the quality of education, the capacity building of lecturers will not be realized even if the number of MS degree holders will have increased.

2) Strengthening of practical activities. In reality, classes at RUA are mainly conducted as oral lessons, and few practical activities such as laboratory training and farm practice are carried out, even after the introduction of the new curricula. The balance between theory and practice should be considered in the curricula of RUA. Although fairly large portions of time are allocated to practical activities both in the former and the new curricula of RUA, few practices are implemented because of insufficient lecturer ability and a shortage of facilities and equipment. Practical activities in RUA curricula are set by repartitioning a subject into oral lessons and practical work with some set proportion of time allocated to each. In this system, it is easy to convert the time for practical work into oral lessons. This system may cause the insufficiency of practical work. The development of the capability to conduct practical activities, from the aspect of the human resources and the system, is one of the most urgent problems facing RUA.

3) Development of quality textbooks. The shortage of teaching materials, including textbooks, is one of the major issues concerning the education at RUA. The shortage of recent textbooks and reference materials hinder progress in the renewal or updating of course content. Development of textbooks and an enhancement of library services are needed to upgrade educational standards. However, the most important issue is the enthusiasm of lecturers to constantly improve the education in their classes. Lecturers need to be motivated to collect new information within their fields. The point of education at university level should not only be just the transfer of knowledge, but also the development of intellectual capability.

Training programs for teaching techniques are also necessary as well as the willingness of lecturers to improve their teaching.

The ICCAE contributed in the human resource development of RUA by assisting an RUA staff to be a PhD student of the United Graduate School of Agricultural Sciences, Ehime University under the supervision of Professor S. Hayakawa at Kagawa University. Two RUA staffs are now studying as MS and PhD students, respectively, in Plant Genetics & Breeding Laboratory and Socioeconomic Science of Food Production Laboratory of the Graduate School of Bioagricultural Sciences (GSBS), Nagoya University. The Animal Genetics Laboratory of GSBS is going to conduct biodiversity study of wild animals with RUA in 2002 and 2003. GSBS and ICCAE will continue to support RUA in capacity building.

The ICCAE is exploring the enhancement of linkages with international institutions to promote international cooperation in the agricultural area. It has been proven to be very effective and efficient way in dealing with agriculture concerns in Asia and Africa. SEARCA and ICCAE are now exploring collaboration in the Asia and RUA projects.

References

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