

# **Challenges and Opportunities for Sustainable Agricultural Education in the Philippines and in the ASEAN Region**

Oscar B. Zamora\*

Professor of Crop Science, University of the Philippines Los Baños,  
College of Agriculture, College, Laguna, Philippines 4031

The Philippines, with an estimated total population of 103,775,002 and an annual growth rate of 1.9%, remains to have an agriculture-based economy. Agricultural education in the country is institutionalized through the 110 State Universities and Colleges (SUCs) and the national university (University of the Philippines) that were created by the Acts of Congress. However, of the three million students enrolled in higher education only 2.8% are enrolled in agriculture, forestry, and fisheries degree programs. Some of the reasons for the decline in enrollment in agriculture are: a) negative perception of agriculture as a profession; b) insufficient government investment in SUCs; c) rapid urbanization of agricultural areas; and d) devolution of agricultural services to the local government units.

There are three important recent developments that pose opportunities and challenges for sustainable agricultural education in the Philippines: a) the enactment of the Enhanced Basic Education Act of 2012 or the K-12 Basic Education Program which extends by two years the country's previous 10-year education curriculum; b) the integration of the Southeast Asian economies into the ASEAN Economic Community in 2015; and c) the rise in the influence of global rankings of universities which underlies the internationalization of higher education.

For the University of the Philippines College of Agriculture, the implementation of the K-12 and the coming into force of the ASEAN 2015, provide opportunities for the improvement of the BS Agriculture curriculum and in the development and institutionalization of courses anchored in the sustainable agriculture framework with an ASEAN perspective. It could also lead to the improvement of the performance of the graduates, make the agriculture profession more attractive, and render the graduates more marketable for both local and ASEAN students. The need for a 'common' language among ASEAN higher education institutions is emphasized to facilitate student mobility, implement credit transfers and possible joint or double degree programs, and mixed mode degree programs and online courses.

**Key words:** sustainable agriculture education, K-12 basic education program, ASEAN 2015, internationalization

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## **1. Introduction**

The Philippines is an archipelago of more than 7,000 islands situated in Southeast Asia, with a land area of almost 300,000 km<sup>2</sup>. As of July 2011, the estimated total population was 103,775,002, with an annual growth rate of 1.9%. Total fertility rate was 3.15 per woman and total life expectancy was 71.9 years. It is one of the countries in Southeast Asia with the highest economic growth during the period ending the second quarter of 2012. The primary political and admin-

istrative divisions of the Philippines are the provinces that are further subdivided into component cities and municipalities. At present, there are 80 provinces in the country and 116 cities that are autonomous from the provincial governments. The smallest administrative entity is the Barangay (village).

## **2. Higher Education in the Philippines**

As of July 2012, there are 2,282 higher education institutions (HEIs) in the Philippines (including campuses/satellites); 28% of which are public and 72% are

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\* Corresponding author: Oscar B. Zamora, Professor of Crop Science, UPLB, College of Agriculture, College, Laguna, Philippines 4031.  
Tel & Fax: +6349 5362306, E-mail: obzamora@uplb.edu.ph, obzamora@yahoo.com

private. However, in 2010, only 100 (5.6%) of the 1,792 HEIs can be assumed to have adequate facilities (Licuanan, 2011). Of this number, 67 are private HEIs and 37 are public. In the past nine years between 2001–2010, the mean increase in the number of programs offered was 1,595 programs each year (Table 1).

For academic year 2011–2012, the total number of students enrolled in higher education is 3,033,967. However, only 68,133 (2.8%) are enrolled in agriculture, forestry, and fisheries degree programs (Vitriolo, 2013) (Table 2). Agriculture/Fisheries is therefore one of the most undersubscribed academic degree pro-

grams in the country with very low enrollment compared to the more popular programs. Accordingly, agriculture/fisheries is considered by CHED as one of the growth areas together with IT BPO, tourism, emerging technologies, industries, engineering, and innovation clusters. A Php 500 M funding is supposed to be provided by CHED to these growth areas.

### 3. Issues and Challenges Confronting Agricultural Education in the Philippines

Established in March 1909, the College of Agriculture in the University of the Philippines was the first school of agriculture in the Philippines. Since its

**Table 1.** Increase in the number of programs in State Universities and Colleges in the Philippines

Academic Year	Number of Programs	Percentage Increase (%)
2001-02	18,495	—
2002-03	20,098	9
2004-04	20,876	4
2004-05	21,395	2
2005-06	21,914	2
2006-07	24,612	12
2007-08	28,305	15
2008-09	29,285	3
2009-10	31,257	7
Mean		7

Source: Licuanan, 2011

**Table 2.** Total enrollment in various disciplines showing over- and under-served programs

Disciplines	Total Enrollment	% Total
Business Administration and related disciplines	840,192	35
Education Science and Teacher Training	449,904	19
Information Technology related discipline	390,826	16
Engineering and Technology	372,003	15
Medical and Allied	281,038	12
Agriculture, Forestry and Fisheries	68,133	2.8
Total	2,402,096	100

Source: Vitriolo, 2013

founding during the American colonial period, the College of Agriculture adopted the US Land Grant Educational System where teaching is complemented by research and extension. A vast tract of land was allocated for production, training, technology generation, pilot testing of technologies, and seed production. To complement the tri-function of teaching, research, and extension, the research station and cooperative extension services were established close to, or within the University.

Since then, agricultural education in the Philippines is delivered through the higher education institutions (HEIs) called State Universities and Colleges (SUCs) that were all created by the Acts of Congress. From only 78 SUCs offering agriculture programs in 1980, there are now 110 SUCs and a national university (University of the Philippines) as of 2012 (Table 3). The increase in the number of SUCs was mainly influenced by local politicians; the previous three Congresses alone have converted 24 small-town and agriculture colleges into SUCs (Agaton *et al.*, 2013). The number of SUCs varies according to population and the political influence of the local politicians of the region.

As provided for by the Agriculture and Fisheries Modernization Act (AFMA) of 1997, a system of quality assurance for SUCs in agriculture was established. The law mandates that the Commission on Higher Education (CHED) in coordination with the Department of Agriculture (DA) and other government agencies were mandated to establish a National Agriculture and Fisheries Education System (NAFES)

(CMO No. 18, Series of 2009). The NAFES aims to establish, maintain, and support a complete and integrated system of agriculture and fisheries education (AFE); modernize and rationalize agriculture and fisheries education from elementary to tertiary levels; unify the system of implementation of academic programs, upgrade the quality, and ensure sustainability; and promote the global competitiveness at all levels of AFE. Under Section 111 of AFMA, 5% of the funds for AFMA should be allocated for NAFES for upgrading facilities in SUCs that will be chosen as national centers of excellence in agriculture and fisheries education.

SUCs are also classified based on their capability to offer quality agricultural education. Those that have demonstrated the highest degree or level of standards along the areas of instruction, research, and extension, with complete research and instructional facilities including research laboratories, experimental stations, faculty and library facilities are given “Center of Excellence (COE)” award, while those that lack these facilities are bestowed “Center of Development (COD)” award (CMO No. 3, 2009). COEs/CODs in the different disciplines are identified and carefully selected for funding assistance. Funds released to these centers are utilized for student scholarships, faculty development, library and laboratory upgrading, research and extension services, instructional materials development, and networking of existing COEs and CODs. As of 2009, the number of COEs and CODs is only 11% of the total SUCs in the country; i.e., only the University of the Philippines Los Baños and three SUCs were classified

**Table 3.** SUCs in the Philippines and their regional distribution

Region	Number of SUCs	Region	Number of SUCs
Cordillera	7	Eastern Visayas	11
Ilocos Region	5	Zamboanga Peninsula	6
Cagayan Valley	6	Northern Mindanao	6
Central Luzon	12	Southern Mindanao	11
Southern Tagalog	10	Central Mindanao	5
Bicol Region	8	Caraga Region	4
Western Visayas	13	Autonomous Region of Muslim Mindanao	3
Central Visayas	5		

Source: Adapted from Angeles, 2012

**Table 4.** Center of Excellence and Center of Development in Agriculture

Category	State University/College
Center of Excellence	University of the Philippines Los Baños Central Mindanao University Central Luzon State University Visayas State University
Center of Development	Mariano Marcos State University Isabela State University Cavite State University Camarines Sur State Agricultural college Aklan State University Xavier University University of Southern Mindanao University of Southeastern Philippines Benguet State University

Source: CHED No. 03, Series of 2009

**Table 5.** Enrollment in BS, MS, and PhD programs in agriculture

Degree Program	School Year						
	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
Baccalaureate	46,878	43,705	41,950	40,998	41,851	45,574	46,571
Master's	465	480	475	617	514	805	813
Doctoral	88	80	111	98	113	153	166

Source: Vitriolo, 2013

as Centers of Excellence and only nine SUCs were classified as Centers of Development (Table 4). The big challenge is how to make the SUCs CODs and eventually COEs.

### 3.1 Enrollment Trends

The declining enrollment in agriculture degree programs is a worldwide phenomenon. From SY 2005-2006, enrollment in SUCs offering agriculture degree programs declined by almost 6,000 in SY 2008-2009 (Table 5). Since then, there has been a recovery in enrollment in agriculture and this can be attributed mainly to the provision/availability of more scholarships provided by local government units, legislators, government line agencies such as the Department of Agriculture (DA) and its affiliated bureaus, Depart-

ment of Science and Technology (DOST), and private companies, among others.

There are many reasons for the decline in enrollment in agriculture. Among which are:

#### a. *Preconceptions of agriculture as a profession.*

Agriculture is not an attractive profession. In fact even the children of those in the agriculture sector opt for other professions. While many agriculture graduates found employment, because agriculture related jobs still account to 19% of the job market (De Vera *et al.*, 2010), their initial salaries were not as competitive as other jobs. The wage of the agricultural sector is lower than that of the industrial and even the services sectors. This gives the indelible impression among the youth that agriculture is a low paying job. There is a

need to push for an income parity policy (Klank, undated) as being implemented in Japan, Europe, New Zealand, Canada, and the United States. This was done by:

- 1) Facilitating increase in productivity of the agricultural sector;
  - 2) Government supporting schemes designed to create sources of incomes for farmers in other sectors of the economy; and
  - 3) Administrative decisions such as subsidies and guarantees.
- b. ***Lack of government investment in SUCs, particularly in infrastructure and classroom facilities, and faculty development.*** The present administration's policy which is to "gradually reduce the subsidy to SUCs to push them toward becoming self-sufficient and financially independent, given their ability to raise their income and to utilize it for their programs and projects," (Patria, 2011) will inevitably result in SUCs "swimming to the shore" either by commercialization or privatization that would divert them from their mandates. Alternatively, SUCs could raise their tuition and other fees but this would make agricultural education more inaccessible to the poor and further drive away students from taking up agriculture degree programs.
- c. ***Rapid urbanization of agricultural areas.*** The conversion of agricultural land to non-agricultural uses, and the employment opportunities arising therefrom, resulted in rural migration with more youth heading to the cities for high paying employment. This has also shifted the interest of the youth to other more lucrative degree programs perceived to be required by modernizing societies such as computer science, engineering, and medicine. This has also resulted in the dwindling job market.
- d. ***Devolution of agricultural services to the local government units (LGUs).*** The implementation of the Local Government Code practically removed a large employment opportunity for agriculture graduates as agricultural technicians and extension workers in the municipalities and provinces. In many cases, agricultural technicians who have degrees in education, commerce or criminology are appointed as such because of political patronage. This further reduced the market for agriculture graduates. Even those

who would like to pursue research declined due to government under investments in agriculture RD&E.

On the other hand, the number of masters and doctorate students continued to increase mainly due to current highly competitive job markets requiring advanced degrees for higher positions and the manpower development program of Department of Science and Technology to meet the country's S and T requirements.

### 3.2 Faculty to Student Ratio

Ideally, all HEIs should aspire for transformation to research university/college to strengthen and improve the teaching function through experiential learning by doing actual research for both faculty and students. The student faculty ratio is one of the determinants of a research university wherein faculty members would have a more liberal time for research to complement and strengthen their teaching function. Research universities in other countries have the following faculty to student ratio: 1:8.6 for Kyoto University, 1:10 for University Putra Malaysia, and 1:10 for Stanford University (Angeles, 2012). In the Philippines, a student faculty ratio of 1:14 has been recommended by a group of experts for SUCs to develop a culture of research in their campuses. In comparison, at the UPLB College of Agriculture the ratio is 1:20.5 if all faculties (instructors, assistant, associate and full professors) are aggregated. This is much favorable than the other SUCs. In 2011, the Professional Regulatory Commission of the Philippines (PRC) reported that the mean student faculty ratio across various disciplines in agriculture was 1:31 for lectures and 1:27.5 for laboratory courses (Table 6).

One very important component of quality education is the teacher. The success of any educational system depends largely on the teacher's grasp of the subject matter as well as his/her ability to effectively teach this to specific groups of learners. Cognizant of this pedagogical principle, there is a need to increase the number of quality teachers in agriculture, i.e., recruitment and retention of the best and the brightest in the agricultural teaching profession.

### 3.3 Performance of Graduates in Licensure Examination – An Indicator of Quality of Graduates

The AFMA provides for the creation of a Board of Agriculture to "upgrade the agriculture profession and

**Table 6.** Faculty to student ratio in SUCs in the Philippines

Subject Areas/Specialization	Lecture		Laboratory	
	Range	Mean	Range	Mean
Crop Science	6-88	34	6-88	30
Crop Protection	10-52	29	10-41	26
Animal Science	16-104	37	16-81	33
Soil Science	11-50	30	11-40	25
Economics and Marketing	5-54	29	13-54	27
Agricultural Extension and Communication	9-50	27	9-40	24
Mean	5-105	31	6-81	27.5

Source: PRC, 2011

**Table 7.** Percent passing by degree programs from 2003 to 2009

Degree Program	Passed Examinees	Percent Passing
BS Agriculture	3821	32.1
Bachelor of Agricultural Technology	363	17.1
BS Animal Science	96	27.4
BS Agricultural Technology	38	16.1
BS Agri-business	69	30.9
BS Agribusiness Management	68	32.8
BS Agricultural Education	31	18.7
BS Animal Industry	27	20.8
Others	126	22.1
Total	4639	29.2

Source: PRC, 2011

professionalize agriculturist through a development program of continuing professional education.” Graduates of BSA and other related programs can take the examination in six subject matter areas namely Crop Science, Crop Protection, Soil Science, Animal Science, Agricultural Economics and Marketing, and Agricultural Extension and Communication. With the exception of the UPLB College of Agriculture graduates with 98-100% passing, most SUCs displayed dismal performances. Since it was implemented in 2003, 15,904 agriculture graduates took the licensure examination but only 4,639 (29.2%) passed (Table 7). This performance is miserable considering that many

SUCs preselect only supposedly ‘good students’ to take the examination. In 2009, out of the 167 public and private HEIs, 70 did not produce any passer.

### 3.4 Adequacy and Qualification of the Faculty

Ideally, an effective academic program would require well-prepared faculty. The success of an academic program depends largely on the teacher’s grasp of the subject matter as well as his/her ability to effectively teach this to specific groups of learners. Unfortunately, despite the number of HEIs, many of the faculty members are not well endowed in this area. Recent data show that majority of the faculty cre-

**Table 8.** Highest degree obtained by HEI faculty members

Location	Highest Degree		
	Doctorate	Master's	Baccalaureate
National	12,532 (10%)	46,346 (35%)	70,446 (54%)
Region IV A	2,053 (25%)	4,886 (54%)	1,884 (21%)

Source: Valdez, undated

dentials among HEIs are inadequately trained, with less than half with postgraduate degrees (Table 8). In a study entitled “Rationalizing national government subsidies for state universities and colleges” (Manasan, 2012), it was concluded that the number of faculty with MS/PhD degrees and the number of COEs/CODs both have positive and statistically significant relationship with the passing rate in licensure examinations.

### 3.5 Job Placement of Graduates

Between 2011 and 2014, 70% of graduates in agriculture, fishery, and natural resources degree programs were able to find a job within six months (De Vera *et al.*, 2010). Among those employed, survey data show that graduates usually start out with lowly jobs such as support staff, clerical jobs or assistants but eventually went up the ladder to become technical and professional supervisors and managers. Graduates are employed in the following sectors in descending order: private companies, private multinational corporations, local governments, public schools, national government agencies, non-government organizations, and private schools. About 9% were self-employed primarily in retail business, services, and manufacturing/producing.

In terms of salary, close to 75% earns PhP 10,000 (1 USD is approximately PhP 43) or less, while only 17% earns PhP 10,000 to PhP 15,000 per month. It was reported that for 2010–2011 graduates, 92.5% were employed but many of them not in agriculture jobs (De Vera *et al.*, 2010). It was surmised that this may be due to faulty educational systems, particularly in Western Visayas, Central Visayas, Eastern Visayas, and Western Mindanao. Landing in a non-agriculture job is not a problem for graduates of Luzon-based SUCs.

## 4. Recent Developments from Within and Without

### 4.1 The K-12 Basic Education Program

The Philippines is the only country in the ASEAN, and one of the three remaining countries in the world, with 10 years basic education (the other two are Djibouti and Angola). By shifting to 12 years of basic education, it is hoped that the Philippines will be at par with the rest of the world. This reform aims to provide graduates a bigger chance of becoming regionally and globally competitive. The law, that was signed by President Benigno Aquino in May 2013, provides for a basic education curriculum that will see a mandatory kindergarten year and two additional senior high school years added to what was a 10-year education curriculum thereby making basic education 12 years.

The K-12 is the standard prerequisite for recognition of students and professionals by the Washington Accord in the US and the Bologna Process in the European Union. Hence, the education reform that resulted in the K-12 basic education curriculum arises from the need to address the globalization and regional cooperation for the graduates of HEIs to be globally competitive. The reform is also in response to the sore state of high school education in the Philippines, which was perceived to have deteriorated in the quality and competencies of its graduates and has poorly prepared high school graduates for college/universities and the labor market.

It is hoped that by shifting to 12 years of basic education, the Philippines will now be at par with the rest of the world. This reform that will result in a more solid basic foundation of HEI graduates will provide a bigger chance of becoming regionally and globally competitive. The K-12 Program hopes to:

- a. Decongest the basic education curricula;
- b. Prepare the students for higher education and for the labor market; and

- c. Be globally competitive/benchmark with global standards.

The other expected benefits of K-12 curriculum for the society and the economy are as follows (DepEd, 2010):

- a. It will contribute to economic growth; studies show that improvement in the quality of education increases GDP growth. Studies in the country have reflected that an additional year of school increases the earnings by 7.5% and that improvements in the quality of education will enable the GDP grow by 2–2.2%;
- b. It will facilitate the recognition of Filipino graduates and professionals in other countries; and
- c. A better-educated society provides a sound foundation for long-term socio-economic development.

#### 4.2 Implementation of the ASEAN 2015

In November 2007, the ASEAN leaders adopted the AEC Blueprint with the vision to “establish by 2015 a highly competitive single market and production base for its ten member economies, that promotes their equitable economic development and facilitates their integration with the global community.”

The ASEAN Integration 2020 aims to unite the 10-member countries of ASEAN into one economic and multi-cultural community and on security matters. The ASEAN Economic Cooperation 2015 (AEC), as an initial step in the integration process, aims to develop the member countries of ASEAN into a single market and production base for the free flow of goods, services, investment, capital, and skilled labor. While the goals are economic in nature, human resource and capacity as well as their movements within the region will be inevitably implicated.

The target date for implementation is set on 2015 and the following are expected for the education sector (Pascual, 2013):

- a. Greater student and staff mobility;
- b. Greater demand for quality programs;
- c. More collaborative research and curricular activities;
- d. Competition for jobs and employment;
- e. Higher employer standards; and
- f. Race for university ranking.

The ASEAN integration will facilitate the movement of people across political boundaries in the region. Through its education component, Filipino stu-

dents, faculty, and researchers will have more opportunities to cross borders into universities in neighboring countries and gain a regional perspective. Similarly, it is an opportunity for HEIs and the Philippines to welcome more international students especially from ASEAN member countries. Studies have shown that students who have had the opportunity to interact with other cultures or study abroad even for short periods of time are more intellectually mature, well-rounded in terms of skills, experience, and personal development, and are more employable (Procter and Buchan, 2007).

#### 4.3 Global Rankings of Universities in Relation to the Internationalization of Higher Education

Related to ASEAN 2015 is the development of world class universities that is at the heart of the worldwide national strategies of many emerging economies. In the last two decades, there has been a rise in the influence of university rankings both on the national and global levels. Since the rankings are in general based on assessments of a university's strengths using indicators to measure its teaching, research, knowledge transfer, and international outlook, university administrators are very concerned on how the national rankings in their countries and the global rankings could be used in their strategic plans for positioning to make their institutions world class universities.

The four major global university rankings are the following:

- a. Academic Ranking of World Universities (ARWU, 2013)
- b. Quacquarelli Symonds (QS) World University Rankings (QS Top Universities, 2013)
- c. Webometrics Ranking of World Universities (RWU, 2013)
- d. Performance Ranking of Scientific Papers for World Universities (HEEACAT, 2013)

The importance of being ranked among the world's best universities cannot be overemphasized because high global ranking affects a school's general reputation, student recruitment, networks and linkage establishment, alliance building, and the recruitment of the best and the brightest academics among its ranks and attracting financial resources. Because of the quest for higher ranking, higher education in the ASEAN is undergoing a rapid transformation. It is not therefore surprising that the performance of some



**Table 9.** Top 10 ASEAN universities in the 2013 QS University Rankings: Asia

ASEAN Rank	Overall Rank	Institution	Country
1	2	National University of Singapore (NUS)	Singapore
2	10	Nanyang Technological University (NTU)	Singapore
3	33	Universiti Malaya (UM)	Malaysia
4	42	Mahidol University	Thailand
5	48	Chulalongkorn University	Thailand
6	57	Universiti Kebangsaan Malaysia (UKM)	Malaysia
7	61	Universiti Sains Malaysia (USM)	Malaysia
8	64	University of Indonesia	Indonesia
9	67	University of the Philippines (UP)	Philippines
10	68	Universiti Teknologi Malaysia (UTM)	Malaysia

Source: Zhang, 2013

ASEAN universities has improved in the 2013 QS University Rankings: Asia (Table 9) (Zhang, 2013).

At present, Singapore is the only ASEAN country whose universities are operating at the forefront of Asian higher education. It is envisaged that the increased financial power of a unified ASEAN by 2015 could start to have a major impact on global higher education with the ASEAN students among the most benefited.

## 5. Needs and Challenges

- a. **Problems in implementing the K-12 program in the Philippines.** Attendant to the implementation of the K-12, a number of problems are expected, including among others lack of classrooms, shortage of teachers and textbooks, need for additional funding, and need for re-skilling of the current teachers especially in science and mathematics.
- b. **Harmonization of the academic calendar.** In facilitating the flow of services by 2015, ASEAN is working on harmonization and standardization through the ASEAN Universities Network (AUN) laying the groundwork for increased mobility of both students and staff within the region. However, one of the challenges of AUN in facilitating student and staff mobility are the differences in the academic calendar of the different AUN member universities. Most AUN member universities as well as China, Korea, Japan, Europe, and the USA start their classes in August,

September or October. Among countries with universities as part of AUN, only the Philippines start the academic calendar in June. On the other hand, Thailand has two academic calendars but their international calendar to which foreign students are allowed to enroll in, also starts in August or September. Hence, to take advantage of opportunities provided by the ASEAN integration on education, it is being proposed in the Philippines that the first semester begins August (instead of June) and ends December; and the second semester begins January (instead of November) and ends May.

- c. **Need for a 'common' ASEAN language.** While many ASEAN countries share common borders, the language and cultural gaps are huge. This problem will be magnified in the schools and in the workplace once the ASEAN 2015 comes into force. Hence, as early as 2006, it has been reported that the most important factor in the stability of ASEAN community is the awareness of ASEAN citizens on both the learning and capability in using English language (Severino, 2006). This is important to prepare students and staff for mobility, offering of mixed mode degree programs, online courses, and exchange of skilled labors within the ASEAN.

## 6. Opportunities, Responses, and Plans for the Future at UPLB

### 6.1 Academic programs

With the aim of producing learners who are able to appreciate, practice, and promote organic agriculture, the University of the Philippines Los Baños (UPLB) College of Agriculture developed and instituted the Certificate in Organic Agriculture curricula, an online program with the UP Open University (UPOU, 2013). The course is divided into 10 modules - each module provided with course materials that include reading materials and multimedia lecture presentations. Also ongoing is the revision of the BS Agriculture curriculum with Organic Agriculture as one of the areas of specialization. Along this initiative is the development of new courses in Organic Animal Production, Fair Marketing of Organic Products, and Organic Certification and Guarantee Systems.

With the implementation of the K-12 basic education program, the BS Agriculture curriculum will be decongested since many general education courses, e.g., English, Mathematics/Statistics, Biology, and Chemistry, will already be taken up in the senior high school (Grades 11 and 12). This provides an opportunity to enrich the BS Agriculture curriculum by offering sustainable agriculture related courses including practicum and other courses that would strengthen experiential learning among the students. Other possibilities are the offering of double major or double degree programs and honors programs for selected students to fast track the MS program.

The coming into force of the ASEAN 2015 that identifies student mobility, credit transfers, quality assurance, and research clusters as the four main priorities to harmonize the ASEAN higher education system is an opportunity for HEIs to improve its course offerings and develop new programs attractive to more than 10 million students in the 10 ASEAN nations. Among the programs that may be developed are sustainable agriculture degree programs (and courses) with an ASEAN perspective, sustainable agriculture innovation and entrepreneurship, and sustainable agriculture development studies in the ASEAN, among others. Multilateral and bilateral agreements are now being forged for the offering of dual or joint degree programs, initially for graduate programs but eventually including Bachelors degree programs.

### 6.2 Research, Development, and Extension Programs

The University of the Philippines Los Baños (UPLB) has adopted the inter- and trans-disciplinary approaches in research as part of its thrust to make its research, development, and extension programs more holistic, more inclusive, and more responsive to the needs of the society (UPLB, 2013)

The centers shall adopt and practice interdisciplinary conduct of intensive basic and applied research studies; develop a five-year RDE interdisciplinary RDE agenda in support of the attainment of the Philippine development goals along the sustainable development framework; develop, package, and propose programs for internal, and external funding; and pursue local, national, regional and global linkages with respect to strengthening and expanding interdisciplinary studies.

The centers will also synthesize the past RDE projects and studies and ensure their wide dissemination through technical and popularized outputs and publications resulting from the studies; and assist the University in providing the framework within which the harmonization, coordination, integration, and synergy of all relevant existing and proposed programs of the University can be achieved.

The Studies Centers are the following:

- a. Food Security and Nutrition Studies Center;
- b. Integrated Natural Resources and Environmental Management Studies Center;
- c. Interdisciplinary Alternative Energy Studies Center, and
- d. Climate Change and Disaster Risk Studies Center.

## 7. Conclusion

In 2008, the passage of Republic Act 9500 (Official Gazette, 2011) entitled “An Act to Strengthen the University of the Philippines as the National University” or the University of the Philippines (UP) Charter of 2008, signaled a greater role of the university in the international arena. The Act was aimed at “strengthening UP’s unique and distinctive leadership role in higher education and development” and tasked UP to respond to this globalized education. The Act stipulates that one of the University’s purposes is to serve “as a regional and global university in cooperation with international and scientific unions, networks of universities... in the Asia-Pacific Region and around the world.”

The University of the Philippines, declared as the

National University, is the highest internationally ranked university in the country. As such, there are many reasons for the worldwide emphasis on regionalization/internationalization for UP. Among these are: 1) it helps to improve student preparedness particularly in dealing with multi-cultures and in addressing global demands of society, employment, and the economy; 2) it internationalizes the curriculum; 3) it enhances the international profile of the institution, particularly important for improving its university rankings; 4) it strengthens research and knowledge production; and 5) it diversifies its faculty and staff thereby avoiding in-breeding (Marmolejo, 2010).

For the UPLB College of Agriculture, the premier agricultural university in the ASEAN region until a few decades ago, the implementation of the K-12 and the coming into force of the ASEAN 2015, would provide opportunities for the improvement of the BS Agriculture curriculum and in the development and institutionalization or offering of courses anchored in the sustainable agriculture as the framework within the ASEAN perspective. Further, these could redound to improvement of the performance of the graduates, make the agriculture profession more attractive, and render the graduates more marketable for both local and ASEAN students.

There is a need for a 'common' language among ASEAN higher education institutions to facilitate student mobility, implement credit transfers and possible joint or double degree programs, and mixed mode degree programs and online courses. Assuming that English will be this language, the Philippines will have a distinct advantage because according to a survey by the London-based research and ratings firm Quacquarelli Symonds (QS), three of the top 50 universities in the world when it comes to teaching English is in the Philippines, with the University of the Philippines ranked 32<sup>nd</sup> (Quismundo, 2012). It was reported (ICEF, 2013) that in January 2013, the Philippine Bureau of Immigration reported that 47,478 of 203,753 of international students in the country are studying in schools and universities across the country. This figure is 14% higher than the 41,443 international students who applied in 2011.

At present, there are a number of exchange students from South Korea and Japan taking regular courses and enrolling in specialized technical English courses at UPLB. This is expected to increase as more ASEAN students are expected to come to universities in the

Philippines to improve their facility with the English language.

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