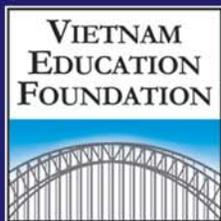




A Report
Presented to the Vietnam Education Foundation
by
the Site Visit Team of the National Academies of the United States

OBSERVATIONS ON THE CURRENT STATUS OF EDUCATION IN THE AGRICULTURAL SCIENCES IN VIETNAM

January 2007



THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Vietnamese Co-Sponsors:

MOET



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Special gratitude is extended to the U.S. experts, Dr. J. Scott Angle, Dr. Andrew Hashimoto, Dr. Neal Van Alfen, and Dr. Jaw-Kai Wang, for their contributions to the observations and recommendations contained in this report. We especially wish to thank the administrators of the four Vietnamese agricultural universities, Hanoi Agricultural University (HAU), Thai Nguyen University of Agriculture and Forestry (TUAF), Can Tho University (CTU), and Nong Lam University (NLU) for their hospitality during the site visits and their tremendous cooperation in making their faculty and facilities available to our team. Appreciation for cooperation and support is also extended to the Ministry of Education and Training (MOET), the Ministry of Agriculture and Rural Development (MARD), and the Vietnamese Academy of Agricultural Sciences (VAAS), all of which hosted and met with the team during the site visit. Special thanks to Mr. Michael Marine, U.S. Ambassador to Vietnam, Mr. John Wade, Agricultural Attaché, and others at the U.S. Embassy, who supported this project. In addition, we express appreciation to the Public Affairs Section, U.S. Embassy – Hanoi, for authorizing the use of the bi-national logo, representing the United States and Vietnam, used on the cover of this report.

Recipients of this report are encouraged to share broadly the information herein in the hope that the observations presented will promote the further development of education in the agricultural sciences in Vietnam.

Washington, D.C., January 31, 2007

H. Ray Gamble, Ph.D.
Director, Fellowships Office
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EXECUTIVE SUMMARY

A strong agricultural sector is key to economic development, and, in turn, agricultural productivity is dependent upon a broad-based system of education and research in the agricultural sciences. Recognizing this relationship, the Vietnam Education Foundation identified education in the agricultural sciences as a priority for its various programs. With that background, VEF asked the U.S. National Academies to provide an overview of the current status of education in the agricultural sciences in Vietnam. The project reported here was carried out with the cooperation and support of the Ministry of Education and Training (MOET), the Ministry of Agriculture and Rural Development (MARD), the Vietnamese Academy of Agricultural Sciences (VAAS), as well as four cooperating agricultural universities, Hanoi Agricultural University (HAU), Thai Nguyen University of Agriculture and Forestry (TUAF), Can Tho University (CTU), and Nong Lam University (NLU).

The objective of this project was to develop an understanding of the current status of education in the agricultural sciences in Vietnam. To accomplish this objective, background information was collected on these four leading universities in the agricultural sciences and a site visit was conducted by a team of experts organized by the U.S. National Academies. During the visit, the team met with senior government officials and with senior administrators and faculty at these four leading universities in the agricultural sciences. At the conclusion of the site visit, the team prepared a summary of their observations as well as a series of recommendations for building capacity in agricultural education.

The recommendations described in this report cover many aspects of education, research, and extension, focusing on some common themes. These common themes include: 1) decentralizing governance of the educational system in matters of curriculum development and faculty development and advancement; 2) moving toward a system of comprehensive education which avoids over-specialization; 3) adopting teaching methods that reduce the volume of courses and credits and that emphasize student learning-based methods; 4) providing adequate funding of facilities (libraries, laboratories, classrooms); 5) integrating research and extension with teaching at the universities and encouraging greater cooperation between the universities and institutes; and 6) promoting the importance of English language skills to both students and faculty.

A. Introduction

According to the FAO, “Agricultural and rural development is considered a foundation for general economic development and the implementation of modernization and industrialization. Renovation in agriculture is the kick-start for Vietnam’s economic reform, creating solid background for rural development in general.” Further, “it is necessary to create a new industrialized and modernized rural structure through joint development of agriculture, industry, and services to provide jobs to people and to offer them an appropriate standard of living without hunger and poverty.”¹ In addition to providing for an adequate, safe and healthy food supply for the people of Vietnam, efforts are needed to develop agricultural products that meet international standards for export.

A key to agricultural development is a broad-based system of education in the agricultural sciences. In the United States, land grant universities, established under the Morrill, Hatch and Smith-Lever Acts, link teaching, research, and extension to provide for a comprehensive mechanism to educate people and solve problems in agriculture.

Recognizing the importance of agricultural education to the development of Vietnam, the Vietnam Education Foundation (VEF)² identified the field of agriculture as a priority for its various programs. With that background, VEF asked the U.S. National Academies³ to provide an overview of the current state of education in the agricultural sciences in Vietnam. This project was carried out with the cooperation and support of the Ministry of Education and Training (MOET), the Ministry of Agriculture and Rural Development (MARD), the Vietnamese Academy of Agricultural Sciences (VAAS), as well as the four cooperating agricultural universities, Hanoi Agricultural University (HAU), Thai Nguyen University of Agriculture and Forestry (TUAF), Can Tho University (CTU), and Nong Lam University (NLU).

B. Objective

The objective of this project was to develop an understanding of the current state of education in the agricultural sciences in Vietnam. Within the overall objective, the focus was to understand the following:

- the means by which Vietnam establishes national and regional priorities for education in the agricultural sciences;

¹ Food and Agriculture Organization of the United Nations: <http://www.fao.org/vn/vn-progE.aspx>

² For more information on VEF, visit the website: <http://www.vef.gov>

³ For more information on the National Academies, visit the website: <http://www.nationalacademies.org>

- the vision and strategic plans of institutions responsible for education in the agricultural sciences;
- the processes by which programs of education in the agricultural sciences are implemented;
- the processes by which education in the agricultural sciences is evaluated; and
- the scope of research and extension at agricultural universities and their relationship with the educational process.

C. Methods

Dr. Phuong Nguyen, project consultant for VEF, gathered background information on the four participating agricultural universities, including the overall organization and demographics of these institutions.

In September 2006, the U.S. National Academies team visited Vietnam. The participants were as follows:

Dr. Neal Van Alfen, Dean, College of Agriculture and Environmental Sciences, University of California – Davis

Dr. J. Scott Angle, Dean and Director, College of Agriculture and Environmental Sciences, University of Georgia

Dr. Andrew G. Hashimoto, Dean and Director, College of Tropical Agriculture and Human Resources, University of Hawaii

Dr. Jaw-Kai Wang, Professor of Bioengineering and Aquaculture, College of Tropical Agriculture and Human Resources, University of Hawaii

Dr. Ray Gamble, Director, Fellowships Office, U.S. National Academies

Dr. Lynne McNamara, Acting Executive Director and Director of Programs, VEF

Dr. Phuong Nguyen, Consultant, VEF Agricultural Education Project

During the visit, the team met with senior government officials and with senior administrators and faculty⁴ from these four leading universities in the agricultural sciences. Major contributors and participants in these meetings are

⁴ The term “faculty” is used throughout this report to refer to the teaching staff of a university, not to a department.

listed in Appendix A. Through a series of interviews and discussions, the team obtained information on the following topics:

- The mission of these agricultural universities
- The relationship of the academic programs to national agricultural needs
- The relationship of the academic programs to international agricultural needs
- The system for development of the courses of study and the curricula of those courses of study
- Criteria for admitting students at the undergraduate and graduate levels
- The system of measurement of learning outcomes
- The quality of students' education in comparison to international standards
- Comparative aspects of undergraduate and graduate education
- The placement of graduates in the workforce
- The scope of research activities supporting education
- The scope of extension-type activities⁵ supporting education
- The scope of partnerships with industry and other technology transfer activities
- The extent of international partnerships in education and research
- The major sources of funding for agricultural education
- The major opportunities for agricultural education in the future

D. Results

A summary of preliminary data gathered prior to the site visit is presented in Appendix B. These data provide background on the four universities visited.

⁵ Extension activities are defined as activities organized by the university and developed for the public domain outside of the academic institution. For example, a university may prepare and distribute information pamphlets on improved agricultural techniques for specific populations in Vietnam.

Observations in the present report are similar, in many respects, to those expressed in the VEF report, entitled *Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam*,⁶ and when appropriate, those similarities will be referenced. Following are areas in which the review team felt improvements are needed in the Vietnamese system of education in the agricultural sciences. Suggestions are provided for realistic changes to address these needs. Specific recommendations in each section are emphasized by underlining.

1. Decentralization

Many aspects of the Vietnamese educational system are centrally controlled through the Ministry of Education and Training (MOET). Up to 70% of the curriculum framework for Vietnamese universities is developed at the national level, principally by MOET and committees thereof.

The various regions of Vietnam have distinct, and often unique, needs in terms of agricultural development and, for the most part, they serve the educational needs of the regional population. For this reason, the missions of universities responsible for education in the agricultural sciences should be regional. Rather than working from a centrally designed curriculum framework, agricultural universities should have unique curricula which are appropriate for the regions they serve. For that reason, we recommend assigning responsibility for development of teaching curriculum in the agricultural sciences to the universities.

Decentralizing curriculum development will enable universities to accomplish a number of objectives: 1) curriculum can be tailored to the regional needs of the students and the general population who are served by the education, research and extension activities of the agricultural sciences universities; 2) greater flexibility in designing curriculum will afford an opportunity to take advantage of modern teaching methods which incorporate student-based learning; and, 3) in developing curriculum, universities can incorporate a quality assessment component which is based on the product of the educational process. As an added benefit, moving responsibility for curriculum development to the universities where the curriculum is implemented will foster creativity, which is essential to advancing a progressive agenda in education.

A centrally designed curriculum framework, as currently exists, does not assure the uniform quality of education. Instructors at the universities must decide upon the content of courses within the required curriculum and how that content is delivered to the students. At present, in Vietnam, there appears to

⁶ Director, S. W., Doughty, P., Gray, P. J., Hopcroft, J. E., & Silvera, I. F. (2006). Observations on undergraduate education in computer science, electrical engineering, and physics at select universities in Vietnam. A report presented to the Vietnam Education Foundation by the Site Visit Team of the National Academies of the United States. This study is at times referred to as the "Undergraduate Education Report."

be no system at the national level for review of the content and delivery of the prescribed curriculum. Under a decentralized system of curriculum development, universities should be accountable for assuring the quality of education their students receive. A process of self and peer assessment/accreditation has a very important role in assuring accountability and connects accountability with self-governance. MOET should continue to play a leading role in developing the framework for educational assessment.

2. Providing a Comprehensive Education

The curriculum of universities in the agricultural sciences is limited in scope; consequently, the education of the students, who graduate from these universities, is limited. These 4-year agricultural science programs have many elements of vocational or technical educational systems. Agricultural universities should focus on broader academic training, preparing students to contribute to greater strides in development. Modern research and education requires collaborations beyond the boundaries of traditional Vietnamese universities. For these reasons, it is recommended that agricultural universities be combined with other universities, or their educational programs expanded in scope, to create comprehensive institutions.

3. Redefining Educational Strategy

a. Training versus Education

Supporting findings described in the earlier Undergraduate Education Report, the agricultural education project site visit team observed that teaching at each of the four universities consisted almost entirely of presentation of materials for rote memorization. While this method may result in excellent recall of specific facts, it is ineffective in teaching students to think. Education should focus on development of life-long learning and communication skills and not just on the delivery of specific facts. However, it seems that problem-based learning cannot be easily incorporated into the current curriculum due to the high number of courses required. It is recommended that Vietnam consider teaching models such as those in the U.S. and other countries where a comprehensive education is delivered using student learning-based methods. In particular, credits and courses required to obtain a degree should be reduced to a number essential for achieving a quality education.

At present, there appears to be more emphasis on vocational-type training than on comprehensive education in the agricultural sciences. It is suggested that MOET, MARD, and the universities assess the current and future workforce needs in agriculture and use this information to determine how to best apportion resources between providing comprehensive education versus specific (vocational) training.

b. Scope of Teaching

The curriculum in Vietnamese universities covers too much detail rather than delivering a general background education and developing learning skills. This is reflected in an excessive number of credits and courses required to obtain a degree. While many of the topics covered are modern and pertinent, the overall curriculum is too specific and ambitious. Educational objectives should be focused on learning skills rather than on memorization of specific facts that rapidly become obsolete. For these reasons, it is recommended that Vietnam focus on a broad-based curriculum in the agricultural sciences, with the expectation that students will learn the skills specific to a particular crop or to an agricultural practice through internships, project-based learning, or on-the-job training, as needed.

4. Integrating Research and Extension

Education in the agricultural sciences requires integration of research and extension for both faculty and students. At present, it appears that research funds in Vietnam are extremely limited and are primarily directed to institutes. As for extension services, it seems that most of the extension activities are currently managed through the provincial government and are not part of the university system. It is recommended that MOET consider ways to ensure that the mission of top universities in the agricultural sciences includes significant components of both research and extension; further, faculty should be encouraged and rewarded for these activities. The following are examples of how to accomplish these goals:

- Make research funding competitive. In this way, universities as well as institutes can compete. The best qualified and most productive applicants would get funding. This process would also generate new ideas for the agricultural research agenda.
- Establish or co-locate institutes at the universities. Currently, there is little incentive for collaboration among universities and institutes. In contrast, branches of the U.S. government's agricultural research organizations are components of, and are co-located with, many agricultural universities, allowing them to work closely together. In this way, government scientists are able to work with students, and university faculty are able to access government facilities and equipment for cooperative projects.
- Link provincial extension services to universities. Co-locate extension offices within the agricultural universities so that extension workers can benefit from knowledge at the universities and so that university faculty can become more involved with real agricultural problems.

Vietnam would benefit greatly if its faculty were empowered to help in the research and development efforts needed to address the many challenges faced by Vietnam's agricultural sector.

By integrating the teaching, research, and extension functions, students are better educated because the faculty are continually creating new knowledge that is shared with students, and faculty are dealing with problems faced by the industry so that the education is relevant to current and anticipated needs.

5. Developing Human Resources - Faculty

Four factors must be addressed to better develop university faculty: 1) building the knowledge base of faculty; 2) enhancing the teaching skills of faculty; 3) increasing faculty knowledge of research; and 4) transitioning the educational model from theoretical to practical teaching. The following discussion addresses these four factors.

a. Faculty Training

Some instruction at the universities is delivered by faculty members who only have an undergraduate degree (see page 32 in Appendix B). Further, most of these instructors were trained at the same university at which they teach. With a large portion of instruction (15-58%) delivered by instructors trained at the same university with an education generally considered adequate only for secondary school teaching, changes will likely be difficult. Coupled with this limited educational exposure is a general lack of English fluency on the part of most faculty members.

Modern scientific instruction and research requires fluency in English. A lack of adequate English skills is a fundamental problem because it limits faculty from accessing journals that keep them current in their field. Based on the site visit team's observations, it is recommended that faculty development be considered a priority for Vietnam. The primary instructors of university students should shift from faculty with B.S. and M.S. degrees to those with Ph.Ds. The faculty of a given university should have received their training at many different universities and not be selected primarily from the students of their own university. Importantly, MOET should require students and faculty to improve English proficiency. English language fluency is essential for scientists to access the international literature.

b. Teaching Methodology

Education in the agricultural sciences, and more broadly as seen in other fields (evidenced by points raised in the Undergraduate Teaching and Learning section of the previous VEF Undergraduate Education Report), relies too much

on rote memorization and does not incorporate modern student learning-based methods.

Faculty should be afforded greater flexibility to experiment with teaching methods, focusing on instructional methodologies (how to teach) and on ways to assess teaching effectiveness. It is recommended that MOET play a leadership role in delivering the knowledge of modern teaching methods to the university faculty. Among possible enhancements to teaching and learning opportunities is the greater use of distance learning.

c. Faculty Evaluation and Faculty Advancement

The current methods for faculty assessment and promotion are counterproductive to Vietnam's aspirations to build a quality system of higher education.

Because faculty incomes increase according to the number of courses taught, faculty are incentivized to teach a large number of courses. This leaves no time for research, and in most cases there appear to be no comparable rewards for research or extension activities. As promotion is based on both teaching and research accomplishments, it appears almost impossible for faculty to attain the rank of professor.

It is highly unusual in most university systems to have such low numbers of professors among Ph.D. holders. The degree of difficulty in obtaining promotion to the rank of professor may be a discouragement factor for some faculty.

It is recommended that university leaders be granted autonomy in making promotion and tenure decisions, based on international standards. The qualifications for achieving the ranks of associate and full professor should be clear to faculty and consistent with international standards.

6. Enhancing Facilities

The quality of facilities varied significantly among the four universities visited. Some universities seemed to have better quality laboratories available for research and for teaching. In discussions regarding the financial resources for the facilities, it seemed that the better quality facilities were the result of grants from international organizations. It was not clear why some universities were better able to capitalize on international funding than were other universities.

In general, with the exceptions of facilities that were the result of recent international contributions, the facilities for teaching and research at the universities were very poor. Most lacked even rudimentary equipment for teaching students (i.e., sufficient microscopes to allow each student the opportunity to become proficient in using such a basic tool). Some advanced

equipment was available for research and demonstration purposes, but there was little evidence of heavy use of the equipment, perhaps reflecting challenges in funding for supplies and repair. It is recommended that the hands-on laboratory experiences of students be enhanced by investment of additional funds in adequate laboratory facilities and supplies.

Universities appear to be inadequately funded for their educational mission, and receive even less funding for research and extension. It would be better to have fewer, adequately funded, institutions. It is therefore recommended that MOET consolidate and/or transform a subset of universities of agricultural sciences into comprehensive universities in order to provide a solution to the funding limitations of existing institutions. Further, consolidation will address other concerns regarding the scope of education as pointed out in the earlier discussion of comprehensive universities.

7. Improving Learning Resources

Access to scientific literature is a fundamental requirement for successful graduate training and for faculty to have current knowledge to support teaching of undergraduate students. Two barriers prevent faculty and students from accessing the scientific literature: limited availability of the publications and lack of sufficient English language skills. The subject of language skills has already been addressed, so here we focus on the libraries themselves.

The libraries primarily carry Vietnamese scientific journals; few international journals were evident. Answers to the site visit team's questions regarding online access to journals suggested that most faculty and students access these resources through friends at international universities. There seems to be little access provided by the universities visited.

A good library is essential to both undergraduate and graduate programs; however, none of the facilities we visited were adequate. It is recommended that the Vietnamese government consider investing a substantially greater portion of the overall annual university budget for the purchase of books, journals, and other pertinent information resources through electronic and other means.

8. Ensuring Uniform Access to Educational Resources

There is an underlying problem with the competitiveness of students from rural universities and this is recognized by both the students and the faculty. The site visit team often heard that rural students cannot be competitive for VEF Fellowships.

It is not clear if the lack of English language skills is the primary limiting factor in the competitiveness of students from rural universities. It is equally possible that the preparation of these students, who receive their primary and secondary

education at rural schools, are at a disadvantage upon entering the university. This results in a regional hierarchy of education and career opportunities. It is recommended that further evaluation of reasons for barriers to equal opportunity among rural students be undertaken by MOET.

9. Cooperation and Collaboration

It was clear that there are many opportunities for additional cooperation and collaboration among universities and institutes, as well as opportunities for cooperation and collaboration among universities and central (national) or provincial extension authorities. It is recommended that co-location and sharing of resources between the universities and institutes would benefit all programs.

There may also be opportunities for collaboration with industry. University faculty and administrators should have good knowledge of the needs of the agricultural industry in Vietnam and areas where there may be synergistic opportunities. Understanding the needs of the agricultural industry will also help university administrators and faculty shape the education they deliver to their students.

Finally, additional efforts should be made to build relationships with universities in other countries, including the U.S., in the areas of undergraduate and graduate education and research.

10. Enthusiasm and Desire for Change

The overall impression from conversations of the site visit team with the faculty and their leaders is one of hope and expectation of change. There is a sense that change is needed and there was a strong desire expressed to explore ways to improve their programs. Some of the faculty members appear to be innovative and able to take advantage of opportunities to develop professionally. A desire of some of the faculty interviewed was to be taken seriously by the international research community.

The impression of the site visit team was that there is potential for significant and rapid improvement of the universities if the faculty members are given appropriate opportunities.

E. Conclusions

Vietnam is currently focusing on small incremental improvements. There is a need to accelerate economic development through agriculture, and, hence, there is a serious need for an improved system of education, research, and extension at the agricultural universities.

It was the understanding of the site visit team that MOET considers agricultural education a priority. However, there was an apparent overall lack of appreciation of the role that agricultural sciences can play in Vietnam's economic development. The best students seem to enroll in programs of information technology, computer science, and medicine. This might not be so critical in a country like the U.S. where only 2% of the population works in agriculture. However, in Vietnam where 60%+ of the population works in agriculture, it is imperative that some of the best students major in agricultural programs.

MOET and MARD will need to take aggressive steps to build a high quality workforce in the agricultural sciences, and this workforce must be grounded in a quality educational system within Vietnam. Top priority should be given to the following points as discussed previously in this report.

- Grant autonomy to the universities in the areas of curriculum development as well as faculty development and advancement. The educational system is like the agricultural production system; it works best if it is not centrally governed.
- Assure delivery of a comprehensive education that affords equal opportunity to students from all regions of Vietnam. Technical over-specialization is counterproductive in undergraduate education. Integrating agricultural schools with major universities will be of great value.
- Explore and adopt modern teaching methods that de-emphasize long hours of lecture and rote memorization in favor of student learning-based methods.
- Assure access to scientific literature in English. The government should provide higher levels of funding for library resources and emphasize the importance of English language skills to both students and faculty.
- Emphasize quality versus quantity. Funding of the existing facilities is insufficient. Consolidation of universities and/or co-location with institutes will better leverage available funds.
- Integrate research and extension with teaching at the universities. By integrating the teaching, research, and extension functions, students are better educated because the faculty are continually creating new knowledge that is shared with students.
- Foster cooperation across the spectrum of education, research and extension in the agricultural sciences. Reward cooperation at the universities and institutes.

F. Observations on Specific Areas

The following are observations of the team on specific teaching and/or research areas for emphasis or de-emphasis:

Value-added post harvest processing. Vietnam produces ample food, yet little of it is processed beyond the farm gate for value added. As the number of agricultural workers is reduced from 60% of the total workforce to a goal of 20%, these workers will need to find alternative employment opportunities. Post harvest processing is a logical area of emphasis, and the curriculum in this area should be expanded.

Aquaculture. Next to rice, aquaculture is the most important export crop for Vietnam. The opportunity to apply modern biotechnology to shrimp production is available, and Vietnam needs to take advantage of this opportunity by offering education, research and extension services to the industry.

Agricultural engineering. Agricultural engineering, with an emphasis on rice mechanization and processing, should be given priority at appropriate regional universities. A strong agricultural engineering department should be established at least in the Mekong Delta area.

Water pollution. Aquaculture has become an important contributor to water pollution. Taiwan and China have become keenly aware of this, and each country is taking steps to reduce pollution caused by aquaculture. Taiwan, which was the world's number one shrimp exporter at one time, has stopped the production of shrimp for export. A program on prevention and control of water pollution should be an area for emphasis in agricultural engineering education and research in Vietnam.

* * * * *

APPENDICES

Appendix A

Major Contributors and Participants

Vietnamese Participants and Contributors (listed alphabetically according to the Vietnamese system with the given name in the final position).

No.	Name	Role/Title	Department ⁷ , Institution/ Organization
1	Dr. Nguyen Tuan Anh	Director Faculty member	International Training Center Faculty of Resources and Environmental Science, Thai Nguyen University of Agriculture and Forestry (TUAF)
2	Mr. Hoang Ngoc Bao	Senior Officer	Department of International Cooperation, Ministry of Agriculture and Rural Development (MARD)
3	Prof. Dr. Dang Vu Binh	Rector	Hanoi Agricultural University (HAU)
4	Prof. Dr. Nguyen Van Bo	President	Vietnamese Academy of Agricultural Sciences (VAAS)
5	Dr. Tran Ngoc Ca	Vice-President Director of Secretariat	National Institute for Science and Technology Policy and Strategy, Ministry of Science and Technology National Council for Science and Technology Policy (NCSTP)
6	M.Sc. Ngo Doan Dam	Deputy Director	Department of Research Planning and International Cooperation, VAAS
7	Dr. Le Viet Dung	Director	Department of International Relations & Project Management, CTU
8	Dr. Trinh Truong Giang	Vice-Rector	Nong Lam University (NLU)
9	Prof. Dr. Sc. Hoang Ngoc Ha	Director General Member	Science and Technology Department, Ministry of Education and Training (MOET) NCSTP
10	Dr. Phan Phuoc Hien	Deputy Head	Office of International Relations, NLU
11	Assoc. Prof. Dr. Vu Dinh Hoa	Director	Office of Research Affairs & International Cooperation, HAU
12	Dr. Nguyen The Hung	Vice-Director	Department of Sciences and International Relations, TUAF
13	Assoc. Prof. Dr. Huynh Thanh Hung	Vice-Rector	NLU

⁷ The term “Faculty” is used in Vietnamese universities to refer to the equivalent of a “Department” in U.S. higher education. The term “Department” is used in Vietnamese universities to mean the equivalent of a “Major” in U.S. higher education. In this table, the terms used by the Vietnamese are given for each individual while the column heading uses the English terminology.

No.	Name	Role/Title	Department ⁷ , Institution/ Organization
14	Ms. Nguyen Thanh Huyen	Deputy Director	Department of International Co-operation, MOET
15	Assoc. Prof. Dr. Nguyen Phuc Khanh	Deputy Director General	Science and Technology Department, MOET
16	Assoc. Prof. Dr. Nguyen Kim Khoi	Deputy Director	Department of Higher Education Department, MOET
17	M.Ed. Dang Thi Ngoc Lan	Deputy Director	Department of International Relations & Project Management, CTU
18	Dr. Vet. Le Van Lanh	Deputy Director	Office of Research Affairs & International Cooperation, HAU
19	Dr. Le Duc Long	Senior Officer	Department of International Co-operation, MOET
20	Prof. Dr. Chu Tuan Nha	Chairman	NCSTP
21	Prof. Dr. Sc. Tran Van Nhung	Vice Minister	MOET
22	Assoc. Prof. Dr. Tran Van Nghia	Deputy Director	General Department for Testing and Educational Quality Accreditation, MOET
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28	Assoc. Prof. Dr. Nguyen Anh Tuan	Rector	CTU
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30	Ms. Luu Ngoc Van	Officer	Office of Research Affairs and International Cooperation, HAU
31	Assoc. Prof. Dr. Tran Duc Vien	Vice-Rector for International Relations and Research Affairs	HAU
32	Prof. Dr. Dang Kim Vui	Rector	TUAF
33	Assoc. Prof. Dr. Do Van Xe	Vice Rector	CTU

Appendix B

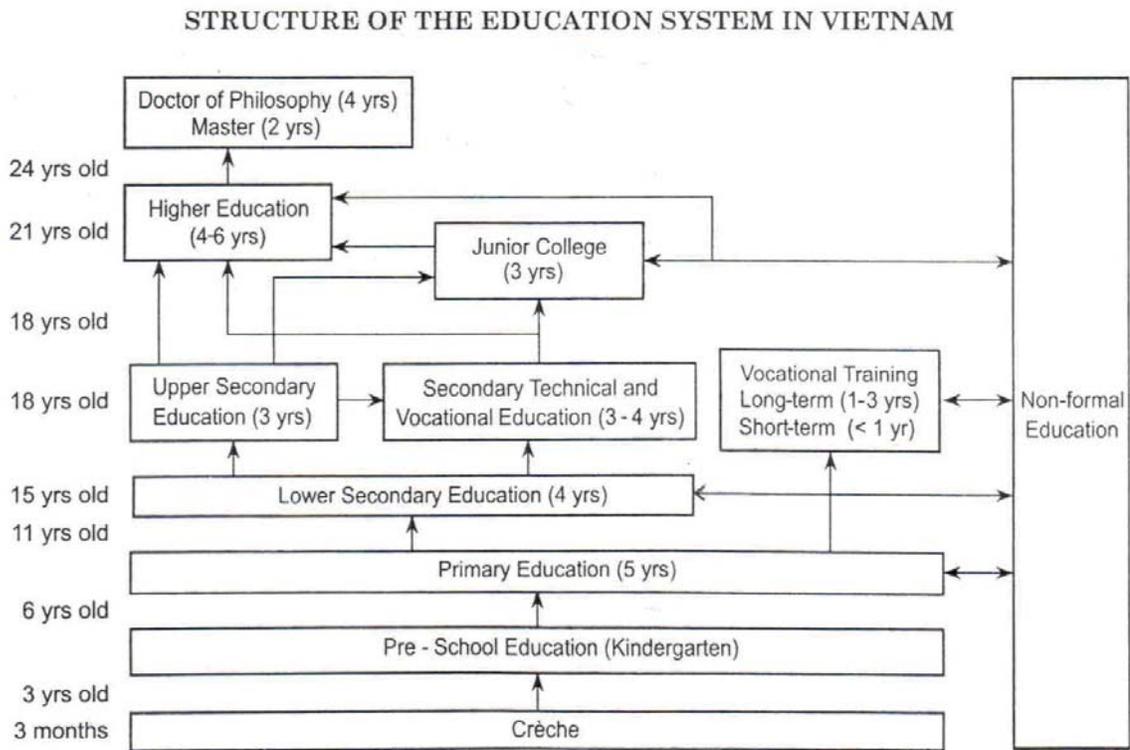
Summary of Background Information on the Four Cooperating Universities in the Agricultural Sciences

I. Background

A. Educational System in Vietnam

Education is traditionally highly valued in Vietnamese society. It is also regarded as being of critical importance to Vietnam's success in the global economy. During the academic year 2005-2006, there were approximately 22 million students (excluding about 650,000 non-formal education students) in the educational system (MOET, 2007a). Education in Vietnam accounts for 19% (US\$ 3.4 billion or 55,300 billion Vietnamese Dong) of all state budget expenditures (Prof. Dr. Nguyen Thien Nhan, personal communication, August 2006). The structure of the national education system is provided in Chart 1.

Chart 1: Structure of the education system in Vietnam.



Source: Vietnam Education and Training Directory (MOET, 2004, p. 15)

B. Higher Education in Vietnam

The Ministry of Education and Training (MOET) was established in 1990 and was given responsibility for all education and training at the national level, including higher education. Since the mid-1980s, and especially since 1993, there has been a sustained effort to build and reform the higher education system. During the period from 1993 to 2003, higher education enrollment increased by more than 600 per cent and there was a doubling in the number of higher education institutions. By the academic year 2005-2006, there were 255 universities and colleges, including two national universities: Vietnam National University - Hanoi, and Vietnam National University - Ho Chi Minh City. A summary of the types of higher education institutions and their distribution for academic years 1999-2000 through 2005-2006 is provided in Table 1.

Table 1. Higher education institutions in Vietnam and their distribution by type during academic years 1999-2000 through 2005-2006.

	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
INSTITUTIONS	153	178	191	202	214	230	255
Junior Colleges	84	104	114	121	127	137	151
Public	79	99	108	115	119	130	142
Non Public	5	5	6	6	8	7	9
Universities	69	74	77	81	87	93	104
Public	52	57	60	64	68	71	79
Non Public	17	17	17	17	19	22	25

Source: So lieu thong ke giao duc [Statistics on education] (MOET, 2007b)

As background for this project, the following points can be made about Vietnamese higher education:

- The Vietnamese higher education system has been totally redesigned twice in the last 200 years. “Now comes the third reorganization, based on the on-going renovation (‘doi moi’) of the country’s social organization so as to fit into a socialist market economy.” (Nguyen & McDonald, 2001, p. 1)
- The administration and financing of education are becoming more decentralized both horizontally and vertically. Horizontal decentralization has meant that, while MOET is pre-eminent, other functional departments within the government also have responsibility for education and training (e.g., the University of Medicine under the

Ministry of Medicine, the University of Culture and the Conservatory of Music under the Ministry of Culture and Information, the University of Architecture under the Ministry of Construction, the Vietnam National University - Hanoi, and the Vietnam National University – Ho Chi Minh). Vertical decentralization means that different levels of government have become more responsible for education and training in their functional, geographic, and political areas.

- Vietnam’s Decree 85 on educational reform allows local education authorities more power and responsibility to undertake long-term education programs.
- In 1993, the government issued Decree 90/CP⁸ that addressed the structure of national education and expressed commitment to the concept that all should have the right to study and pursue higher education.
- MOET introduced the first ten institutional accreditation standards for Vietnam higher education in December 2004. Ten pilot institutions carried out and completed self-studies between March 2005 and December 2005. Another cohort of ten institutions completed self-studies in 2006. Twelve institutions completed peer reviews by December 2006. Between 2007 and 2020, the rest of the higher education institutions in Vietnam will be expected to complete self-evaluations.
- According to MOET’s *Pre-feasibility Report Regarding the Higher Education Project No. 2*, a large number of small, single-discipline colleges and institutes transformed into one with far greater institutional diversity. (MOET, 2006)
- Growth of a “non-public” sector has been striking. Approximately 11 percent of all students now attend higher education institutions that rely almost entirely on tuition and fees for their income. It is expected that this proportion will increase to 40 percent by 2010. A related change is that over three-quarters of all higher education students in Vietnam now pay tuition and fees.
- Regarding funding for future growth, the demand for places in higher education in Vietnam is increasing at a faster pace than their availability. Financing this growth will inevitably require that more of the burden of cost will be transferred to students and their families, and thus comes the conflict between promoting equity of access and encouraging the development of high standards in teaching and research.

⁸ CP is an acronym for the Vietnamese word for government, “Chinh Phu.”

- As the system expands, far more institutional autonomy will be required as will better governance and management processes within higher education institutions.
- Quality is a major issue, in particular, the quality of the inputs, processes, and outcomes of the higher education sector.

II. Methodology

A. Selection of Case Institutions

Four Vietnamese universities — Hanoi Agricultural University (HAU), Thai Nguyen University of Agriculture and Forestry (TUAF), Can Tho University (CTU), and Nong Lam University (NLU) — were selected to participate in this Agricultural Education Project because of their exemplary undergraduate programs in the agricultural sciences.

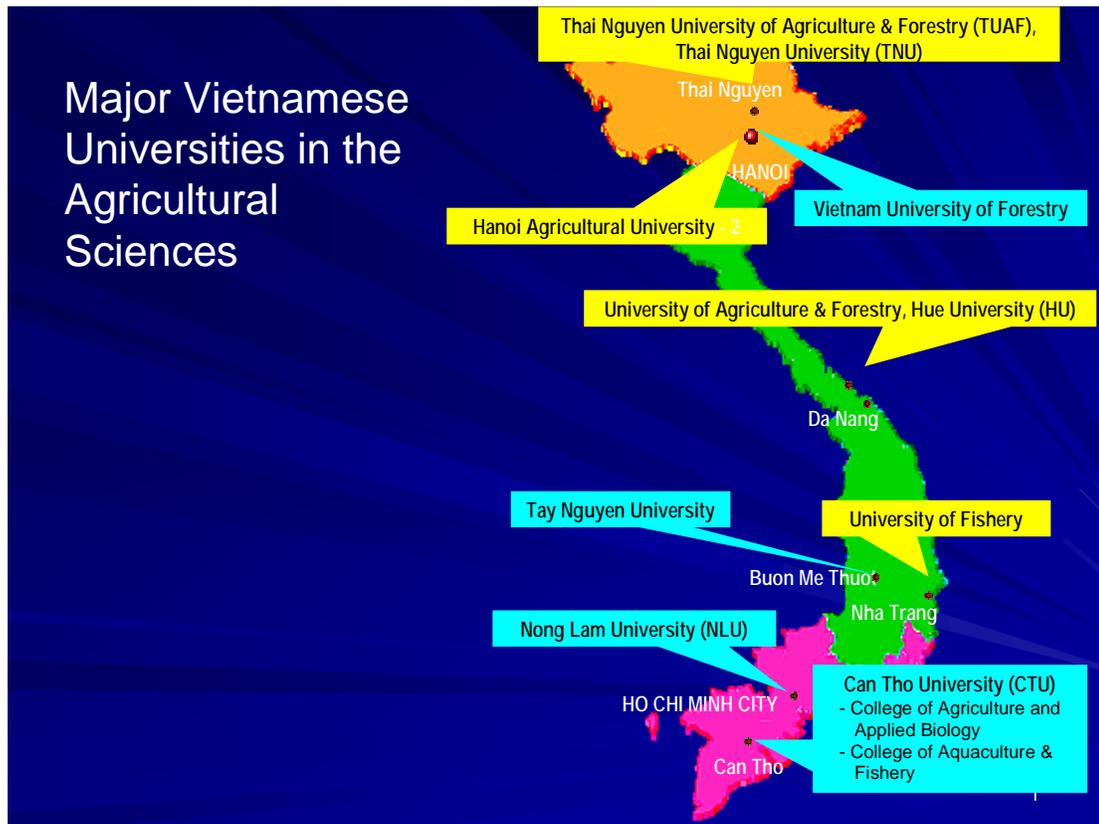
B. Research Design

This was a multiple case study qualitative research project. For the first phase, background information was gathered from the following sources: (a) the universities' brochures; (b) the Ministry of Education and Training Directory published in 2004; (c) the universities' Web sites; and (d) students' transcripts. This information provided the U.S. experts with an overview of the Vietnamese higher education system and of the four participating universities before the on-site visit to Vietnam in September 2006.

III. Summary of the Four Agricultural Sciences Universities

Among the four universities participating in the Agricultural Education Project, HAU and TUAF are located in northern Vietnam, and CTU and NLU are located in southern Vietnam. The distribution of the eight main Agricultural Sciences universities in Vietnam is shown in Chart 2.

Chart 2. Summary and location of major Vietnamese universities in the agricultural sciences.



Although located in different regions, the four universities that participated in this project share five similarities: (a) full-time undergraduate admission; (b) numerous required courses and credits; (c) academic calendar; (d) duration of Bachelor’s degree programs; and (e) organization.

Admission to programs in Agricultural Sciences at the four universities is a two-part process. The students must have a high school diploma and must follow admission procedures according to the regulations of MOET. Depending on the students’ selected majors, they have to take examinations in one of the following groups: Group A, consisting of mathematics, chemistry, and physics; or Group B, consisting of mathematics, chemistry, and biology. The entrance examination is organized in July every year. The students who pass the entrance examination will receive a letter of admission in September. The examination results can be deferred for admission purposes for one year.

The four universities require numerous courses and credits to complete an undergraduate degree. Analysis of the students’ transcripts shows that students are required to take 243–248 credits or 37-100 courses to complete an undergraduate degree in Agronomy or Plant Growing. As is shown in Table 2

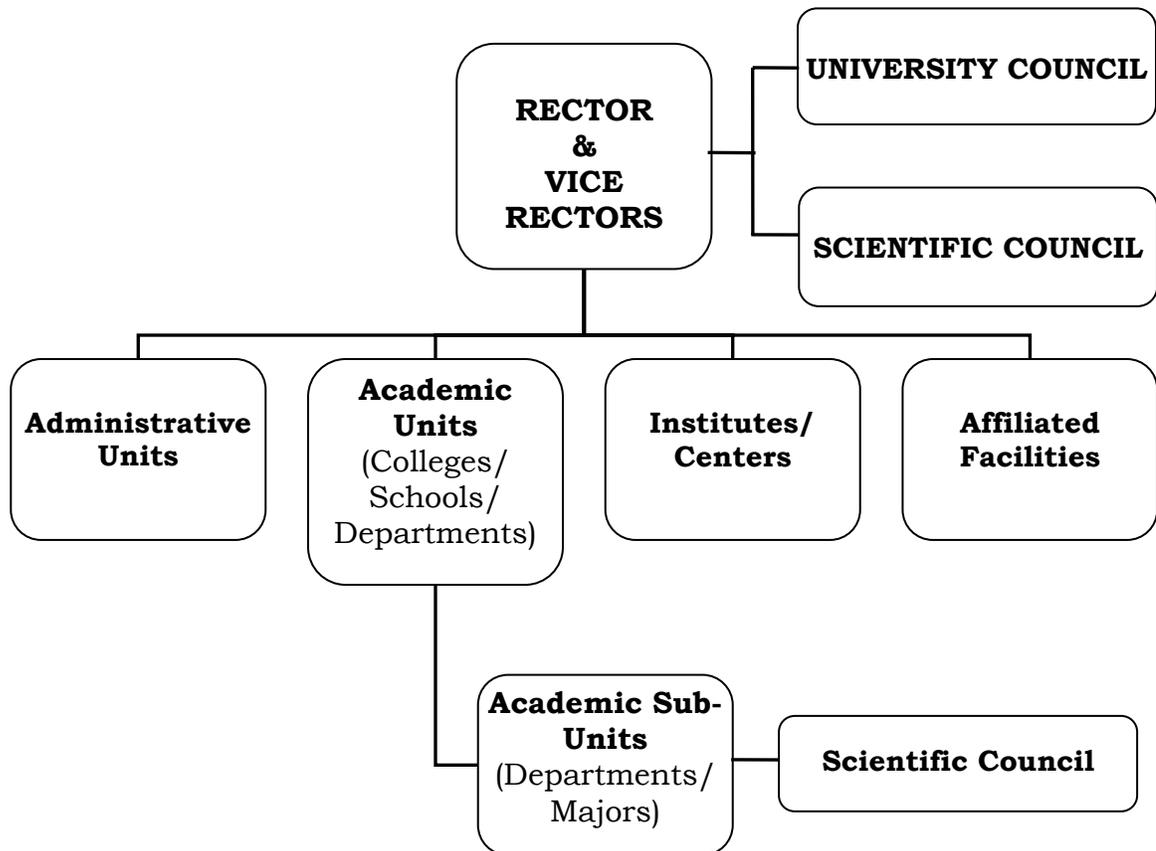
on pages 29-33, the duration of a Bachelor's degree program is consistent among the four universities. It takes students four years to complete a Bachelor's degree in Agronomy at HAU, TUAU, and NLU, while it takes 4.5-5 years at CTU. Higher education institutions in Vietnam are semester-based and operate about 18 weeks per semester: from August to February (first semester) and from February to July (second semester).

Similar to U.S. universities, universities in Vietnam are divided into departments and each department is divided into majors. Vietnamese universities use the term "faculty" to refer to the equivalent of a department in U.S. universities and "department" to refer to the equivalent of a major or specialization. A Vietnamese "faculty" is comprised of "departments," and the head of the faculty is the Dean. Each department has a department head. For the purpose of this report, the generally accepted terms for U.S. universities are used. The organization of a typical Vietnamese university is shown in Chart 3.

In essence, the rector is the head of the university, responsible for overall management and administration. The University Council is a governing body empowered to formulate strategic planning and policies and to institute the university's academic and administrative rules and regulations. The university's Scientific Council is an advisory body to the rector on curricula and long and short-term plans for training and research. The four universities that participated in this study are under the jurisdiction of MOET. Academic, budgetary, and personnel matters of the university are under the supervision of MOET. In a university, there is also a "Scientific Council" for each department, which serves as an advisory body to the dean on curricula and plans for training and teaching.

A major difference that is worth noting is that CTU is a comprehensive university while HAU and TUAU are mono-disciplinary universities. Nong Lam University is currently being transformed into a comprehensive university with a broad range of educational programs. Another difference is that TUAU is a member of the regional Thai Nguyen University; thus, it has one more layer in its reporting line than going directly between the university and MOET. The summary of background information on the four universities is provided in Table 2 on pages 29-33 of this report.

Chart 3. Typical organization of a Vietnamese university.



Additional information about the universities that participated in this project is available at the following Web sites:

Hanoi Agricultural University: www.hau1.edu.vn/en/intro.htm

Thai Nguyen University of Agriculture and Forestry:
www.tnu.edu.vn/c-agriculture.htm

Can Tho University: http://www.ctu.edu.vn/index_e.htm

Nong Lam University: <http://www.hcmuaf.edu.vn/english/index.html>

IV. References

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V. Useful Sources

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Table 2. Summary of Four Universities Participating in the Agricultural Education Project

	HAU	TUAF	CTU	NLU
Year founded	1956	1970	1966	1955
Locality served	The main university in agricultural sciences in northern Vietnam	Northern mountainous region	12 provinces in the Mekong Delta	The main university in agricultural sciences in southern Vietnam
Reporting line	Ministry of Education and Training (MOET)	Regional Thai Nguyen University, then to MOET	MOET	MOET
Mandates/ Mission	<p>To provide training, research and development, and extension.</p> <p>In pursuit of excellence in training, research, and public service, HAU has a strong commitment to successfully ensure agricultural and rural development, making contributions to the development of industrialization and modernization of agriculture and the countryside.</p> <p>To provide high level manpower for, and improve productivity and efficiency of, agriculture in such a way to use the natural and agricultural resources available to satisfy economic, social, physical, and ecological needs of the Vietnamese people using methods and systems that are sustainable, human, socially just, and beneficial to the environment.</p>	<p>To offer higher education in agriculture, forestry science, technology, and management that provides manpower shortage for the northern mountainous region of Vietnam.</p> <p>To play a key role in research and technology transfer for solving problems that meet the socio-economic development of the northern mountainous region and Vietnam.</p> <p>To be a center of educational exchanges in agriculture and forestry as well as information storage between the northern mountainous region and other regions of Vietnam.</p>	<p>Located in the center of the Mekong Delta in the south of Vietnam, the College of Agriculture & Applied Biology, CTU, has the following mandates:</p> <p>To offer undergraduate, Master's, and Ph.D. training programs in agriculture to meet current and future educational needs of the residents in the Mekong Delta.</p> <p>To conduct fundamental scientific research and to develop applications of agriculture for the Mekong Delta and other regions.</p> <p>To directly serve the needs of the community by spreading knowledge of sciences and technology and transferring technology.</p> <p>To assist in developing the regional economy and local productivity by expanding agriculture and bringing scientific and technological advances to local producers.</p>	<p>To train experts in the fields of agriculture, science, engineering, foreign languages, education, economics, and management, with high academic standards, morality, and creativity.</p> <p>To conduct research and development activities leading to economic improvement and sustainable natural resource conservation.</p> <p>To create an information center to disseminate appropriate or advanced knowledge and technology to communities.</p>

	HAU	TUAF	CTU	NLU
Academic calendar	First semester: Aug. - Jan. Second semester: Feb.- June	First semester: Aug. - Feb. Second semester: Feb. – July	First semester: Aug. - Feb. Second semester: Feb. – July	First semester: Sept. - Jan. Second semester: Feb. - July (18 weeks/semester)
Courses & credits required for a B.Sc. degree	Agronomy: 248 credits, 37 courses plus a 15-credit thesis	Agronomy: unknown number of required credits, 50 courses plus a thesis	Plant Growing: 248 credits, 100 courses plus a 15-credit thesis	Fishery: 235 credits, 73 courses plus a 10-credit thesis
Degrees and programs	4-year B.Sc. in the following: Agro-Business Management Agricultural Economics Agronomy Land Use Management Plant Protection Soil Science 4.5-year B.Sc. in the following: Agricultural Engineering Veterinary Medicine M.Sc.: 2 years Ph.D.: 2-3 years	4-year B.Sc. in the following: Agricultural Economics Agronomy Animal Husbandry and Veterinary Business Accounting Business Administration Forestry Land Management and Agricultural Technology Pedagogy 4.5-year B.Sc. in Veterinary Medicine M.Sc.: 2-3 years Ph.D.: 3-4 years Additional offerings: 3-year diplomas 2-year vocational education 1-4 week short-term training	Offers 66 undergraduate, 15 Master's, and 5 doctoral programs. 4.5-5 year B.Sc. in the following: Agriculture Agronomy Animal Husbandry Aquaculture Environment and Natural Resources Management Food Technology Veterinary Medicine Land Management M.Sc.: 3 years Ph.D.: 3 years	Offers 40 undergraduate, 11 Masters, and 11 doctoral programs. 4-year B.Sc. in the following: Accounting Agricultural and Food Products Processing Agricultural Business Agricultural Economics Agricultural Engineering and Technology Agricultural Products Processing and Food Microbiology Agricultural Teacher Education Agricultural-Food Products Processing and Human Nutrition Agroforestry Agronomy Animal Science Aquaculture Aquatic Animal Health Management Aquatic Products Processing Automation Automotive Engineering Biotechnology Business Administration Cadastral Technology Chemical Engineering Commercial Business Administration English Environmental and Natural Resources Economics Environmental Management Environmental Management and Ecotourism Environmental Technology Forest Products Processing Technology

	HAU	TUAF	CTU	NLU
				Forest Resources Management Forestry Heat Engineering and Refrigeration Information Technology Land Management Landscape and Environmental Design Mechanics for Agricultural Products Processing and Conservation Mechatronics Plant Protection Pulp and Paper Technology Real Estate Rural Development and Agricultural Extension 5-year program in Veterinary Medicine and Veterinary Pharmacy 3-year programs in the following: Agricultural Engineering and Technology Aquaculture Information Technology Land Management Mechanics for Agricultural Products Processing and Conservation New disciplines for 2006: GIS and French M.Sc.: 2-3 years after the B.Sc. Ph.D.: 3 years after the M.Sc. Additional offerings: Short-term training programs 2-year programs in various disciplines
Academic departments	10 departments: Agricultural Machinery Engineering Agronomy Animal Science and Veterinary Medicine Economics and Rural Development Food Science and Technology Graduate Studies Land and Environment	7 departments: Agricultural Education Agricultural Extension and Rural Development Agronomy Animal Science and Veterinary Medicine Forestry Graduate School Resource and Agricultural Environment	4 colleges: Agriculture and Applied Biology Aquaculture and Fisheries Basic Science Information Technology 4 schools: Economics and Business Administration Law Marxism-Leninism and Ho Chi Minh's Thoughts	12 departments (with 69 majors): Agronomy Animal Science and Veterinary Medicine Economics Engineering Environmental Technology Fishery Food Technology Foreign Languages Forestry Information Technology Land and Real Estate Management

	HAU	TUAF	CTU	NLU
	National Defense Education Social Sciences and Humanities Technical Teachers' Training		Military Training Center Physical Training Department School of Education	5 majors directly belong to the University: Political Education Landscaping and Environmental Horticulture Biotechnology Agricultural Technology Education Chemical Engineering
Research, Service Centers, Institutes, and Facilities	Center for Agricultural Research and Ecological Studies (CARES) Center for Experimentation and Transfer of Agricultural Innovations (CETAI) Center for High Tech Applications (CHTA) Center for Interdisciplinary Rural Development (CIRD) Center for Tropical Plant Pathology (CTPP) Institute of Agricultural Biology (IAB) Land Administration Center (LAC) VAC Training and Technology Transfer Center (VAC)	Center for Agro-Forestry Research and Development Center for Northern Mountainous Region of Vietnam Center for Computer and Audio Visual Center for Practical and Experimental Education Center for Resources & Environment for Northern Mountainous Region Center of Foreign Languages Central Laboratory	Biotechnology Research and Development Institute Center of Foreign Languages Hoa An Bio-Diversity Research and Development Center Learning Resource Center Mekong Delta Research and Development Institute Science and Technology Information Center Services Center	Center for Agricultural Energy and Machinery Center for Foreign Studies Center for Heat-Refrigeration Engineering and Equipment Center for Research, Training, and Consulting Socio-Economics Chemical and Biological Analysis and Experiment Center Computer Center Fruit and Vegetable Processing Research Center Industrial Crops Research Center Research and Technology Transfer Center Research Center for Biotechnology Research Center for Cadastral Science and Technology Research Center for Continuing Education Research Center for Environmental Technology and Natural Resources Management Research Center for Wood and Paper Technology Veterinary Clinic
Faculty	600 (55% with graduate degrees: 160 with Ph.D. or D.Sc. and 170 with Master's; includes 12 professors, 56 associate professors; 40% are under 35)	250 (85% with graduate degrees: 35 with Ph.D.s, 154 with Master's; includes 2 associate professors)	1,161 (42% with graduate degrees: 85 with Ph.D.s, 397 with Master's)	650 (62% with graduate degrees; includes 17 associate professors)
Enrollment	5,250 (regular system: 2,700; in-service: 2,000; Master's students: 300-500; Ph.D. students: 30-50), as of 2006-2007	8,459 (undergraduate & graduate students)	18,196 on-campus (17,401 undergraduates; 397 graduate students; 398 part-time) 15,549 off-campus (from satellite training centers in the provinces)	21,000

	HAU	TUAF	CTU	NLU
International Cooperation	10 countries (12 universities and institutes), including the U.S. (University of Hawaii and the University of California) More than 10 international organizations	17 countries More than 9 international organizations	More than 20 countries (80 universities and institutes) including the U.S. (University of Hawaii, University of Wisconsin at Madison, Michigan State University, Harvard-Yenching Institute) More than 23 international governmental organizations and NGOs	22 countries (76 universities and institutes), including the U.S. (California State Polytechnic University – Pomona; East-West Center - Hawaii; Department of Agricultural & Biosystems Engineering - Iowa State University; Florida University; Louisiana State University; Texas Agricultural Experiment Station (TAES); University of Hawaii at Manoa; Texas A&M University; Texas Tech University; College of Agriculture - Auburn University; Oklahoma State University; University of Oklahoma; University of Florida; University of California - Fullerton) More than 36 international research institutes, international organizations, and NGOs

