



A Workshop Summary

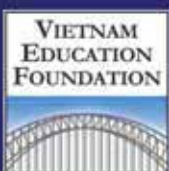
Presented to the Vietnam Education Foundation

on Behalf of the Workshop Team of the National Academies of the United States

## OPPORTUNITIES FOR ENHANCING STEM EDUCATION IN VIETNAM:

A FORUM FOR THE DISCUSSION OF VEF'S REPORTS  
ON UNDERGRADUATE AND AGRICULTURAL EDUCATION

August 2007



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

MOET

# **OPPORTUNITIES**

**FOR ENHANCING STEM\* EDUCATION IN VIETNAM:**

*A Forum for the Discussion of VEF's Reports  
on Undergraduate and Agricultural Education*

**A Workshop Summary  
Presented to the Vietnam Education Foundation  
on Behalf of the Workshop Team of the National Academies of the United States**

**August 2007**

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\* STEM stands for Science, Technology, Engineering and Mathematics.

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## **Acknowledgements**

This report summarizes the workshop entitled “Opportunities for Enhancing STEM Education in Vietnam: A Forum for the Discussion of VEF’s Reports on Undergraduate and Agricultural Education,” which the Vietnam Education Foundation (VEF) and the Ministry of Education and Training of Vietnam (MOET) sponsored. The workshop took place on August 2-3, 2007, at the Sofitel Plaza Hotel in Hanoi, Vietnam. Over 100 participants attended, including representatives from MOET and Vietnamese universities as well as VEF staff, National Academies’ staff, and members of the National Academies Workshop Team.

The National Academies (NA) organized a team of workshop facilitators who all participated in one of the previous Site Visits. The meeting’s goal was to identify additional approaches and strategies to improve higher education in Vietnam. The VEF and the NA are grateful to Dr. Peter J. Gray, Dr. John Hopcroft, Dr. Isaac Silvera, and Dr. Neal van Alfen, for dedicating their time and expertise to these issues during two separate trips to Vietnam.

Deputy Prime Minister Dr. Nguyen Thien Nhan, Vice Minister Dr. Tran Van Nhung, First Vice Minister Dr. Banh Tien Long, Dr. Nguyen Thi Le Huong, Deputy Director General, Department of Higher Education, and many others at MOET provided invaluable support. The Executive Director of VEF, Dr. Vo Van Toi, the Deputy Executive Director, Dr. Lynne McNamara, Country Director of VEF, Dr. Nguyen Thi Thanh Phuong, and the entire VEF staff provided the logistics, organization, and support that contributed to the workshop’s success.

Finally, we express sincere 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, on the cover of this workshop summary.

## Summary

Site Visit Teams of the National Academies authored two reports on the current status of higher education in Vietnam. The first, *Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam*, focused on three disciplines at four premier Vietnamese institutions and was released in August 2006. The second, *Observations on the Current Status of Education in the Agricultural Sciences in Vietnam*, followed from site visits to four Vietnamese agricultural universities, and appeared in January 2007. VEF widely distributed these publications in Vietnam to professors, administrators, researchers, and MOET. Workshop participants received electronic copies of these publications in English as well as in Vietnamese in advance of the meeting. All participants on site received the Executive Summary and Conclusions of the first report (Appendix I), and the Executive Summary and Conclusions of the second report (Appendix II). The full reports are available at the VEF website ([www.vef.gov](http://www.vef.gov)) both in English and in Vietnamese.

After Dr. Vo Van Toi, the Executive Director of VEF, welcomed all workshop participants, Dr. Nguyen Thi Thanh Phuong, Country Director of VEF, began the Workshop with a briefing on the undergraduate education report. She outlined the Site Visit Team's observations on undergraduate programs in computer science, electrical engineering, and physics and underlined five problem areas that the team identified in the Vietnamese educational system: undergraduate teaching and learning, undergraduate curriculum and courses, instructors, graduate education and research, and the evaluation of student learning outcomes and institutional effectiveness.

The Site Visit Team made recommendations, which include the following. Vietnam needs to increase the number of universities as well as the number of faculty members. Universities should require local institutional autonomy and a system of program review and accreditation. Faculty and students need access to online journals, research data, and other public information electronically. Faculty members need to develop professionally, which could be facilitated by reducing their course load. The MOET-mandated curriculum needs revision and reorganization, including a reduction in the number of required courses. Universities should include fundamental and basic research in their organizational structure. The Site Visit Team also suggested a focus on improving teaching methods in high school, and encouraged these students to choose a college major before graduation.

Dr. H. Ray Gamble of the National Academies then summarized the findings of the agricultural education report. This Site Visit Team observed many of the same problems and issues already cited. Additionally, the Agriculture Site Visit Team suggested comprehensive rather than over-specialized education for students in agriculture. Furthermore, while reiterating the need to integrate research and teaching at educational institutions, the Site Visit Team also underlined the need to integrate research at the extension level and to reward cooperation between extension, universities, and institutes.

Four participants from the two Site Visit Teams and two members of the VEF staff then made brief presentations. Dr. Peter Gray, Director of Academic Assessment, Faculty

Enhancement Center, United States Naval Academy, presented his ideas on teaching methodology. Dr. John E. Hopcroft, Professor, Department of Computer Science, Cornell University, spoke on curriculum and course content. Dr. Lynne McNamara and Dr. Nguyen Thi Thanh Phuong, both from VEF, discussed the evaluation of students and faculty. Dr. Neal Van Alfen, Dean, College of Agriculture and Environmental Sciences, University of California, Davis, delivered a talk on faculty development and advancement, followed by Dr. Isaac Silvera, Thomas Dudley Cabot Professor of the Natural Sciences, Lyman Laboratory of Physics, Harvard University, who spoke on research in undergraduate and graduate education.

On the second day of the workshop, Dr. H. Ray Gamble presented the charge to the four breakout groups to identify opportunities for improvement in the Vietnamese higher educational system, based on the two reports and the workshop presentations of the previous day. After a three-hour breakout period, each of the four groups presented the following results of their discussion to the larger group.

### **Groups 1 and 3: Teaching Methodology & Student and Faculty Evaluation**

Facilitator: **Dr. Peter Gray**<sup>1</sup>

The discussion focused primarily on establishing teaching methodology that could be used to foster active learning. This group also noted the lack of formalized institutional assessment to guide educational reforms. The group recommended that MOET/Vietnam:

1. Establish Centers of Higher Education Teaching and Learning to “Train the Trainers.”
2. Decentralize - Provide autonomy at each level from rector to student.
3. Base teachers’ salaries on responsibilities, not on hours in the classroom.

### **Group 2: Curriculum Development and Course Content**

Facilitator: **Dr. John Hopcroft**

The curriculum development and course content group maintained that students in Vietnam are required to spend too much time in the classroom, which leaves them little opportunity to study and internalize the material. University faculty members claimed that they had no leeway in establishing their curricula, while MOET claimed that they do have some, which is a critical difference in perception. The group recommended that MOET/Vietnam:

1. Reduce the number of credits required for degrees.
2. Increase the amount of homework.
3. Ask professors to spend less time teaching and more time in office hours and grading papers for the same, if not a higher, salary.

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<sup>1</sup> Workshop participants were initially permitted to choose one of 5 breakout sessions. Based on the interest of the participants, groups 1 and 3 were combined into one session.

4. Experiment with reducing the number of courses in a few departments in a few universities to demonstrate effectiveness before trying this on a wide scale.
5. Reduce the number of credits required for courses such as military service, Marxism, Leninism, that do not bear on academic course content.
6. Transfer decision-making power to universities.
7. Convince MOET to measure the output through national examinations in a transparent process.

#### **Group 4: Faculty Evaluation, Development, and Advancement**

Facilitator: **Dr. Neal Van Alfen**

The faculty, evaluation, development, and advancement group maintained that faculty evaluation is lacking or flawed. Professors, as well as students, need mentoring and support from peers. In their view, faculty members need to share in the decision-making process. The group recommended that MOET/Vietnam:

1. Develop evaluation criteria at each institution (autonomy required).
2. Base evaluation on both quality and quantity, not just quantity in teaching.
3. Allow faculty and management to devise transparent evaluation criteria together.
4. Provide help to those who need it.
5. Make evaluation transparent--include peers, supervisors, self, AND students.
6. Include methods such as questionnaires, classroom observation, and interaction with external groups.
7. Permit each university to develop its own methodology (MOET should provide ideas, but not impose them).
8. Involve the faculty in management—faculty should share in the decision-making process with management (each university requires autonomy in this process).
9. Develop a Center of Excellence in Teaching.
10. Include research as a fundamental part of faculty development and provide better access to funding and more laboratories.

Suggested Improvements in Resources:

1. Better laboratories and facilities to conduct research.
2. Improved level of English, especially for institutions outside of Hanoi and Ho Chi Minh City.
3. Interlibrary loan system and other means of sharing between universities.
4. Improved access to information and resources (Internet, laboratories, international journals and books).



**Group 5: Research in Undergraduate and Graduate Education**  
**Facilitator: Dr. Isaac Silvera**

The breakout group on research in undergraduate and graduate education primarily addressed funding issues. Most research funding goes to the Vietnam Academy of Science and Technology (VAST), not universities, and the regional and provincial colleges receive a very small share. Research should not be separated from teaching, but at present it takes place primarily in research institutes and is not integrated into teaching institutions. Government-supported research does not collaborate with industry and the private sector, thereby decreasing opportunities for funding and the production of new technologies. Industry raids well-trained and talented professionals and scientists from educational institutions. Since academic researchers cannot supplement their salary from outside sources such as contracts with industry, even more academic researchers leave educational institutions. Universities cannot compete with industrial salaries and cannot provide equipment and facilities without foreign grants. Even when the institutes have sufficient equipment and funding, staff retention falters and researchers feel underutilized in the work environment. The group recommended that MOET/Vietnam:

1. Create Teaching-Research Teams, as the University of Da Nang currently does.
2. Allow student participation in research.
3. Supplement faculty salaries through research funds rather than increased hours of lecturing.
4. Recognize that time for research is a fundamental part of a professor's work responsibilities.
5. Increase the interaction between MOET officials and universities with VEF Fellows—strategically recruit VEF Fellows.
6. Encourage universities and MOET to develop a strategic plan to integrate research into undergraduate study.
7. Provide research funding to universities on a competitive basis.
8. Recruit and retain research-oriented faculty (such as VEF Fellows).
9. Require successful research for faculty promotion.

Possible approaches for Vietnamese university research:

1. Improve laboratory facilities, libraries, Internet access.
2. Encourage teaching by Ph.D. level faculty.
3. Support faculty research programs.
4. Make research part of a professor's employment responsibilities.
5. Support independent research programs for junior faculty with start-up funds for junior faculty research.
6. Connect promotion with successful research.
7. Reduce inbreeding, or hiring one's own graduates.

## **Final Remarks**

Dr. Vo Van Toi thanked all sponsors, presenters, and workshop participants. Dr. Nguyen Thi Le Huong then thanked the Workshop Presenters, VEF, and the National Academies for undertaking this work. Since the groups provided long lists of recommendations, Dr. Huong expressed some concern about how to prioritize them. She also noted that these measures would cost an enormous amount of money, and further wondered whether the presenters could provide specific details on how to implement the suggestions. While many of the recommendations from the four groups overlapped (reduce the number of courses in the curriculum, involve faculty and students in research, etc.), the Workshop Presenters uniformly stated that only Vietnam itself, not visitors from the United States, can understand fully the context of Vietnam's educational system. Vietnam and MOET must prioritize the recommendations and decide on the best way to improve higher education in the country.

## **APPENDIX I**

### **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 Teams  
of the National Academies of the United States**

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**August 2006**

## EXECUTIVE SUMMARY

The project entitled *Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam* was conducted under the auspices of the Vietnam Education Foundation (VEF), an independent U.S. Federal agency. This project, referred to as the VEF Undergraduate Education Project, was begun at the request of Prof. Dr. Nguyen Thien Nhan, presently Minister of Education and Training and, at the time of the request, the Vice Chairman of the People's Committee of Ho Chi Minh City. The project was conducted with the cooperation and support of the Ministry of Education and Training (MOET) and the co-sponsorship of the University of Social Sciences and Humanities (USSH) of the Vietnam National University in Ho Chi Minh City (VNU-HCM), the Southeast Asian Ministers of Education Organization Regional Training Center (SEAMEO RETRAC) in Vietnam, and the Institute for Educational Research in Ho Chi Minh City (IER-HCMC).

Through the auspices of the National Academies in the United States, leading American experts in assessment and instructional design and experts in the selected scientific and engineering fields joined this effort. The Undergraduate Education Project was a multiple case study, qualitative research project with the following phases: (1) Phase 1 from January to August 2006, to assess the current conditions of teaching and learning in computer science, electrical engineering, and physics at four select universities in Vietnam and to identify opportunities for change; (2) Phase 2 from September 2006 to August 2009, to assist in implementing changes; and (3) at the end of Phase 2, to produce models that can be adopted across academic fields and institutions.

Four Vietnamese institutions (two in Hanoi and two in Ho Chi Minh City) were selected to participate in this Undergraduate Education Project. Their names are kept in confidence to preserve their identity and respect their openness and honesty in participating in this study. This project is intended to help higher education leaders and managers in their efforts to advance curriculum, pedagogy, and evaluation in the sciences and engineering in Vietnam.

Site visits in May 2006 by two U.S. multidisciplinary expert teams led to the conclusion that there are five critical areas of Vietnam higher education in need of change: undergraduate teaching and learning, undergraduate curriculum and courses, instructors, graduate education and research, and assessment of student learning outcomes and institutional effectiveness. Not all of the issues identified are present in all of the programs, departments, and institutions that were visited. Nonetheless, the teams identified many good examples of solutions to the problems and issues that can provide models for others to adopt. Furthermore, the teams found very good students; dedicated, hard working, and competent junior and senior faculty members; and enthusiastic and forward looking administrators at all levels. They also found exciting research currently underway and the use of advanced technologies and equipment.

Specifically, the teams identified *Issues and Opportunities for Change* in relationship to the five critical areas and offered general recommendations for consideration at the

national level. The following list highlights the primary issues and opportunities as this section comprises an essential part of the report. The bulleted items under each area briefly describe the major issues that were identified and the potential solutions suggested by the site visit teams related to these issues. Please note that the conclusions reached by the U.S. expert teams are specific to the situations that they evaluated and may not be universally true in all cases. Also, please note that the issues are purposefully not listed in any order of priority, and thus are not enumerated.

### **Undergraduate teaching and learning**

- Ineffective teaching methods: lectures, presentation of factual knowledge, rote memorization, little use of homework, not much faculty-student interaction.  
Potential solutions include incorporating active learning strategies, requiring graded homework, emphasizing conceptual learning or higher order learning, and establishing Centers of Teaching and Learning Excellence.
- Inadequate facilities and resources.  
Potential solutions include modernizing classrooms, libraries, and laboratory facilities; and providing resources (people and equipment) to support teaching and learning.

### **Undergraduate curriculum and courses**

- Too many courses (over 200 credits to graduate).  
Potential solutions include giving more autonomy to institutions in terms of curriculum content and sequencing so that departments can consolidate courses in order to decrease the overall number of credits to graduate.
- A large number of requirements and few choices.  
Potential solutions include increasing flexibility and providing more elective courses.
- Out-of-date content of individual courses and the overall curriculum, which are not at the same level of top universities worldwide. In particular, not enough concepts and principles are taught and too much emphasis is placed on factual knowledge and skills.  
Potential solutions include emphasizing higher order thinking skills (application, analysis, synthesis, and evaluation) in instruction and then testing for higher order thinking skills.
- An imbalance between theoretical courses (concepts and principles with too much emphasis on factual knowledge) and applied/practical courses (laboratory or practicum experiences).  
Potential solutions include developing more applied hands-on experience, practical applications, exercises, and projects.
- Lack of common or professional skills (team work, oral and written communication in English, project management, problem solving methods, pro-active initiative-taking, life-long learning).  
Potential solutions include providing English language instruction and providing opportunities to develop skills through course activities and in real-life settings (work-study, internships, and practicum experiences).
- Lack of flexibility to transfer between majors.  
Potential solutions include developing articulation agreements between majors within the same institution and between institutions.

- Courses and curricula are not guided by explicit statements of expected student learning outcomes.

Potential solutions include providing expectations for, and assistance in, developing student learning outcomes as the basis for program curricula and course syllabi.

### **Instructors**

- Lack of qualified teachers.  
Potential solutions include increasing research-oriented universities and having top universities produce undergraduate instructors for other Vietnamese universities.
- Low level of academic preparation of teaching faculty.  
Potential solutions include providing advanced degree opportunities in Vietnam and abroad.
- Lack of skills of faculty in modern teaching practices and research.  
Potential solutions include conducting professional development programs in pedagogy and research skills.
- Lack of up-to-date knowledge by faculty in their fields with regard to curriculum and course content.  
Potential solutions include providing access to recent scholarly resources, up-to-date curricula, syllabi, and related learning materials on the Web.
- Faculty overworked and underpaid for an acceptable teaching load and, therefore, lack the time necessary for teaching preparation, availability to students, and research.  
Potential solutions include reducing teaching load; hiring and paying instructors “full-time” with understanding that they will work 40 hours per week at their home institution with a balance of teaching, research, and service; and increasing time for research by providing support and assistance in the form of teaching assistants as graders, research assistants, and clerical assistants.
- No incentives for faculty to upgrade teaching skills, courses and curricula, and research ability since promotion and salary increases seem to be based on teaching load and seniority, not on merit, performance, or conducting research.  
Potential solutions include establishing merit-based reward system; rewarding and recognizing teachers who make improvements in teaching, learning, and research.

### **Graduate education and research**

- Little opportunity for Ph.D.s, who have studied abroad, to pursue their research or apply the teaching methods learned abroad when they return to Vietnam.  
Potential solutions include hiring Ph.D.s, who have studied abroad, when they return to Vietnam to provide leadership in disseminating the use of the discipline knowledge, teaching methods, and research skills; providing adequate graduate library resources and access to recent scholarly resources on the Web; upgrading laboratories; and offering support for international conference attendance.
- Academic inbreeding, thus inhibiting a dynamic research environment.  
Potential solutions include employing graduates from other universities.
- Separation of research institutes and laboratories from teaching departments, thus limiting the opportunities for many faculty members to engage in research activities.

Potential solutions include reorganizing the structure and relationships of the universities, research institutes, and laboratories so that more research is conducted in universities by teaching faculty and graduate students.

#### **Assessment of student learning outcomes and institutional effectiveness**

- Lack of clearly articulated and coordinated student learning outcomes at the institutional, departmental, program, and course levels.  
Potential solutions include setting expectations for the creation and use of student learning outcomes at the institutional level, basing program curricula on general student learning outcomes, including specific student learning outcomes in course syllabi, and providing support for development and implementation of student learning outcomes through Centers of Teaching and Learning Excellence and University Assessment Centers.
- Institutional effectiveness not evaluated in terms of student learning. As a result, faculties have little motivation since few incentives or rewards are given for change.  
Potential solutions include holding institutions accountable for improving student achievement as part of institutional accreditation; and basing resource allocation for institutions, departments, and programs, at least in part, on student learning outcomes.
- Program and course quality not based on evaluation of student learning.  
Potential solutions include developing and implementing a system of program review based in part on the achievement of student learning outcomes in individual courses and in the program as a whole, as well as developing and implementing a system for course evaluation and annual review of faculty to provide feedback on teaching and learning for the purpose of improvement.
- Lack of institutional research infrastructure at university level.  
Potential solutions include creating offices of institutional research, providing training for academic administrators responsible for research functions, and providing electronic resources for tracking, analyzing, and reporting student data including enrollment, progress toward degree, graduation, and learning outcomes.

#### **Recognizing that MOET has a significant role in relationship to Vietnamese universities, the U.S. expert teams also identified broader, more general recommendations, suggesting that MOET might want to consider the following:**

- ❖ How to expand the university education system throughout Vietnam, with appropriate distribution across the country, so as to increase accessibility to more high school students to obtain a university education. The current 255 universities do not meet the demand.
- ❖ Ways to prepare highly trained future faculty by empowering the current major universities to produce excellent teachers in sciences and technology for the other Vietnamese universities.
- ❖ Options for making a strategic decision to fund fundamental and basic research in universities to ensure future generation of scientists.
- ❖ Possibilities for providing more local institutional autonomy and flexibility to enhance quality and to keep curricula up-to-date.
- ❖ How to develop the accreditation process to include assessment of student learning outcomes and to work with local institutions to develop or enhance the program review process for academic departments.

- ❖ Ways to develop a mechanism to ensure that resources distributed are based on merit and quality.
- ❖ How to evaluate the level of quality of universities across Vietnam based on student learning and research, and to establish a mechanism to assist those institutions at a lower level of quality to rise to the highest possible level.
- ❖ How to enable access to the latest public information for all universities via high speed Internet connections to electronic journals and data bases.
- ❖ Ways to build instructor capacity in content, teaching methods, interaction with students, and research through systematic professional development efforts.
- ❖ How to reorganize the faculty workload to give instructors more time for preparation, interaction with students, and research.
- ❖ Ways to revise and reorganize the MOET mandated curriculum so that students spend more time on learning relevant content and on integrating course information.
- ❖ How to improve teaching methods in high school to better prepare students for a new, more demanding, post-secondary education.
- ❖ Ways to help high school students to be prepared to choose a major while still in high school.

In addition to *Issues and Opportunities for Change*, this report includes the following sections: *Discipline Specific Observations*, that presents brief comments on the specific areas of computer science, electrical engineering, and physics; *Scenarios for Change*, that presents scenarios at the national, regional, institutional, and programmatic levels; and *Conclusions*, in which the educational importance of this Undergraduate Education Project is discussed. The report also includes extensive appendices providing more details on various aspects of the project.

## CONCLUSIONS

This report presents the results of Phase 1 of the *Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam* (January – August 2006). This Phase has accomplished the first two objectives of the Undergraduate Education Project: (a) to assess the current conditions of teaching and learning in computer science, electrical engineering, and physics at four select Vietnamese universities; and (b) to identify opportunities for improvement and models for change. In accomplishing these two objectives, this project provides the basis for improving higher education practice in Vietnam.

The contributions of this phase include, first, helping to meet the critical needs expressed by the government, MOET, and the higher education community to improve the quality of teaching and learning in sciences and technology in particular, and in higher education in general.

Second, the findings might be used potentially to inform efforts at all levels of higher education to reform curriculum, pedagogy, and evaluation in the sciences and engineering in Vietnam based on the insights from experienced U.S. experts in the disciplines and in assessment and instructional design.



Third, this phase of the Undergraduate Education Project provided the four participating universities with an opportunity to consider reflection upon their current practices and, together with the U.S. expert teams, to examine some aspects of where they are in terms of undergraduate education. Such a self-evaluation might help them to formulate pilot projects that best fit their own contexts and needs and that facilitate achieving their visions, missions, and goals.

Fourth, not only the four participating universities and the areas of computer science, electrical engineering, and physics, but also other universities and disciplines may benefit from the recommendations offered in this report.

Fifth, the project's results potentially have implications for higher education institutions in Vietnam in that the results might be used to develop favorable working environments (salary and research facilities) that could potentially attract those who receive graduate degrees from overseas programs (including VEF Fellows) to come back to teach and do research in Vietnam.

Sixth, the project's findings are intended to fill the current perceived void in research-based documentation concerning educational quality in the three targeted disciplines and, more generally, in higher education institutions in Vietnam and, as such, might serve as a point of reference for educators, researchers, and policymakers in the future.

And finally, Vietnamese researchers and educators may gain valuable skills and capacities through the detailed descriptions of the research methodology used in this multiple case study qualitative research project, through discussions with Vietnamese professionals involved in assessment and accreditation, and through the participation of the Vietnamese universities and MOET representatives in the project's activities. It is hoped that the project's methods of conducting the observations and study of the four select institutions and three targeted programs in Vietnam may be applicable to other higher education institutions and fields of study besides computer science, electrical engineering, and physics.

Furthermore, the results of this project may help U.S. educators and researchers to better understand the circumstances in higher education in Vietnam when they are considering cooperative activities with Vietnamese institutions.

The Undergraduate Education Project is expected to embark on Phase 2 (September 2006 – August 2009) in which the nine departments of the four select universities might have the opportunity to develop improvement plans and initiate pilot projects that meet their own needs and contexts. Upon completing Phase 2, it is hoped that the two last objectives of the project will be accomplished: (a) to assist in implementing change through successful pilot projects; and (b) to produce models that can be adopted across academic fields and institutions.

These conclusions suggest that another comprehensive activity in 2009, which evaluates and builds on the results of the pilot projects and models of Phase 2 and perhaps extends

the project to other programs and institutions would be beneficial to higher education institutions in Vietnam.

The full report can be accessed at:

**Undergraduate Education Report (in Vietnamese):**

[http://home.vef.gov/download/Report\\_on\\_Undergrad\\_Educ\\_V.pdf](http://home.vef.gov/download/Report_on_Undergrad_Educ_V.pdf)

**Undergraduate Education Report (English):**

[http://home.vef.gov/download/Report\\_on\\_Undergrad\\_Educ\\_E.pdf](http://home.vef.gov/download/Report_on_Undergrad_Educ_E.pdf)

## **APPENDIX II**

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

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

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**January 2007**

## **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.

## **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.

The full report can be accessed at:

**[Agricultural Education Report \(in Vietnamese\):](#)**

[http://home.vef.gov/download/Agricultural\\_Education\\_Report\\_V.pdf](http://home.vef.gov/download/Agricultural_Education_Report_V.pdf)

**[Agricultural Education Report \(in English\):](#)**

[http://home.vef.gov/download/Agricultural\\_Education\\_Report\\_E.pdf](http://home.vef.gov/download/Agricultural_Education_Report_E.pdf)

## APPENDIX III

### WORKSHOP AGENDA

#### Opportunities for Enhancing STEM Education in Vietnam: A Forum for the Discussion of VEF's Reports on Undergraduate Education in Selected Fields

AUGUST 2-3, 2007

Chairpersons: Dr. Nguyen Thi Le Huong, Deputy Director of Higher Education Department, MOET; Dr. Lynne McNamara, Deputy Executive Director, Vietnam Education Foundation; Dr. Ray Gamble, Director of the Fellowships Office, The National Academies

Venue: Plaza 3, 2<sup>nd</sup> Floor – Sofitel Plaza Hanoi Hotel

#### Thursday, August 2

2:30 p.m. – 3:00 p.m.	Registration	MOET and VEF staff
3:00 p.m. – 3:30 p.m.	Opening remarks	Facilitator: Dr. Lynne McNamara Prof. Dr. Banh Tien Long, Vice Minister, MOET Dr. Vo Van Toi, Executive Director, VEF
<b>Report Overviews</b>		
3:30 p.m. – 4:00 p.m.	<i>Observations on Undergraduate Education in Computer Science, Electrical Engineering, and Physics at Select Universities in Vietnam</i>	Dr. Phuong Nguyen, Country Director, VEF
4:00 p.m. – 4:15 p.m.	Questions to the U.S. Team	
4:15 p.m. – 4:35 p.m.	<i>Observations on the Current Status of Education in the Agricultural Sciences in Vietnam</i>	Dr. Ray Gamble, Director, Fellowships Office, The National Academies
4:35 p.m. – 4:50 p.m.	Questions to the U.S. Team	
<b>Introduction to Discussion Topics</b>		
4:50 p.m. – 5:10 p.m.	Teaching methodology	Dr. Peter Gray, Director of Academic Assessment, Faculty Enhancement Center, United States Naval Academy
5:10 p.m. – 5:30 p.m.	Curriculum development and course content	Dr. John E. Hopcroft, Professor, Computer Science Department, Cornell University
5:30 p.m. – 5:50 p.m.	Evaluation – students/faculty	Dr. Lynne McNamara, Deputy Executive Director, VEF Dr. Phuong Nguyen, Country Director, VEF

5:50 p.m. – 6:10 p.m.	Faculty development and advancement	Dr. Neal van Alfen, Dean, College of Agriculture and Environmental Sciences, University of California – Davis
6:10 p.m. – 6:30 p.m.	Research in undergraduate and graduate education	Dr. Isaac Silvera, Thomas Dudley Cabot Professor of the Natural Sciences, Lyman Laboratory of Physics, Harvard University
7:00 p.m.	Dinner at Ming Palace Restaurant, 2 <sup>nd</sup> Floor, Sofitel Plaza Hanoi Hotel	

### Friday, August 3

<b>Discussion Groups</b>		
8:45 a.m. – 9:00 a.m.	Charge to the groups	Dr. Ray Gamble, Director, Fellowships Office, The National Academies
9:00 a.m. – 12:00 p.m., with a 15 minute break at 10:30 a.m.	Breakout sessions Venue for breakout sessions:  <b>Group 1:</b> Hanoi Room <b>Group 2:</b> Hai Phong Room <b>Group 3:</b> Sai Gon Room <b>Group 4:</b> Da Nang Room <b>Group 5:</b> Plaza 3 Room	<b>Group 1:</b> Teaching methodology Facilitator: Dr. Peter Gray <b>Group 2:</b> Curriculum development and course content Facilitator: Dr. John Hopcroft <b>Group 3:</b> Student and faculty evaluation Facilitators: Dr. Lynne McNamara, Dr. Phuong Nguyen <b>Group 4:</b> Faculty development and advancement Facilitator: Dr. Neal van Alfen <b>Group 5:</b> Research undergraduate and graduate education Facilitator: Dr. Isaac Silvera
12:00 p.m. – 1:00 p.m. 12:15 p.m. – 12:35 p.m.	Working lunch Presentation on/demonstration of application of VOCW to develop teaching materials	Selected member of VOCW Team
1:00 p.m. – 2:30 p.m.	Presentations, Q&A: Groups 1, 2, and 3	Each group has 30 minutes for presentation (20 minutes) and Q & A (10 minutes), led by Facilitators
2:30 p.m. – 2:45 p.m.	Tea break	
2:45 p.m. – 3:45 p.m.	Presentations, Q&A: Groups 4 and 5	Each group has 30 minutes for presentation (20 minutes) and Q & A (10 minutes), led by Facilitators.

3:45 p.m. – 5:00 p.m.	General discussion, future planning, including any joint projects with VEF, and wrap-up	Dr. Lynne McNamara, Deputy Executive Director, VEF (Facilitator) Prof. Dr. Banh Tien Long, Vice Minister, MOET Dr. Nguyen Thi Le Huong, Deputy Director, Higher Education Department, MOET
5:00 p.m. – 5:15 p.m.	Closing remarks	Prof. Dr. Banh Tien Long, Vice Minister, MOET Dr. Vo Van Toi, Executive Director, VEF



## APPENDIX IV

### SHORT BIOS FOR THE WORKSHOP FACILITATORS

The following workshop facilitators, listed alphabetically, were members of the 2006 visiting teams that conducted research projects on the status of undergraduate education in computer science, electrical engineering, and physics, and/or on the status of agricultural sciences education in Vietnam.

<p><b>Dr. Ray Gamble</b> Director, Fellowship Office, the U.S. National Academies</p>	<p>Dr. Ray Gamble is the Director of the National Academies' Fellowship Programs Office in Washington DC. His office administers a variety of graduate, postdoctoral and senior awards, including the Research Associateship Programs and the Ford Foundation Diversity Fellowship Programs. Dr. Gamble received his B.A. from Lafayette College and an M.S. and Ph.D. from the Ohio State University and was an NIH Postdoctoral Fellow at the University of Massachusetts. He began his professional career as a Research Scientist with the USDA's Agricultural Research Service in 1981 and remained there until 2000. From 1993-2000 he was Laboratory Director of the Parasite Biology and Epidemiology Laboratory located in Beltsville, Maryland, managing research programs in animal disease, public health and food safety. He has over 180 publications in the fields of food safety/zoonotic diseases, parasitic diseases of livestock, disease detection, and vaccine development. Dr. Gamble assumed his present position with the National Academies in 2000. He continues a research program through collaborative grants with the USDA and university colleagues and consults on animal health and food safety in the U.S. and abroad. He also holds an appointment as Adjunct Professor at the George Washington School of Medicine.</p>
<p><b>Dr. Peter Gray</b> Director of Academic Assessment, Faculty Enhancement Center, United States Naval Academy</p>	<p>Dr. Gray earned his Ph.D. in Educational Psychology from the University of Oregon and his Masters Degree in Curriculum Theory from Cornell University. His areas of higher education expertise include student learning outcomes assessment; quality assurance; course, curriculum, and program design, development and evaluation; and leadership and planned change.</p> <p>From 1984 to 2002 he was Associate Director of the Syracuse University Center for the Support of Teaching and Learning. He became Director of Academic Assessment at the United States Naval Academy in August 2002, where he is responsible for developing and maintaining a broad program of academic assessment.</p> <p>Dr. Gray has over 40 publications including the chapter <i>Roots of assessment: Tensions, solutions, and research Directions in Building a Scholarship of Assessment</i> (Banta, T. W., editor, 2002); <i>The campus-level impact of assessment: Progress, problems, and possibilities. New Directions in Higher Education</i> (number 100, winter 1997, co-edited with Banta); and <i>Viewing assessment as an innovation: Leadership and the change process in this New Directions in Higher Education</i> volume. Dr. Gray chaired the Middle States Association Commission on Higher Education Advisory Panel that produced</p>

	<p>the publication, <i>Student learning assessment: Options and resources</i>. He has also given approximately 100 workshops, key note addresses and presentations at conferences and on individual campus world-wide concerning topics related to the enhancement of educational excellence in higher education.</p>
<p><b>Dr. John Hopcroft</b> Professor, Computer Science Department, Cornell University</p>	<p>John E. Hopcroft is the IBM Professor of Engineering and Applied Mathematics in Computer Science at Cornell University. He received his BS (1961) from Seattle University and his M.S. (1962) and Ph.D. (1964) in electrical engineering from Stanford University. His research centers on theoretical aspects of computer science. He served as dean of Cornell University's College of Engineering from 1994 until 2001. He is a member of the National Academy of Engineering and a fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the Institute of Electrical and Electronics Engineers, and the Association of Computing Machinery. In 1986 he was awarded the A. M. Turing Award for his research contributions. In 1992, he was appointed by President Bush to the National Science Board, which oversees the National Science Foundation, and served through May 1998. He serves on the Packard Foundation's Science Advisory Board and is a member of the board of directors of the Boyce Thompson Institute.</p>
<p><b>Dr. Lynne McNamara</b> VEF Deputy Executive Director</p>	<p>Dedicated to international education for over 30 years, Dr. Lynne McNamara has lived and worked in Europe, the Middle East, Asia, and the United States. Her career spans the spectrum of international education, including the development and administration of programs in the U.S. and overseas for both international and American students. Her faculty positions have included teacher training as well as teaching foreign language to Americans, English to non-native speakers, multi-cultural skills, writing, and poetry. She received her Bachelor's degree in Italian at the University of Colorado, Boulder, and then, her Master's in Linguistics. She attained her Ph.D. in Education at Southern Illinois University at Carbondale.</p> <p>Prior to her appointment as Deputy Executive Director, Dr. McNamara served the Vietnam Education Foundation (VEF) as Acting Executive Director as well as Director of Programs. Before joining VEF, she was Director of International Programs for the University of Maryland University College (UMUC) in Adelphi, Maryland, after serving as UMUC's Director of Program Development in Asia from 1999. From 1992 until 1999, while on the faculty of Temple University Japan, she served as Director of Corporate Relations and created the Office of Career Development. From 1989 until 1992, Dr. McNamara was Academic Director of Arizona State University Japan. Before going to Japan, she was the Academic Director of the USAID-funded English Teacher Training Program in Egypt (1987-89), administered by Fulbright. Earlier (1980-86), she established and directed the American Language Academy in Colorado Springs, Colorado.</p>
<p><b>Dr. Nguyen Thi Thanh Phuong</b> VEF Country Director</p>	<p>Prior to her appointment as Country Director for VEF's operations in Vietnam, Dr. Phuong Nguyen served as Senior Officer in the Office of International Relations and Research Affairs and as Lecturer at the University of Social Sciences and Humanities, Vietnam National University – Ho Chi Minh City.</p>

	<p>She received her Bachelor of Arts degree in English Linguistics and Literature from the University of Social Sciences and Humanities, Vietnam National University – Ho Chi Minh City, and her Bachelor of Sciences degree in Hotel and Tourism Management from Hanoi Open University, Ho Chi Minh City Campus. She completed her Master of Arts degree in Comparative Linguistics from the University of Social Sciences and Humanities, Vietnam National University – Ho Chi Minh City. In 2005, Dr. Phuong attained her Ph.D. in Higher Education Administration from Texas Tech University in the U.S. while gaining a comprehensive understanding of the U.S. education system and culture. Besides research in cooperative learning, general education programs, and multicultural education, her main research interests include accreditation, institutional effectiveness, and quality improvement.</p>
<p><b>Dr. Isaac Silvera</b> Thomas Dudley Cabot Professor of the Natural Sciences, Lyman Laboratory of Physics, Harvard University</p>	<p>Isaac Silvera received his Ph.D. in experimental physics at the University of California. After working in industry for several years he became a professor of physics at the University of Amsterdam in the Netherlands. He accepted a position at Harvard in 1982. His research is in both condensed matter and atomic physics of cold particles. His interests are in ultra high pressure and low-temperature physics of quantum fluids.</p>
<p><b>Dr. Neal Van Alfen</b> Dean, College of Agriculture and Environmental Sciences, University of California – Davis</p>	<p>Neal Van Alfen was raised in Modesto, California, and received a B.S. in chemistry in 1968 and M.S. in botany in 1969 from Brigham Young University. He received a Ph.D. in plant pathology from the University of California, Davis in 1972. Van Alfen started his professional career as a plant pathology research scientist at the Connecticut Agricultural Experiment Station in New Haven studying tree diseases. In 1975 he moved to Utah State University to be a Cooperative Extension plant pathology specialist and a member of the faculty of the Department of Biology. While at Utah State University he served as a professor of biology and molecular biology and biochemistry. In 1990 he moved to Texas A&amp;M University, College Station to serve as head of the Department of Plant Pathology and Microbiology. In 1999, Van Alfen returned to UC Davis to become dean of the College of Agricultural and Environmental Sciences. Van Alfen's research interests have focused on controlling plant disease using low input, sustainable methods. His current research interests are to develop biological control strategies for fungal diseases. In particular, he studies how viruses of fungi can be used to control plant diseases. He also has extensive experience as a consultant on effects of air pollution on environmental health. Van Alfen has served on numerous national committees and boards, including a number of National Research Council studies on biological control. He currently serves as Editor of Annual Review of Phytopathology, one of the most highly-cited professional publications in the plant sciences, and he recently served as president of the American Phytopathological Society, a 5,000-member international professional society of plant pathologists. Van Alfen recently chaired the National Agricultural Biotechnology Council and was a founder of the Agricultural Biotechnology Communicators group. He is an elected fellow of the American Phytopathological Society and the American Association for the Advancement of Science.</p>

## APPENDIX V

### LIST OF WORKSHOP PARTICIPANTS AND CONTRIBUTORS

The workshop participants and contributors are listed alphabetically for the Vietnamese according to the Vietnamese system with the given name in the final position, and for other nationalities according to the English system with the family name in the final position.

No.	Name	Role/Title	Organization
1	Dr. Vu Thi Phuong Anh	Deputy Director	Center for Educational Testing and Evaluation, Vietnam National University – HCMC
2	Dr. Nguyen Tuan Anh	Director, Faculty Member	International Training Center, Thai Nguyen University
3	Assoc. Prof. Dr. Nguyen The Binh	Vice Dean	Faculty of Physics, Hanoi University of Science, Vietnam National University – Hanoi
4	Dr. Nguyen Van Bo	President	Vietnam Academy of Agricultural Sciences
5	Assoc. Prof. Dr. Bui Duy Cam	Vice Rector	Hanoi University of Science , Vietnam National University – Hanoi
6	Assoc. Prof. Dr. Nguyen Duc Chien	Director	Institute of Engineering Physics, Hanoi University of Technology
7	Assoc. Prof. Dang Van Chuyet	Dean	Faculty of Information Technology, Hanoi University of Technology
8	Assoc. Prof. Dr. Bach Thanh Cong	Dean	Faculty of Physics, Hanoi University of Science, Vietnam National University – Hanoi
9	Dr. Hoang Ngoc Cuong	Head	Office of Scientific Research International Cooperation, HCMC University of Natural Sciences, Vietnam National University – HCMC
10	Mr. Ngo Doan Dam	Deputy Director	Planning and International Cooperation Department, Vietnam Academy of Agricultural Sciences
11	Dr. Dinh Dien	Deputy Head	Knowledge Engineering Department, Faculty of Information Technology, HCMC University of Natural Sciences, Vietnam National University – HCMC
12	Assoc. Prof. Dr. Duong Anh Duc	Vice Rector	HCMUNS, Vietnam National University – HCMC
13	Dr. Nguyen Tien Dung	Head	Office of Academic Affairs, HCMC Technical Teacher Training University
14	Dr. Ho Huynh Thuy Duong	Head	Office of Postgraduate Study, HCMC University of Natural Sciences, Vietnam National University – HCMC
15	Prof. Dr. Bui Van Ga	President	The University of Danang
16	Dr. Trinh Truong Giang	Rector	Nong Lam University

<b>No.</b>	<b>Name</b>	<b>Role/Title</b>	<b>Organization</b>
17	Mr. Duong Mong Ha	Head	Scientific Research, Postgraduate and International Cooperation Department, the University of Danang
18	Dr. Nguyen Hac Hai	Head	Academic Affairs Office, Hanoi National University of Education
19	Dr. Pham Tuong Hai	Dean	Faculty of Information Technology, HCMC University of Technology, Vietnam National University – HCMC
20	Dr. Pho Thi Nguyet Hang	Vice Director	Institute of Engineering Physics, Hanoi University of Technology
21	Dr. Le Van Hao	Vice Director	Department of Undergraduate and Graduate Education, Nha Trang University
22	Dr. Truong Chi Hien	Vice Rector	HCMC University of Technology,, Vietnam National University – HCMC
23	Dr. Phan Phuoc Hien	Deputy Head	International Relations Office, Nong Lam University
24	Assoc. Prof. Dr. Vu Dinh Hoa	Director	Office of Research Affairs & International Cooperation, Hanoi University of Agriculture
25	Dr. Nguyen Hoang	Head	Office of Academic Affairs, Hue University
26	Dr. Nguyen Minh Hong	Dean	Faculty of Electrical and Electronic Engineering, Hung Yen University of Technical Teacher Education
27	Assoc. Prof. Dr. Nguyen Chu Hung	Head	Academic Affairs Department, Vietnam National University – HCMC
28	Assoc. Prof. Dr. Huynh Thanh Hung	Vice-Rector	Nong Lam University
29	Dr. Nguyen The Hung	Deputy Head	Office of Scientific Research, Postgraduate and International Cooperation, Thai Nguyen University of Agriculture and Forestry, Thai Nguyen University
30	M.S. Le Vu Tuan Hung	Vice Dean	Faculty of Physics, HCMC University of Natural Sciences, Vietnam National University – HCMC
31	Dr. Nguyen Thi Le Huong	Deputy Director	Department of Higher Education, Ministry of Education & Training
32	Dr. Truong Hong Khanh	Deputy Head	Academic Affairs Office, HCMC University of Economics
33	Assoc. Prof. Dr. Nguyen Phuc Khanh	Deputy Director General	Science and Technology Department, Ministry of Education & Training
34	Dr. Nguyen Quang Kim	Vice Rector	Hanoi University of Water Resources
35	Mr. J.C. Koeslag	Chief of Technical Advisor	Vietnam-Netherlands Higher Education Project
36	Dr. Nguyen Thi Ngoc Lan	Head	Office of Academic Affairs, HCMC University of Natural Sciences, Vietnam National University – HCMC

<b>No.</b>	<b>Name</b>	<b>Role/Title</b>	<b>Organization</b>
37	Dr. Vet. Le Van Lanh	Deputy Director	Office of Research Affairs & International Cooperation, Hanoi University of Agriculture
38	Assoc. Prof. Dr. Nguyen Van Lien	Dean	Faculty of Electrical Engineering, Hanoi University of Technology
39	Assoc. Prof. Dr. Dang Van Liet	Dean	Faculty of Physics, HCMC University of Natural Sciences, Vietnam National University – HCMC
40	Prof. Dr. Tran Dinh Long	Professor; Full Member, International Academy of Electrical technical Science (IAES); Vice-President, Vietnam Electrical Engineering Association (VEEA)	Faculty of Electrical Engineering, Hanoi University of Technology
41	Assoc. Prof. Dr. Nguyen Canh Luong	Vice Rector	Hanoi University of Technology
42	Mr. Doan Hong Nam	CEO and President	International Investment Group (IIG) Vietnam ETS Country Representative
43	Dr. Nguyen Thanh Nam	Head	Academic Affairs Office, HCMC University of Technology, Vietnam National University – HCMC
44	Mr. Phan Duy Nga	Director	Department of International Relations & Administration, Hanoi University of Science, Vietnam National University – Hanoi
45	Dr. Do Hanh Nga	Vice Dean	HCMC University of Education
46	Assoc. Prof. Dr. Nguyen Phuong Nga	Director	Center for Educational Quality Assurance and Research Development, Vietnam National University – Hanoi
47	Assoc. Prof. Dr. Nguyen Hoi Nghia	Director	Center for Educational Testing and Evaluation, Vietnam National University – HCMC
48	Assoc. Prof. Dr. Le Duc Ngoc	Deputy Director	Centre for Educational Quality Assurance and Research Development, Vietnam National University – Hanoi
49	Assoc. Prof. Dr. Nguyen Van Nha	Head	Academic Affairs Office, Vietnam National University – Hanoi
50	Prof. Dr. Mai Trong Nhuan	President	Vietnam National University – Hanoi
51	Prof. Dr. Tran Van Nhung	Vice Minister	Ministry of Education & Training
52	Dr. Hoang Van Phu	Head	Office of Scientific Research, Postgraduate and International Cooperation, Thai Nguyen University
53	Assoc. Prof. Dr. Duong Ai Phuong	Rector	HCMC University of Natural Sciences, Vietnam National University – HCMC

<b>No.</b>	<b>Name</b>	<b>Role/Title</b>	<b>Organization</b>
54	Dr. Nguyen Huu Phuong	Dean	Faculty of Electronics & Telecommunications, HCMC University of Natural Sciences, Vietnam National University – HCMC
55	Dr. Ho Thi My Phuong	Assistant Director, Dean	Southeast Asian Ministers of Education Organization – Regional Training Center (SEAMEO RETRAC), Educational Management Department
56	Dr. Dang Kim Son	Director	Vietnam Academy of Agricultural Sciences
57	Assoc. Prof. Dr. Le Cao Thang	President	Thai Nguyen University
58	Dr. Huynh Quyet Thang	Head	Software Engineering Department, Faculty of Information Technology, Hanoi University of Technology
59	Assoc. Prof. Dr. Le Trong Thang	Head	Graduate and Postgraduate Department, Hanoi University of Mining and Geology
60	Assoc. Prof. Dr. Vu Dinh Thanh	Rector	HCMC University of Technology, Vietnam National University – HCMC
61	Dr. Nguyen Huu Thanh	Vice Dean	Faculty of Electronics & Telecommunications, Hanoi University of Technology
62	Dr. To Minh Thanh	Head	Office of Educational Testing and Quality Assessment, University of Social Science & Humanities, Vietnam National University – HCMC
63	Assoc. Prof. Dr. Le Nhu Thanh	Director	Department of Postgraduate Training, Hanoi University of Science, Vietnam National University – Hanoi
64	Dr. Pham Xuan Thanh	Deputy Director	General Department for Testing and Educational Quality Accreditation, Ministry of Education & Training
65	Assoc. Prof. Dr. Nguyen Xuan Thao	Rector	Tay Nguyen University
66	Assoc. Prof. Dr. Ha Manh Thu	Vice Director	International Cooperation Department, Hanoi University of Technology
67	Dr. Phan Viet Thu	Director	Department of Academic Affairs, Hanoi University of Science, Vietnam National University – Hanoi
68	Assoc. Prof. Dr. Dong Thi Bich Thuy	Director	Computer Science Center, HCMC University of Natural Sciences, Vietnam National University – HCMC
69	Prof. Dr. Nguyen Thanh Thuy	Vice Dean	Faculty of Information Technology, Hanoi University of Technology
70	Dr. Vu Xuan Thuy	Deputy Director	Department of Human Resources, Ministry of Agriculture and Rural Development
71	Dr. Nguyen Manh Tien	Head	Department of Industrial Automation, Faculty of Electrical Engineering, Hanoi University of Technology

<b>No.</b>	<b>Name</b>	<b>Role/Title</b>	<b>Organization</b>
72	Prof. Dr. Pham Sy Tien	Senior Committee Advisor	Committee on Overseas Scholarship Program, Ministry of Education & Training
73	Dr. Nguyen Thi Tinh	Vice Rector	Hanoi National University of Education
74	Dr. Ha Thanh Toan	Vice Rector	Can Tho University
75	Dr. Nguyen Van Toan	President	Hue University
76	Dr. Tran Van Top	Vice Dean	Faculty of Electrical Engineering, Hanoi University of Technology
77	Assoc. Prof. Dr. Le Quang Tri	Vice Rector	Can Tho University
78	Assoc. Prof. Dr. Doan Thi Minh Trinh	Head	Graduate Office , HCMC University of Technology, Vietnam National University – HCMC
79	Dr. Cao Hoang Tru	Vice Dean	Faculty of Information Technology, HCMC University of Technology, Vietnam National University – HCMC
80	Dr. Pham Dinh Truc		Faculty of Electrical & Electronics Engineering, HCMC University of Technology, Vietnam National University – HCMC
81	Assoc. Prof. Dr. Ha Duyen Tu	Vice Rector	Hanoi University of Technology
82	Dr. Ngo Anh Tuan	Vice Director	Institute of Engineering Physics, Hanoi University of Technology
83	Assoc. Prof. Dr. Nguyen Anh Tuan	Rector	Can Tho University
84	Assoc. Prof. Dr. Phung Quoc Tuan	Lecturer	Hanoi University of Agriculture
85	Assoc. Prof. Dr. Tran Duc Vien	Rector	Hanoi University of Agriculture
86	Prof. Dr. Nguyen Ai Viet	Director	Institute of Physics and Electronics – VAST
87	Prof. Dr. Dang Kim Vui	Rector	Thai Nguyen University of Agriculture and Forestry, Thai Nguyen University
88	Mr. John Wade	U.S. Agricultural Counselor	U.S. Embassy
89	Assoc. Prof. Dr. Do Van Xe	Vice Rector	Can Tho University



## **APPENDIX VI**

### **WORKSHOP EVALUATION SUMMARY**

#### **Opportunities for Enhancing STEM Education in Vietnam: A Forum for the Discussion of VEF's Reports on Undergraduate and Agricultural Education**

**AUGUST 2-3, 2007**

Below is the summary of the feedback received from the workshop participants:

#### **1. Content of the Presentations by U.S. Experts**

- The workshop was very useful, effective, and suitable for the development of higher education in Vietnam.
- The findings were true about the current status of Vietnam higher education and the recommendations were very good.
- The workshop was informative, clear, specific, and practical though the time was limited.
- The presentations just repeated what had been mentioned in the two reports. They should have highlighted issues for further discussion among the participants.

#### **2. Organization of the Workshop**

- The workshop was well-organized and very professional.
- We learned a lot about the way of organizing an effective and interactive workshop where participants had many chances to discuss with each other.
- VEF staff and U.S. experts were very enthusiastic.
- The workshop was excellent and perfect; however, it should have lasted longer.
- We needed more MOET staff to get involved in this workshop.
- The workshop handouts should have been sent to participants before the workshop.
- The content of the workshop did not focus on the opportunities for cooperation between MOET and VEF on specific projects.

#### **3. Other Topics that should be Addressed in the Future**

- Higher education quality accreditation.
- Cooperative projects between MOET and VEF as well as VEF's plans in supporting the development of education/training in Vietnam in the future.
- Plans for further cooperation, including terms of policy making, between partners, such as MOET and Vietnamese universities, and between training and research institutions.
- Plans to develop Vietnamese faculty and to bring foreign faculty to teach in Vietnam.
- University management/administration (autonomy, finance, curricula) as well as the knowledge gained from the experiences of U.S. universities.
- Emerging issues of studying and teaching in the future.

- More research on current status of universities in remote areas.
- More observations on the education and training system, especially at the graduate level.
- Innovation of teaching and learning methods for both faculty and students.
- Support for Vietnamese universities in education, training, and scientific research.
- Higher education management and data-driven decision making (DDDM) in higher education.
- Qualitative recommendations as well as a quantitative analysis, including the core solutions among the qualitative recommendations.
- Ways to attract more Vietnamese talent to come back to Vietnam and serve the country.
- Evaluating and enhancing the quality of teaching and research of lecturers in Vietnamese universities.

**4. What did you Like Most about the Workshop?**

- The presentations of Facilitators after the group discussions.
- Straight and open discussions.
- Group discussions, addressing many issues and then recommending solutions to improve the education and training in Vietnam.
- The 2 VEF reports.
- Recommendations on evaluating/improving lecturers and organizing the scientific research in Vietnamese universities.
- Curriculum development and assessment.
- The group discussion by Dr. Peter Gray.

**5. What did you Like Least about the Workshop?**

- There was no summary of recommendations to be submitted to MOET at the end of the workshop.
- The presentations on general topics in the afternoon of August 2, 2007.
- There was no specific plan to support graduate education nor a plan for the future to solve already identified problems.
- The participants raised many issues, but no solutions were given.
- In the discussion session, participants paid more attention to their own institution's problems rather than seeing the whole picture. Some questions were too long and were not concentrated on the main discussion topics.
- Microphones and the sound system were not very good.
- The last session didn't concentrate on the projects supported by VEF. Time for discussion was too short; therefore, the specific issues were not solved properly.

**6. Other Comments**

- The workshop was very informative on the current status of higher education in Vietnam, on the recommendations by VEF and on VEF's future activities. It was a great success.
- Viewpoints of workshop facilitators' should be considered more.

- The VEF leadership and staff were very enthusiastic and energetic. The consultants/experts played their full roles; however, the time was short.
- I would appreciate having a close relationship with VEF in order to see how we can link higher education projects to VEF's activities.
- Due to the limited time, many issues were not discussed adequately.
- VEF addressed emerging issues through quantitative evaluation.
- VEF should have larger scale projects to support higher education in Vietnam.
- Higher education renovation in Vietnam requires an effort at the central level.
- A number of recommendations were not practical in the short run, but they would be helpful in the long run.
- The workshop documents should have been posted online in a forum and VEF should inform all participants to download before the workshop.
- The special subjects for discussion should have been organized separately so that universities would have had more time to study and research these ideas.
- The workshop agenda was not suitable for Vietnamese people.
- The workshop was very helpful and it should have been organized in other places as well, besides Hanoi.

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