

PROJECT PROPOSAL

Phase I: "ASEAN Virtual Engineering University"

ASEAN Virtual University of Science & Technology (VUST) sub-component of the ASEAN University Network (AUN)

Submitted to the ASEAN Secretariat
by the following members
of the first Working Group Meeting of "ASEAN Virtual Engineering University"
in Manila on 27 August 1999

The Association for Engineering Education in Southeast Asia and the Pacific (AESEAP)
The Federation of Engineering Institutions of Southeast Asia and the Pacific (FEISEAP)
The Association of Universities of Asia and the Pacific (AUAP)
UNESCO Regional Informatics Network for Southeast Asia and the Pacific (RINSEAP)
The Asian Institute of Technology (AIT)
The National University of Singapore
The University of the Philippines
The University of Malaya
Chulalongkorn University
Thailand Graduate Institute of Science and Technology (TGIST)

The UNESCO Jakarta Office sponsored the first Working Group Meeting

15 September 1999

Phase I: ASEAN Virtual Engineering University

ASEAN Virtual University of Science & Technology (VUST)

Problem to be addressed

The economic and monetary crisis that hit ASEAN nations in 1997 and 1998 has been affecting higher education and R&D in respective countries. Universities in the region have been suffering from government budget cuts and a decrease in other sources of funds. Equipment procurement

and personnel development activities (e.g., scholarships, attendance in international and regional meetings and training courses) are becoming increasingly difficult. In order to optimize limited funds, universities are to strengthen the solidarity among them through networking. The project proposes an Information Technology based networking rather than traditional networking or university twinning. The long-term goal is to establish ASEAN Virtual University of Science & Technology (VUST), which is envisioned initially as a network of universities in ASEAN and later, even, beyond. The VUST will initially concentrate on engineering, to form ASEAN Virtual Engineering University (VEU).

Background, problem analysis and justification

2.1 Background

The economic crisis that affected the region in the past two years, after decades of relative prosperity, has led ASEAN to face the new millennium with uncertainty and diminishing global competitiveness. Human resource development is viewed as a key factor for the reversal of the downward slide, and for propelling it towards sustainable development and prosperity. Development of scientific and technological manpower should be the leading component of the human resource development efforts. While this task should be done by various institutions in individual countries of ASEAN, co-operation among them should lead to synergistic results not attainable by the individual institutions separately.

The strategy of networking of universities is not new to ASEAN. It has already embarked on a university networking scheme through its ASEAN University Network (AUN). However, since the lead universities in science and technology in the region are not necessarily the same as those now participating in the AUN, and AUN's current priority programmes are not in science and technology, a separate initiative such as the VUST would be valuable in addressing the urgent problem of human resource development in science and technology. The VUST could be regarded as a sub-component of the AUN.

New advances in information and distance-learning technologies have made possible such synergistic co-operation in a cost-effective manner on an unprecedented scale. It is therefore important to make use of the new opportunities made available by this development, in order to strengthen the scientific and technological manpower through co-operation among the institutions in the ASEAN region, which share common needs.

2.2 Problem Analysis and Justification

Problem Analysis

As more and more applications are created and as the internet infrastructures further develop in individual countries, it seems reasonable to expect that such applications can be shared by schools in the region and indeed throughout the world under a suitable framework. It would be a pity if indeed this did not follow as a natural extension or a desired objective of present activities.

One other major problem that needs to be addressed is the lack of co-ordination and lack of real co-operation between universities in the ASEAN region, especially in the field of engineering and technology. Universities in this region would almost always seek co-operation and linkage with universities in developed countries like the United States, Australia and Japan, rather than universities in the region. While this is necessary and convenient in most cases, it deprives the possibility of sharing experiences and knowledge, which are regional in nature. In co-operating only with Western countries, we also experience the brain drain and resource drain. This drain on the ASEAN human resources is expected to escalate as economic growth becomes heavily based on manufacturing and engineering businesses.

Regionality

The proposal relates to regional networking among key universities in the region.

Participation

Participation from the following have been initially expressed:

Regional science and engineering non-governmental organizations

UNESCO Regional Networks

The Asian Institute of Technology (AIT)

Lead universities of science & technology and institutes in all ASEAN countries

At a later stage, the network may be expanded to accommodate the participation of universities from non-ASEAN countries in Asia.

Beneficiaries

Universities

Training and Research Institutes

Industry

Government

Commitment and sustainability

Commitment of the participating institutions and sustainability of the project can be assured by leveraging on current programmes which are already receiving allocations of national and regional resources. Among the strategies to be adopted by the project are:

Complement ASEAN University Network (AUN) activities. To this end, UNESCO has already initiated consultations with the Executive Director of the AUN, who responded positively to the idea.

Adopt current IT-based activities and infrastructure in lead universities in ASEAN countries.

Align with mutual recognition initiatives among APEC member countries.

Possible Solutions

Recent developments in Information Technology enables university activities to be linked on the Internet in the delivery of IT-aided science and technology education, distance education, database sharing, library network, internet conferences and training courses. Its potential also enables virtual and collaborative R&D. In other regions (North America and Europe), IT-aided science and technology education and distance education are becoming popular and gradually replacing conventional teaching methods. IT-aided education is the world trend. If the ASEAN does not take any action, universities in ASEAN countries, individually, will certainly purchase course materials developed by universities in other regions. To acquire IT-aided education materials from elsewhere is one thing but to "jointly" produce and disseminate (including tutors training) the materials is another issue and is more important to enhance the solidarity among universities in the region.

The ASEAN University of Science & Technology (VUST) is envisioned to operate as a consortium of universities offering services and performing other functions. Effective co-operation is made possible by information technology and distance learning, which can deliver instruction and self-learning

materials to students effectively in the fashion of the open university. The virtual university learning and instructional model is designed around the use of interactive multi-media courseware and state-of-the-art telecommunication systems. Key instructional design components include: independent study, on-line interaction and virtual classrooms, simulated laboratory exercises and technical information library.

The solution to the problems stated above is not easily achieved because the full range of technological advances is not a local product of this region. The knowledge accumulated is far from being self-sufficient in propelling development. To lessen this problem, universities in the region should start to co-operate in the science and technology education and help each other to upgrade S&T higher education in member countries. Mobility of professionals, students and academics should be encouraged. Upgrading of engineering programs should be promoted in order to attain competitiveness in the global market.

Collaboration should start from existing strength. Many universities in the region have already started using modern information technology and telecommunications for their teaching, learning and research activities. Resources, efforts and information could be shared even though the degree of development may be different. Effort by member universities should be complementary to begin with and a cost-sharing concept should be incorporated.

Objectives

Objectives

This project aims to achieve the following objectives:

Foster partnerships and solidarity among ASEAN universities in providing borderless science and technology education and human resource development.

Encourage the use of modern enabling technologies such as information technology in the light of the life-long learning concept.

Enhance and complement existing national science and technology programs.

Facilitate resource sharing among universities in the region.

Facilitate upgrading of science and technology programs in non-leading universities in the region.

Facilitate international mobility of science and technology professionals, students and staff.

Promote the science and technology profession in the region.

Success Criteria

At the end of the project, the following success criteria will have been met:

A network of lead universities in the field of science and technology, in information technology and in distance education in ASEAN countries shall have been established.

Tutors training programmes would have been organized at regional and national levels.

A wider vision to expand the activities of the project from distance education to other modes of networking would have been developed. These other modes include, but are not limited to:

Virtual conferences, seminars and workshops

Joint R&D

Library network

Electronic publication of newsletters and periodicals

Continuing engineering education for practising engineers

Accreditation and Diploma of the ASEAN Virtual University of Science & Technology

Outputs (initially focused on Engineering Education)

The projects will deliver the following outputs:

A consortium of engineering universities operating under a memorandum of agreement signed by relevant authorities

A linked-up region-wide engineering library network

(Number) of IT-aided continuing engineering education courses on offer by the participating institutions

An agreed mechanism for financially sustainable operations and firm commitments by the participating institutions

A wider vision for expansion of services and programmes offered by the virtual university network and an accompanying plan of action for implementation in terms of:

Infrastructure development: manpower, hardware, software, support and services

Content

Accreditation

Pedagogical issues

Costing

Indicative work plan

Please see attached four (4) tables on Outputs and Schedule of Activities.

Management and Implementation arrangements

Management arrangements

A Working Group has been initially established with the membership of regional engineering non-governmental organizations, UNESCO regional networks, the Asian Institute of Technology, lead engineering universities (not necessarily members of the ASEAN University Network), ASEAN Secretariat and UNESCO Jakarta Office. Membership in this Working Group shall not be exclusive. The first Working Group Meeting was convened on 27 August 1999 with the attendance of the following 12 representatives:

The Association for Engineering Education in Southeast Asia and the Pacific (AEESEAP)

The Federation of Engineering Institutions of Southeast Asia and the Pacific (FEISEAP)

The Association of Universities of Asia and the Pacific (AUAP)

UNESCO Regional Informatics Network for Southeast Asia and the Pacific (RINSEAP)

The Asian Institute of Technology (AIT)

The National University of Singapore

The University of the Philippines

The University of Malaya

Chulalongkorn University

Thailand Graduate Institute of Science and Technology (TGIST)

The ASEAN Secretariat

The UNESCO Jakarta Office

The Working Group was tasked to conduct a feasibility study and propose a strategic plan for the establishment and operation of the VUST within the year 2000.

The Asian Institute of Technology located in Bangkok, Thailand shall act as Interim Secretariat of the Working Group. The second Working Group Meeting will be hosted by Chulalongkorn University in Thailand in January 2000.

Progress of the Working Group shall be regularly reported to the ASEAN Committee on Science and Technology (COST) through the Sub-Committee on S&T Infrastructure and Resources Development (SCIRD).

Implementation arrangements

Academic staff of participating universities will implement the project. The ASEAN Secretariat and the UNESCO Jakarta Office will assist and monitor the implementation.

Budget and funding arrangements

The initial stage of project conceptualization and project proposal development is being supported by seed funding from UNESCO.

It is proposed that the basic budget for the initial phase of operation be funded from allocations by donor governments including those from ASEAN countries, Japan, Australia, New Zealand, the European Union, USA and Canada, and donor agencies and institutions such as the ASEAN Foundation. This proposal has been packaged in such a way that donors who wish to support the project partially can easily extract an appropriate module for a specific project output. Budget estimates for this initial phase of operation will be proposed after the second Working Group Meeting, which is planned to be held in January 2000 in Bangkok.

At the later stage of full implementation, the VUST should have in place mechanisms for financial sustainability. The first programmes to be implemented are continuing engineering education courses. The target group of these courses are practising engineers who would like to re-tool or upgrade their competencies, and as such are capable of paying their own way. The income derived from this component will start the momentum of revenue generation activities for the VUST.

In the long run, participating institutions are expected to gain from the VUST activities in terms of increased visibility, prestige, industrial linkages and registration fees for courses and other educational services. They are expected to make counterpart contributions in cash or in kind

(hardware and software) to the VUST under a mutually agreed guideline. Private donors, especially industrial partners, will be invited to make appropriate contributions. Corporate membership programs may also be established, in which private companies can either give general contribution or subscribe to specific programs such as on-site practical consultancy and continuing engineering education.

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OUTPUTS AND SCHEDULE OF ACTIVITIES – Table 1

PROJECT NUMBER

PROJECT TITLE

ASFAN Virtual University of Science and Technology

Output Number

Description

4

A consortium of engineering universities operating under a memorandum of agreement signed by relevant authorities

An agreed mechanism for financially sustainable operations and firm commitments by the participating institutions

Activity No.

Description

Start date

End date

Action by

1

2

3

4

5

6

7

Creation of task forces

Series of meetings of task forces

Consolidation of recommendations of task forces

General workshop of VEU stakeholders to review and accept task force recommendations

Drafting of proposed MOA incorporating relevant recommendations derived from task forces

Convening of high-level meetings (at chancellor and vice-chancellor levels, including AUN and UNESCO representatives) to review MOA

Signing of MOA

OUTPUTS AND SCHEDULE OF ACTIVITIES – Table 2

PROJECT NUMBER

PROJECT TITLE

Phase 1: Virtual Engineering University, ASEAN Virtual University of Science and Technology

Output Number

Description

2

A linked-up region-wide engineering library network

Activity No.

Description

Start date

End date

Action by

1

2

3

Workshop of librarians from participating institutions to formulate recommendations for linking up of engineering libraries

Presentation of librarians' recommendations to university authorities

Meeting of university authorities to adopt librarians' recommendations and firm up commitments to support library networking

Phase I: ASEAN Virtual Engineering University, ASEAN Virtual University of Science and Technology

EXAMPLE ONLY

INPUT TABLE 2: Budget Estimates for Output 2

Output

1.0

Contracts with Individual

2.0

Contracts with Organizations

3.0

Equipment

4.0

Supplies and Services

5.0

Travel and Per Diem

Estimated Total Cost

A linked-up region-wide engineering library network

10 librarians from participating institutions, no fees

OUTPUTS AND SCHEDULE OF ACTIVITIES – Table 3

PROJECT NUMBER

PROJECT TITLE

Phase 1: Virtual Engineering University, ASEAN Virtual University of Science and Technology

Output Number

Description

3

(Number) of IT-aided continuing engineering education courses on offer by the participating institutions

Activity No.

Description

Start date

End date

Action by

1

2

3

4

5

6

7

8

Identification of subjects/courses to be initially offered, and standardisation of course format

Recruitment of experts on design of IT-aided continuing engineering education courses

Series of experts meetings to design course offerings

Approval by relevant university authorities of the course offerings

Piloting of the initial course offerings

Evaluation and refinement of the pilot offerings, planning for additional course offerings

Training of trainers

Full implementation

Phase I: ASEAN Virtual Engineering University, ASEAN Virtual University of Science and Technology

Annex 3 of 4

OUTPUTS AND SCHEDULE OF ACTIVITIES - Table 4

PROJECT NUMBER □

□□

PROJECT TITLE □

Phase 1: ASFAN Virtual Engineering University, ASFAN Virtual University of Science and Technology □□

Output Number □

Description □□

5 □

A wider vision for expansion of services and programmes offered by the virtual university network and an accompanying plan of action for implementation □□

Activity No. □

Description □

Start date □

End date □

Action by □□

1

2

3

Convening of Working Group meetings to formulate a vision for the university network over the long-term and to develop the accompanying action plan

Consolidation of recommendations of working group and presentation to relevant university authorities

Review of recommendations leading to adoption of vision and action plan

Phase I: ASFAN Virtual Engineering University, ASFAN Virtual University of Science and Technology

Annex 4 of 4

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