

TRIP REPORT

Project: Cooperative Agreement for Research in Thailand
USAID Cooperative Agreement No. 493-0000-A-00-1150-00

Travel: Trip to Bangkok, Thailand, 30 November to 3 December 1992,
to Launch Academic Partnership Program

Report Prepared By: Raymond D. Daniels, University of Oklahoma

Date: December 10, 1992

On 1 December 1992, representatives of the University of Oklahoma, the University of Michigan, and Case Western Reserve University participated in ceremonies in Bangkok, Thailand, to officially launch an academic partnership with Chulalongkorn University to offer graduate programs in Petrochemical Technology and Polymer Science.

Representing the three U.S. universities were:

Professor Richard A. Zdanis, Provost and University Vice President
Case Western Reserve University

Professor Billy L. Crynes, Dean, College of Engineering
The University of Oklahoma

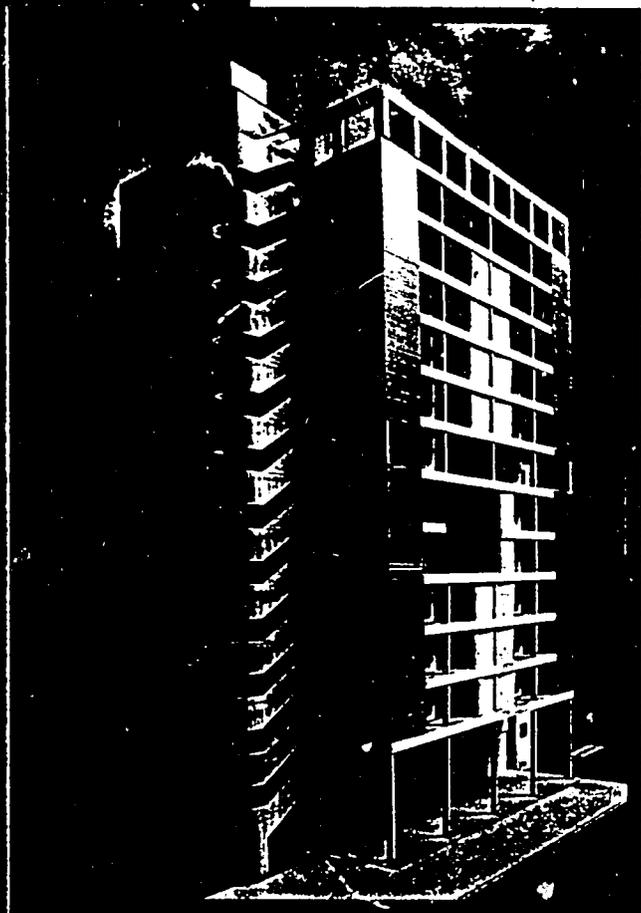
Professor Erdogan Gulari, Senior Associate Dean, College of Engineering
The University of Michigan

A brochure prepared for the occasion was published as a special supplement in the newspaper, **Bangkok Post**. Sixty thousand copies were distributed throughout Thailand. A copy of the brochure is appended to this trip report.

The U.S. university representatives also participated in a ceremony in which the President of Chulalongkorn University, Professor Charas Suwanwela, signed a Memorandum of Understanding among the three U.S. universities and Chulalongkorn University establishing the Academic Partnership. A copy of the M.O.U. is appended to this trip report.

Enclosures: Brochure
Memorandum of Understanding

**NEW INTERNATIONAL
MASTER DEGREE PROGRAMS
in
PETROCHEMICAL TECHNOLOGY
and
POLYMER SCIENCE**



An academic partnership among:



The Petroleum and Petrochemical College
CHULALONGKORN UNIVERSITY (Bangkok)



The Department of Chemical Engineering
UNIVERSITY OF MICHIGAN (Ann Arbor)



The Department of Chemical Engineering and Material Science
UNIVERSITY OF OKLAHOMA (Norman)



The Department of Macromolecular Science
CASE WESTERN RESERVE UNIVERSITY (Cleveland)

A special publication of the Bangkok Post

Message from the Minister of University Affairs



The development of human resources on technology especially at the graduate level is one of the most important priority area for the Royal Thai Government during the Seventh Economic and Social Development Plan. The new international Master degree program in Petrochemical Technology and Polymer Science of the Petroleum and Petrochemical

College of Chulalongkorn University in collaboration with three world's renowned Engineering Colleges of the United States will indeed play a key role not only in alleviating the shortage of high-level manpower in the booming petrochemical industries, but also in providing the much needed supply of faculty for the Engineering and Science Schools of the country.

I would like to warmly welcome to Thailand the distinguished executives from University of Michigan, University of Oklahoma and Case Western Reserve University who are here to sign the Memorandum of Understanding on the coming project. I also would like to thank the United States Agency for International Development (USAID) who has given valuable support for the program.

I am confident that this new academic partnership will not only set trend for internationalisation of the College but will also further strengthen what has been a long and fruitful tradition of cooperation between Thai and US universities.

Suthep Atthakor

Message from the Director United States Agency for International Development



The United States Agency for International Development (USAID) is pleased to announce the signing of a Memorandum of Understanding (MOU) between the United States Agency for International Development (USAID) and the Ministry of University Affairs of the Royal Thai Government. This MOU is a significant step in the development of a new international Master degree program in Petrochemical Technology and Polymer Science of the Petroleum and Petrochemical College of Chulalongkorn University in collaboration with three world's renowned Engineering Colleges of the United States.

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Thomas H. Reese, III

Message from the President Chulalongkorn University



Since its inception 75 years ago, Chulalongkorn University has striven to achieve and maintain academic excellence -- particularly in areas relevant to the needs of Thai society. The Petroleum and Petrochemical College is yet another example of the University's on-going pursuit of this goal. Established by Chulalongkorn University in 1988, the Petroleum and

Petrochemical College arose in response to the rapidly growing demand for highly qualified technical manpower in our booming petrochemical and polymer industries.

To ensure that the College's programs are of high international standard, the College has entered into an academic partnership with three distinguished U.S. engineering colleges and plans to introduce in 1993 Master's degree programs in Petrochemical Technology and Polymer Science.

To launch the program, a ceremony was held in Bangkok on December 1, 1992 and was attended by the following representatives of the partner institutions: Professor Richard A. Zdanis, Provost and University Vice-President of Case Western Reserve University; Professor Billy L. Crynes, Dean of the College of Engineering, University of Oklahoma; and Professor Erdogan Gulari, Senior Associate Dean, College of Engineering, University of Michigan. We extend our warmest greetings and thanks to these distinguished men.

Chulalongkorn University would also like to express deepest gratitude to USAID for supporting this university linkage project -- support that we hope will extend to the start-up of the graduate program partnership. The Petroleum Authority of Thailand has also supported the program through the generous donation of scholarships, for which we are most grateful. And special appreciation goes to the Minister of University Affairs for its staunch support of the international graduate program.

The strong support received thus far promises a bright future, and I would like to wish the Petroleum and Petrochemical College much success in the forthcoming mission.

Prof. Charas Suwanwela, M.D.



Professor Richard A. Zdanis
Provost and University Vice-President
Case Western Reserve University



Professor Billy L. Crynes
Dean of the College of Engineering
University of Oklahoma



Professor Erdogan Gulari
Senior Associate Dean
College of Engineering
University of Michigan

Chulalongkorn sets a new standard for engineering education



Chulalongkorn, as the most established university in Thailand, believes it has a key role to play in overcoming the shortage of technical manpower in Thailand.

In order to overcome traditional problems in Thai higher education Chulalongkorn is following the model the Sasin Graduate Institute of Business Administration. The 10-year-old Institute is the most successful example of collaboration between Thai and US universities.

"Like Sasin, our College will bring over professors from leading American universities to Thailand. This will not only upgrade the teaching program at the College, it will serve as a highly attractive alternative to an American education for the region's best and brightest students," explains Dr. Kamchad Mongkolkul, Director of the Petroleum and Petrochemical College.

"The application of American expertise and know-how in the areas of engineering and science within a regional environment will create a unique educational formula."

American universities ready to begin

Three well-known US institutions - Case Western Reserve University and the Universities of Oklahoma and Michigan - together will provide 10 faculty annually for Master Degree programs in Petroleum Technology and Polymer Science.

The three US universities have internationally recognised programs in polymer science, chemical engineering and natural gas and petroleum processing. They also have well-established faculty exchange and collaborative research programs.

A long-term productive partnership between the four universities will be beneficial to all concerned.

"The Petroleum and Petrochemical College is an exciting idea," declares Dr. Jeffrey Harwell, head of the Chemical Engineering and Material Science Department of the University of Oklahoma.

"We believe it will have a positive impact both on Thailand's development and on strengthening US/Thai linkages. We are also impressed with the many opportunities for collaboration between Chula and American faculty on research projects which would be of value to Thai and American industry."

According to Dr. Johannes Schwank, head of the Department of chemical Engineering of the University of Michigan, "The program at Chulalongkorn University is an important step towards strengthening international ties with Thailand. It represents an exciting opportunity for internationalisation of engineering education in the context of a rapidly evolving polymer and petroleum technology base in Thailand.

"Michigan's Department of Chemical Engineering has a proud tradition of leadership in education and research," Dr. Schwank adds. "The new program in Thailand broadens the scope and impact of the education mission of the Department."

"We are excited about the possibility of touching the historical moment in the development of Polymer and Petrochemical Sciences in Thailand and Southeast Asia. It is especially significant that we carry out this ambitious goal as a team of Thailand and US faculty members. The successful operation will have a long-lasting impact on our mutual relationship," concluded Dr. Hatsu Ishida, Professor of Macromolecular Science, Case Western Reserve University.



Solving the technical manpower shortage: an industry perspective

"On a macro level, Thailand needs about 6,000 to 7,000 engineering graduates a year, and about twice that number for the sciences," observes Dr. Sippanondha Ketudat, Chairman of Petroleum Authority of Thailand and Minister of Industry in the Anand administration.



*"PTT is pleased to provide 20 scholarships to the Petroleum and Petrochemical College" -
Dr. Sippanondha Ketudat,
Chairman of PTT*

"Thai universities are currently producing only about 4,000 graduates per year. So there is an urgent need to beef up undergraduate and graduate programs in order to close the gap between supply and demand."

The quickly expanding petrochemical industry is experiencing an acute shortage of technical manpower, chemical and process engineers in particular. Chemical engineering in Thailand is a relatively new field and local institutions lack the staff and facilities to turn out sufficient numbers of graduates.

"In planning the development of the eastern seaboard about 10 years ago we came up with an idea to mobilise human resources to support the newly emerging oil, natural gas and petrochemical industries," recalls Dr. Sippanondha, who was part of a committee set up by Chulalongkorn University to find ways to upgrade the engineering and science departments.

"We decided to pool the resources of Chula's Science and Engineering Faculties to improve the teaching program at the graduate level and establish research facilities. It was also proposed to invite distinguished engineering schools from abroad to take part."

With the confirmed participation of three renowned American universities, the Petroleum and Petrochemical College offers post-graduate engineering education of a standard unique in Thailand.

"The goal of the college is to build a high quality program, taking in only about 40 of the best students annually. The skills these graduates acquire will be of enormous benefit to both the petrochemical industry and the university."



Industry has an important role to play in supporting the college according to Dr. Sippanondha. Providing scholarships to the most talented students and employees is an excellent way for companies to upgrade their personnel. PTT recently decided to provide 20 scholarships to the College.

"Industry can also help by establishing a professor's chair," Dr. Sippanondha says. "This is a relatively new concept in Thailand. It was first done at the Sasin Institute. The College is thinking of obtaining about 10 million baht from industry to go to the hiring of a highly qualified candidate."

In addition, industry can cooperate with the College by doing joint research on practical problems within a company either at the factory site or on campus. Efficiency can be improved and research often results in new commercial applications.

While the emphasis at the College is on science and technology, Dr. Sippanondha encourages students to take a wider perspective.

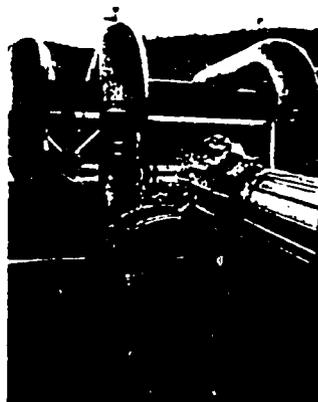
"As a member of the College's advisory board I would like to see the programs make students more sensitive to the environment. When dealing with industry, particularly involving chemicals, the possibility of pollution is rather high. If you are aware of the problem from the beginning and install effective treatment systems it saves the company time and money in the long run and ensures a clean environment. Industrial development must go hand-in-hand with proper environmental protection."

DTEC offers support

The Department of Technical and Economic Cooperation (DTEC) is fully behind the Petroleum and Petrochemical College's plan to include students from abroad:

"DTEC considers the international master degree program in Petrochemical Technology and Polymer Science another important dimension in Thailand's technical assistance program to other developing countries," states Miss Priya Osthanda, Director General of DTEC. "We will include the College in our scholarship program for foreign students."

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GOAL: To produce 40 graduates of high international standards and fluent in English each year to help meet the needs of Thailand's and the region's fast growing petrochemical and polymer industries.

THE PROGRAMS: The two-year Master Degree programs will be composed of 36 credit hours: 24 for course work and 12 for thesis. Classes will be taught in English by 10 American professors per year. Each US faculty member will work with Thai faculty and supervise 3-5 students for thesis research.

FACILITIES: The college's 7,000 sq.m. floor area in a new 14-storey building will be well equipped with modern scientific equipment, computers and library resources worth 160 million baht (US\$6.2 million).

SCHOLARSHIPS: Some industry sponsored scholarships are available. It is also planned to have six student exchange scholarships each year to undertake three months' research at the US universities in the program.

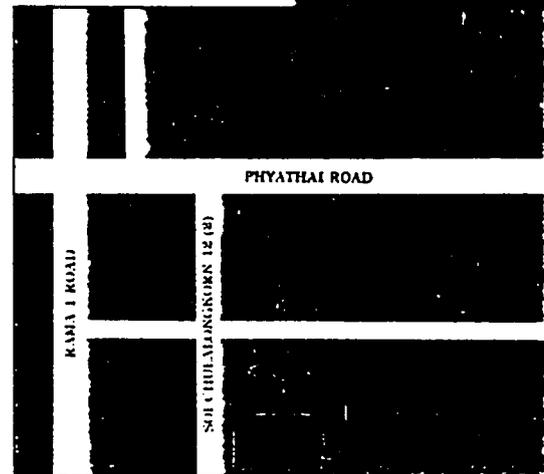
ADMISSION ELIGIBILITY: Applicants for the Petrochemical Technology Program must have obtained Bachelor's degrees in Chemical Engineering, while degrees in Chemistry, Material Science, Polymer or their equivalent are also acceptable for the Polymer Science program. Respectable grade point averages and proof of English proficiency (TOEFL results etc.) are necessary for the selection process.

1993 ACADEMIC CALENDAR

Application submission :	December 1, 1992 - January 31, 1993
Interview:	February 1993
Notification of admission :	March 1993
Intensive course begins:	April 20, 1993
First semester begins:	Late May 1993
Second semester begins:	Late September 1993

FOR FURTHER INFORMATION, PLEASE CONTACT:

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MEMORANDUM OF UNDERSTANDING

among

Chulalongkorn University, Bangkok, Thailand
Case Western Reserve University, Cleveland, Ohio, U.S.A.
The University of Michigan, Ann Arbor, Michigan, U.S.A.
The University of Oklahoma, Norman, Oklahoma, U.S.A.

The above universities agree to work together in partnership to develop graduate programs in the Petroleum and Petrochemical College, Chulalongkorn University leading to Master of Science degrees in Petrochemical Technology and Polymer Science. Participation of the U.S. universities in this program with Chulalongkorn University is desired to further cooperation between the U.S.A. and Thailand and to develop the academic and research programs of the College to international standards of excellence.

Course instruction in the graduate programs will be in the English language and students will be required to complete a thesis research project. Instructors for courses offered in the first two years of the program will be recruited from the faculties of the U.S. partner universities. In the third and successive years it is intended that U.S. faculty teach about one-half of the program courses.

Thai faculty will be responsible for supervision of thesis research. U.S. faculty will assist in identifying research topics and in development of cooperative research projects between Chulalongkorn University and its U.S. university partners.

The degree programs will be administered by the Petroleum and Petrochemical College, Chulalongkorn University and degrees will be granted by Chulalongkorn University. In recognition of U.S. university participation, diplomas will be co-signed by department heads of the partner universities. Courses offered by U.S. faculty will be equivalent to semester courses offered on their own campuses, and instructors will be solely responsible for course content, maintenance of academic standards, and grading of courses.

This Memorandum of Understanding prescribes the more general aspects of the graduate programs and partnership participation. The participating academic departments will develop mutually agreeable organizational and operational procedures. These arrangements are subject to refinement and modification in accordance with needs and experience as the program evolves. Financial arrangements for U.S. partner university participation will be negotiated and will depend on the availability of funds.

This Memorandum of Understanding becomes effective on the date of signing by the authorized representatives of the partner universities. It shall remain in effect for a period of five (5) years and is renewable. A partner may withdraw from the program upon giving one-year advance notice and fulfilling remaining obligations.

Chulalongkorn University

by [Signature] 12.1.92
Director, Petroleum & Petrochemical College Date

by [Signature] 12.1.92
President Date

Case Western Reserve University

by [Signature] 11/20/92
Head, Department of Macromolecular Science Date

by [Signature] 11/25/92
President Date

The University of Michigan

by [Signature] 11-11-92
Head, Department of Chemical Engineering Date

by [Signature] 11-18-92
President Date

The University of Oklahoma

by [Signature] 11-10-92
Director, Chemical Engineering & Materials Science Date

by [Signature] 11-10-92
President Date