

SUT-CUTC Co-op Exchange Program

July 1996 - Update

Submitted by: Technical University of Nova Scotia

Thai Student Exchange

- Guelph has hired two Thai students for six months from June to December 1996.
- TUNS will be hiring two students for the Fall '96 work term.
- There are several other Thai students available for the Fall work term, dossiers can be obtained through the TUNS Co-op Office.

Canadian Student Exchange

- Four students from TUNS are currently working in Thailand, one in Bangkok, two in Khorat, and one in Lam Chabang. All four are working in industrial placement.
- Two students from TUNS are hoping to work in Thailand for the Fall '96 work term.
- Two students from Guelph have applied for jobs in Thailand for the Fall '96 work term.
- There have been no applications from students at Waterloo.

Report on Visit to Thailand by TUNS Co-op Director

I recently visited Thailand where I was very pleased to find that the four TUNS students working there, are having excellent work terms. They are getting excellent discipline-related experience at a variety of employers including: a golf and condominium resort, a tapioca flour factory, a steam boiler factory and an engineering consultancy (the largest in Thailand, with 400 employees).

The students have adapted very easily to the culture, the language, the weather and the different living and working conditions. All four students are giving English lessons to their co-workers in exchange for Thai lessons and have become very comfortable in their surroundings.

They will be excellent ambassadors of the exchange program when they return to Canada and it is our hope that they will encourage more people to participate in the program inspite of the economic difficulties of working abroad as a student.

Report on the SUT/CUTC Project Activities Mini-PRC Meeting June 11-13, 1996

Participants: Representing SUT: Dr. Sam-arng Srinilta
 Dr. Prasart Suebka
 Dr. Ruben Umaly
 Representing CUTC: Dr. Stalin Boctor (RPU)
 Dr. Feridun Hamdullahpur (TUNS)

I. Review of On-going Project Activities

Program 1: Development of Institutional Capacity

A1.31: Provision of Customized Training in Canada for SUT Academic Support Personnel

The training of two equipment centre technologist in electron microscopy at the University of Guelph was satisfactorily and successfully completed in April 96. The visit by the Director and the Program Officer of C.I.A. in September 96, to the CUTC partner universities, will complete the activities in this project deliverable.

A1.32: Provision of Technical Services to SUT by two Canadian Consultants to Develop SUT's Institutional Services in MIS and Computer Networks

Two consultants from the computer centre at the University of Waterloo are presently engaged in this activity at SUT. Their tasks will be completed by June 14, 1996. This project deliverable will thus be completed.

Program 1 will therefore be fully implemented by September 30, 1996. Any unspent funds in this program will be added to program 3 (see below).

Program 2: International Academic Program

A2.11, A2.12: Curriculum Implementation of the IUP

Status of the first batch of students: Of the eleven students who enrolled in the IUP mechanical engineering program in June 95, only four are academically "clear" with no course failures, and most likely to be considered for admission as second year students. Three options were explored.

Option 1: Four of the seven remaining students (two with GPA over 3.0, and two with GPA of about 2.5) will be eligible to apply for admission to second year mechanical engineering at the University of Waterloo or to first year of the three year part of mechanical engineering program at TUNS, provided that their TOEFL scores are acceptable (600 and 550 respectively). Academic transcripts for these students will be provided to Dr. Hamdullahpur and to Dr. Schneider for consideration. A

meeting with these students was held and their options was discussed. Arrangements will be made to run a trial TOEFL exam by their english instructor, Dr. David MacKay before the actual TOEFL exam is written.

The University of Waterloo, being the sponsoring university of the mechanical engineering program, and having a second year entrance possibility in January 97, will be consulted about this option when Dr. Schneider is at SUT in July 96.

Option 2: Those students who may not be admitted to CUTC universities due to academic language deficiencies, but are otherwise eligible for promotion to try second year of mechanical engineering at SUT may opt to transfer to the regular mechanical engineering program at SUT, or

Option 3: Discussions will take place between SUT and other Thai universities which offer International Undergraduate program in mechanical engineering to examine the transfer eligibility of those students. Options 2 and 3 above will be presented to SUT's senate for approval.

As planned, four teaching assignments by Canadian professors will be completed by September 96, consisting of: Prof. F. Juranka (1), Dr. D. MacKay (1), Dr. G. Schneider (2). Dr. Bector's present visit is part of the activities under A2.11.

A2.21, A2.22: Selection of Thai Supervisors and Ph.D. Students

Two Thai Ph.D. students are presently enrolled in postgraduate programs at TUNS. One (industrial engineering) started in October 95, and one (electrical engineering) will start in July 96. Dr. Hamdullahpur met the electrical engineering student and provided him with final letters to facilitate his visa requirements. He will arrive with his family in Canada on July 4, 96. His wife is also expecting to be admitted in the near future to Mt. St. Vincent University in Halifax to do her masters in nutrition.

Three other prospective Ph.D. students were available for a meeting with Dr. Hamdullahpur and Dr. Bector on Wednesday, June 12, 96. One candidate in civil/transportation engineering, and one candidate in computer science expressed strong interest to apply to and enrol in Ph.D. programs at TUNS by September 96 or at most by January 97. Some family commitments and personal considerations were discussed. Those two students will probably stay at TUNS for the duration of their Ph.D. programs and their wives are also expecting to do their Ph.D. degrees in Canada. The third candidate in chemical engineering is expected to start her Ph.D. program at TUNS by September 96. She will be co-supervised by professors at TUNS and SUT and will return to SUT to continue her Ph.D. research. Her flexible residency requirements and co-supervision in Canada and Thailand will be facilitated through the program (A2.23). A fourth Ph.D. candidate in food science is expected to apply to and enroll at Guelph University before December 96. Dr. Hamdullahpur's present visit is part of the activities under A2.21 and A4.33.

A2.25: Postdoctoral Research Fellowships

Flexible arrangements of this activity will allow for possible one-year fellowship duration instead of four months. One candidate, in environmental engineering is expected to apply for and start his research project at TUNS in September 96, and possibly stay for one-year, accompanying his wife (Ph.D. candidate in chemical engineering).

The other one (or two) candidates for the postdoctoral research fellowships are expected to apply, describing their proposed research programs by June 96, for consideration and placements at the CUTC partner universities.

Further consideration of this activity will be discussed during the upcoming PRC meeting in September 96.

A2.26, A2.27 (see below)

A2.3 Co-op Student Exchange Program

Currently, four Canadian students from TUNS are spending one term co-op placements in Thailand. They were placed in Thai industrial corporations through the assistance of SUT, and the support of the project. One of the four students may spend one additional co-op term in Thailand, continuing through Fall 96 as requested by his employer. Three-four similar placements of Canadian students are planned for May 97.

At present two Thai students, in food science, are placed at Guelph University. Their placements will be extended to six months instead of four. Each will therefore be considered as equivalent to 1.5 placement position and will be supported accordingly. Two similar placements are planned at Guelph University next June 97. Further, two Thai engineering students (mechanical and electrical) will be placed at TUNS during the Fall 96 for one co-op term each.

Thus, all eight co-op placements for the Canadian and the Thai students, supported by the project will be completed, satisfying the deliverables of this project activity.

The financial support provided by the project is to be considered as seed funding. The continuation of this co-op placement activity is expected beyond the termination of the project, i.e., after March 98. The Thai and Canadian organizations involved in such placements are then expected to contribute the full costs associated with these co-op placements.

Program 3: University-Industry Linkage Program

A3.21: Technical Services to Develop Guidelines and Framework for Joint Industrial Training Seminars in Thailand

This assignment is expected to take place during the first two weeks of October 96 by Mr. R. Eagle from TUNS. Plans will be discussed at that time to consider the implementation of another industrial workshop/seminar during July 97. Topics related to agroindustry and industrial safety and health, were proposed, among others.

A3.22: Technical Service by Five Canadian Consultant to Provide Training Seminars in Thailand

Plans and preparations for two seminars, involving five Canadian consultants are presently well advanced. These two seminars will take place in July 96, involving:

- seminar on university-industry technology transfer and collaboration
- workshop on water resource management and waste water treatment

A3.31: Technical Service by Canadian Consultant to Monitor/Supervise Co-op Students

This project activity was just concluded this month through the visit of Ann-Mary Colin from TUNS. She visited the co-op students on site, discussed their placements with them and their employers and considered future placement plans as already reported above.

Thus all activities under Program 3 will be fully completed by October 96, satisfying all of the approved project deliverables in this area.

Program 4: Project Management

A4.32: PRC Meetings in Canada

Plans were confirmed regarding the third PRC meeting, which will take place at the University of Waterloo on September 26 and 27, 1996. It is expected that the fourth PRC meeting will also take place in Canada, in late March or early April 97 at TUNS.

The above review clearly indicates that all of the project deliverables under Programs 1 and 3 are either fully achieved or well underway for completion by the Fall of 1996. The following presents the plans discussed at this Mini-PRC meeting for the implementation of Program 2 activities. Further, the possibilities for extending Program 3 industrial seminar activities are also examined.

II. Plans for Future Implementation of Approved Project Activities

Program 2: International Academic Programs

A2.11, A2.12: Curriculum Implementation of the IUP

Based on the discussions conducted during the Mini-PRC, it is clear that SUT is fully committed to the continued implementation of the IUP. Dr. Tawit, from mechanical engineering, has been recently appointed as Director of the IUP. During the admissions cycle that has just been completed for the second batch of IUP students, 14 out of 54 applicants were admitted in the intensive ESL program. SUT has approved the implementation of the electrical engineering program, starting in September 96. The target of the promotional activities this year was focused on Thailand, with visits to over 20 high schools, and various advertisements. SUT will put stronger emphasis next year on targeting Malaysian, Indonesian, Taiwanese and South Korean students, among other countries in Southeast Asia. Admissions promotional material are urgently requested from the partner CUTC universities, in order to use these material during the upcoming IUP promotional activities.

Since the increase in student enrollment is not as fast as originally anticipated, SUT has decided to change the mode of the IUP delivery until appreciable expansion materializes. The academic program offered at SUT will concentrate on only the first-year of the IUP program, with support from the CUTC partner universities. The particular program offered during any given year will depend on the interest area expressed by the majority of applicants. The delivery of two or more IUP programs will depend on the number of students enrolled. After the students successfully complete year 1 at SUT, they will be offered second year admissions to the CUTC universities, provided they satisfy the agreed upon admission requirements (TOEFL > 550, CGPA > 2.7). The two other options discussed earlier will be available to the remaining students.

It was unanimously agreed that this mode of delivery offers the best chance for the continuation of the IUP in the near future. It is still expected that as SUT's reputation grows, and more students are recruited from other Southeast Asian countries, the full implementation of the IUP will take place on a sound academic and economic basis. The future continuation and sustainability of the IUP beyond the life of the project is now much more certain than was felt earlier.

Since the remaining IUP students in the first batch will be accommodated as discussed earlier, the proposed assignments for the second year mechanical engineering will be cancelled. The electrical engineering program of the IUP, which will be implemented in September 96 will probably have an enrollment of 12-14 students. After the successful completion of year I at SUT, about 4-6 students will be transferred to RPU in September 97, as discussed earlier. The 14 students enrolled in the second batch were visited by Dr. Hamdullahpur and Dr. Bector on June 12, 96. Their transferability to the CUTC universities and the other options were also discussed with them.

Four assignments for CUTC professors to implement the electrical engineering program are planned for 1996/97, as follows:

1. Fundamentals electrical engineering and lab I, January 97
2. Electric circuits II and lab II, May 97
3. Applied science for electrical engineering, May 97
4. Engineering practice, ethics and technical communication and ESL III, May 97

In addition, two assignments for Dr. Goff and Dr. DeMann, from the University of Guelph's food science program were approved to help SUT develop and implement its undergraduate and graduate program in food technology. These assignments are expected to take place during the Fall of 97, i.e., September 97.

It was suggested and approved that four of the remaining six assignments be implemented during May-June 97, for 4-6 weeks duration, to help SUT in the formulation, planning and development of graduate program in engineering and applied science. These activities are expected to concentrate on chemical, mechanical, civil and electrical engineering, according to SUT's new five-year plan.

It was unanimously agreed that the planned academic assignments for the upcoming academic year provide positive proof of the successful Thai-Canadian collaboration in the area of international academic program's development. The newly approved assignments provide a new avenue for the sustainability of future collaboration in the area of postgraduate programming and research, beyond the life of the present project.

A2.21, A2.22, A2.23: Ph.D. Programs

As discussed earlier, it is expected that six Ph.D. candidates who are presently staff members at SUT (and their spouses), will be enrolled in Ph.D. programs at TUNS and the University of Guelph by January 97. The jointly supervised Ph.D. candidate in chemical engineering will require the full implementation of activity A2.23, as originally anticipated. Thus, the successful implementation of the Ph.D. programs will be fully achieved.

A2.25: Postdoctoral Research Fellowships

With the restructuring of this activity to provide the flexibility for one-year long assignments, together with one-term assignments, it is expected that at least 3 faculty members from SUT will take part in this activity, starting in September 96, and possibly continuing during 1997.

A2.26: Ph.D. Thai Advisors Visit

Two faculty members, one in electrical engineering (high voltage) and one in mechanical engineering

(energy, manufacturing) will visit relevant research facilities at the CUTC partner universities, starting September 7, 96. SUT will recommend and advise CUTC about the two visitors.

A2.26, A2.27: Collaboration and Co-supervision in Canada

It was felt that some of these remaining activities may not take place during the remaining project period. The upcoming PRC meeting will examine the possibility of using the remaining funds available in these activities to support:

- (a) additional postdoctoral fellowships (A2.25)
- (b) additional industrial seminar activities (A3.22)

Program 3: University-Industry Linkage program

A3.22: Technical Service by Canadian Consultants to provide Training Seminars in Thailand

It is expected that:

1. RPU President will provide a seminar in the area of University-Industry Linkage during the 1997 SUT's anniversary celebrations.
2. A workshop on either agroindustry or industrial safety and health, or other relevant topics be planned and delivered during July 97.

As discussed earlier, any remaining funds from Program 1 and activity A2.27 can be reallocated to support these additional Program 3 activities.

Submitted by:



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for Dr. F. Hamdullahpur

cc: SUT
University of Guelph
University of Waterloo
RPU
TUNS

**THAILAND - CANADA HRD PROJECT
SUT-CUTC INSTITUTIONAL LINKAGE
AND TECHNICAL COOPERATION**

QUARTERLY PROGRESS REPORT NO. 9

1 August 1996 - 31 December 1996

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SUT-CUTC Biannual Report for July-December 1996

I. REPORT SUMMARY

1. Program and Achievements to Date

Program 1. Institutional Capacity Building Program

Study tour was made in September 1996 by the Director of the Center for International Affairs (2 weeks) and of a Program Officer of the Center (4 weeks) to discuss the administration and management of the SUT-CUTC Project in Canada as well as to acquaint them of the activities of the Centers for International Relations / Affairs of the partner CUTC universities.

All activities of Program 1 have been completed.

Program 2 - International Academic Programs

2.1 International Applied Science and Engineering Undergraduate Programs

Two Canadian professors - Professors David MacKay and Gerry Schneider finished their 7 week assignments of teaching the 1995 IUP students (Mechanical Engineering).

The remaining five 1995 IUP students in the Mechanical Engineering program have been transferred to CUTC universities to start their second year in Canada. Three of them were admitted conditionally to TUNS while the other two were admitted to Conestoga College for remedial English course and would later enroll in the Engineering Program at the University of Waterloo.

There are currently 8 students remaining in the 1996 IUP Electrical Engineering Program.

2.2 Joint Research and Ph.D. Program

Two SUT faculty members have enrolled Ph.D Program at TUNS and two more will start in January and September, 1997 respectively. A fifth candidate is being considered for admission by TUNS. A sixth candidate is expected to start his Ph.D. Program in September of 1997 at the University of Guelph.

Two professors from the Institute of Industrial Technology visited some laboratories for mechanical and Electrical Engineering at the University of Waterloo.

2.3 Co-op Student Exchange Program

Two Thai students who have been working at the University of Guelph since June 1996 would finish their assignments in December 1996. Another two students started their co-op work terms at TUNS in September 1996.

Program 3 - University - Industry Linkage Program

Mr. Robert Eagle from TUNS visited SUT last October to discuss the possibility of additional industry-based workshops and seminars in Korat. It is expected that two or three seminars / workshops for industry will be organized by SUT's Technopolis in

cooperation with CUTC.

Program 4 - Project Management

4.3. Project Supervision and Coordination

The third PRC Meeting was held at the University of Waterloo with representatives from all partner institutions.

2. Planned Activities

Program 1 - Development of Institutional Capacity

Four representatives from CUTC institutions will attend the Regional Colloquium on Engineering and Technology Education for the 21st Century, with support allocated from activities A2.11 and A4.33.

Program 2 - International Undergraduate Program

Five assignments of CUTC professors will be needed for the IUP Electrical Engineering Program beginning September 1996. One professor who arrived in December will start his assignment in January 1997 while the rest will teach during the third trimester beginning May 1997.

One professor from the University of Guelph will help the Department of Food Technology develop its undergraduate and graduate programs.

Three post-doctoral research fellowships were accorded for 1997 with the possibility of at least one or two additional ones.

The Director of the SUT Scientific and Technological Equipment Center has requested for a visit to CUTC laboratories as part of the Research Advisor Visit Component of the program.

Two SUT students will start their co-op terms at TUNS in 1997. Plans for the Canadian counterpart in 1997 will be discussed in the next PRC meeting.

Program 3 - University-Industry Linkage Program

Topics for possible workshops/seminars for industry have been identified and will be discussed at the next PRC Meeting.

Program 4 - Project Management

The fourth PRC meeting is scheduled at TUNS during April 3-4, 1997.

Dr. Claude Lajuenesse, President of Ryerson Polytechnic University is scheduled to visit SUT in July 1997 and serve as speaker in the SUT Anniversary Celebration.

3. Budgetary Report

Budgetary report and requirements are integrated in the minutes of the PRC meeting.

II. PROGRESS REPORT ON PROJECT PROGRAMS, ACTIVITIES AND DELIVERABLES

1. Accomplishments

Program 1 - Institutional Capacity Building Program

1.3 Development of Academic Programs and Curricula at SUT

A1.31 Provision of customized training in Canada for SUT Academic Support Personnel

Visits to Canada of SUT's CIA Director and one program officer took place in September 1996. Prof. Dr. Ruben C. Umaly, CIA Director, visited the partner CUTC universities to discuss plans for the implementation of the remaining SUT-CUTC Project activities and future cooperation and also to examine the administration and management of the CUTC project in Canada. **(Attachment 1)**

Ms. Mantana Thammachoti - a Program Officer from The Center for International Affairs - attended a 4 week training course in September 1996 (during 1-27 September 1996) to familiarize herself with the strategic and operational management of Centers for International Relations/Affairs at each of the CUTC partner universities. **(Attachment 2)**

With these activities, all of Program 1 activities have now been completed.

Program 2 - International Academic Programs

2.1 International Applied Science and Engineering Undergraduate Programs

A2.11 Academic program planning and coordination

Two professors from the CUTC partner universities were at SUT for short-term assignments (7 weeks each) to help teach the International Undergraduate Program in Mechanical Engineering during the third trimester.

Prof. David MacKay from TUNS taught Engineering Practice, Ethics and Technical Communication, and ESL 300 from 1 June-19 July, 1996.

Prof. Gerry Schneider from University of Waterloo taught Engineering Graphics I and Fundamentals of Mechanical Engineering from 17 July-29 August, 1996.

A2.12 Curriculum Implementation of the International Applied Science and Engineering undergraduate programs.

a) Status of the 1995 IUP students (Mechanical Engineering)

After completing their first year in early September, the five remaining IUP mechanical engineering students transferred to Canadian universities. As the students did not meet the English language prerequisites, they were required to take remedial English language courses before being definitely admitted to the CUTC partner universities.

Two students were admitted for their remedial language courses at Conestoga College; one of them - Nattapon POOIPAT, has now completed his English training and will enroll this coming winter term at the University of Waterloo. The second student is still in the English language program. The remaining three students were accepted by TUNS, but they also had to take English classes during October-December. They will be able to register in Engineering at TUNS in January 1997, but will first have to take a number of remedial courses at St. Mary or Dalhousie University before continuing in the engineering program at TUNS.

The sudden and unexpected decision to have the students continue their

second year of studies in Canada caused some disruption and delay in the program.

As the students had not taken any TOEFL examination, the Canadian institutions found it difficult to assess their English language proficiency. As a consequence, one of the students, although qualified in the opinion of his instructors, could not obtain admission to Conestoga College. The students' departure for Canada was further delayed by about 4 weeks (and 8 weeks in one case) because of a lengthy visa application process.

Acceptance letters for 1995 IUP students by CUTC universities are given as

Attachment 3.

b) Status of the 1996 IUP students (Electrical Engineering)

SUT only offered the Electrical Engineering Program for the 1996 academic year. After finishing the intensive courses during June - August 1996, 9 out of 13 students registered for the first trimester beginning September, 1996. Currently, there are 8 students remaining in the program. They were informed by the CIA Co-advisor of the transfer to the CUTC institutions for their second year studies.

2.2 Joint Research and Ph. D. Program

A2.21 Ph. D. Program

The second Ph.D student - Mr Anand Unsivilai from the Institute of Industrial Technology of SUT started his Ph.D program in electrical engineering at TUNS in September 1996. Another two faculty members - Ms. Ganthima Polprasert and Mr. Rangsan Wongsan were also admitted at TUNS for their Ph.D. programs. Ms. Polprasert is expected to start in January and Mr. Wongsan is expected to start in September 1997. A fifth candidate who is presently studying in USA has requested permission to transfer to TUNS.

Acceptance letters for Ph.D students from SUT by CUTC universities are given as **Attachment 4**

One Ph.D. candidate in Food Science anticipates to start his Ph.D. program at the University of Guelph as early as possible in 1997.

A2.25 Post-Doctoral Research Fellowship for Thai scholars

Three post-doctoral research proposals were approved. The recipients are Dr. Chongchin Polprasert, Dr. Sureelak Rodthong and Dr. Somprasong Suttayamully.

Dr. Chongchin Polprasert is expected to undertake his 12 month research in environmental engineering during January-December 1997.

Dr. Sureelak Rodthong has been accepted by the University of Guelph to pursue her research in Biology at the Agrofood Canada Lab for 5 months during 11 February-12 July, 1997.

Dr. Somprasong Suttayamully will undertake research in Transportation Engineering for 5 months at TUNS starting April 1997 and may extend it to one year if the necessary additional budget can be allocated.

Acceptance letters / contracts for post-doctoral research fellowships of SUT professors in CUTC universities are given as **Attachment 5**.

A2.26 Thai Research Advisors

Two SUT professors from The Institute of Industrial Technology visited laboratories at the University of Waterloo to familiarize themselves with research facilities and projects. Dr. Kontorn Chamniprasart of the School of Mechanical Engineering visited Mechanical Engineering laboratories while Mr. Rawat Vipia of the School of Electrical Engineering, visited high voltage laboratories at the University of Waterloo during November 1-7, 1996.

2.3 Co-op Student Exchange Program

A2.31 Provision of work placement and supervision for Thai students in Canada by CUTC institutions

Since June 1996, two Thai students in food science, have been at Guelph University for their 16 week Co-op work terms. They will finish their assignment in December 1996.

Another two Thai students started their one term assignment in Mechanical Engineering and Chemical Engineering at TUNS in September 1996.

A2.32 Provision of work placement and supervision for Canadian students in Thailand by SUT

Four Canadian Co-op students from TUNS carried out their four - month assignment from May-August 1996. A fifth student started in September and finished his assignment in December, 1996.

Program 3 : University - Industry Linkage Program

3.2 Joint University-Industry Cooperation and Training Activities

A3.21 Development of a Framework for Industrial Training Seminars

It was agreed during the 3rd PRC Meeting held in Waterloo (September 26-27, 1996) that the development of a framework for industry-based seminar would be replaced by a planning and follow - up mission by Mr. Robert Eagle from TUNS in October 1996.

Mr. Robert Eagle visited SUT from 6 to 11 October, 1996 and met with SUT administrators and staff involved in the University Industry Linkage Program, and discussed the possibility of training / seminars with industry in Korat. **(Attachment 6)**

At least three seminars are being planned.

Program 4 : Project Management

A4.32 Third PRC Meeting in Canada

The third Project Review Committee Meeting was held in Waterloo during 26-27 September, 1996. Dr. Sam-arng Srinilta led the SUT delegation consisting of Dr. Prasart Suebkha, Dr.Tawit Jitsomboon, Prof. Dr. Ruben C. Umaly and Ms. Mantana Thammachoti.

During the meeting, both parties discussed the programs and issues of project implementation, readjusted some program activities, did a budget revision and discussed possible future cooperation among CUTC institutions after the SUT-CUTC Project termination. **(Attachment 7)**

It was agreed to hold the next meeting in Halifax in April 3-4, 1997.

2. PLANNED ACTIVITIES

Program 1 : Development of Institutional Capacity

A1.32 Provision of Technical Services to SUT

Two additional activities were considered by the PRC.

1. Participation by CUTC Institutions in the Regional Colloquium on

Engineering and Technology Education for the 21st Century at SUT during 11-14 February, 1997. Four CUTC representatives will attend the colloquium with support allocated from activities A2.11 and A4.33.

2. The organization of a workshop on Continuing and Distance Education at SUT will be discussed at the next PRC meeting in Halifax.

Program 2 : International Academic Programs

A2.11 Academic Program Planning and Coordination

Dr. Stalin Boctor from Ryerson Polytechnic University will be involved in planning, coordination and monitoring of the program during his visit in February, 1997 to SUT. The 1996 IUP students' English competency and academic progress will also be assessed at that time.

A2.12 : Curriculum Implementation of International Engineering Program

Since the first year IUP mechanical engineering students have already been transferred to CUTC partner universities for their second year of study, the assignment of only four CUTC professors to teach the IUP students at SUT will be needed for 1996/1997.

Ryerson Polytechnic University sent the curriculum vitae and contracts of four professors to SUT for approval. Prof. Peter Barta, who will be teaching Electric Circuits I and Lab I in January 1997, has arrived at SUT. The other three professors will teach during the third trimester of 1997 beginning in May. Professor David MacKay from TUNS will come again to teach in the third trimester of 1997.

The remaining funds for CUTC expert assignments will be used to help SUT in the formulation, planning and development of graduate programs in engineering and applied science.

Dr. Goff and Dr. DeMann from the University of Guelph will visit SUT in September of 1997 to help the Institute of Agricultural Technology develop its undergraduate and graduate programs in Food Technology and to give seminar workshop in Food Technology.

A2.21 Selection of Thai Supervisors

A2.22 Provision of Ph.D Courses

A2.23 Jointly Supervised Research Work in Thailand

Some of the activities in this category were readjusted during the last PRC Meeting. Three Canadian professors from TUNS and Ryerson Polytechnic University will lead a 4 - week CUTC mission to SUT in 1997 to discuss and assist in the development of Post-Graduate Engineering Programs. The exact date and time will be announced later.

A2.25 Postdoctoral Research Fellowships

Two SUT faculty members will commence their research in January 1997. Dr. Chongchin Polprasert at TUNS and Dr. Sureelak Rodthong at Guelph. A third faculty member - Dr. Somprasong Sattayamully - will start his research at TUNS in April 1997. Additional post-doctoral research fellowships will be considered at the next PRC meeting.

A2.26 : Thai Research Advisors

The Director of the SUT Scientific and Technological Equipment Center - Assoc. Prof. Dr. Virul Mangalaviraj - will visit the CUTC institutions' laboratories in mid 1997. SUT will send his CV to Ryerson International to facilitate issuance of letters of

invitation.

A2.26, A2.27 : Collaboration and Co-supervision in Canada

Some of the funds remaining from these two activities may be used to support additional postdoctoral fellowships and additional industrial seminar activities. This issue will be discussed at the next PRC meeting.

A2.31 Thai Co-op Students in Canada

Two SUT students will start their co-op terms at TUNS in January, 1997.

A2.32 Canadian Co-op Students in Thailand

TUNS will prepare plans for a final group of Canadian students to be sent to Thailand at the next PRC meeting.

Program 3 : University - Industry Linkage Program

A3.21 Technical Service by Canadian Consultants to provide Training Seminars in Thailand

During his assignment at SUT next September, Dr. Douglas Goff from the University of Guelph will arrange a seminar on Food Technology / Agribusiness.

A3.22 Delivery of Industrial Training Seminars in Thailand

Mr. Robert Eagle from TUNS visited SUT last October for discussions with SUT administrators. After an initial survey, topics for possible workshops were identified. It is expected that in the year 1997, two to three workshops will be organized by SUT's Technopolis in cooperation with CUTC.

Program 4 : Project Management

A4.32 Next PRC Meeting

The fourth PRC meeting is scheduled to be held at the Technical University of Nova Scotia, Halifax, Canada during April 3-4, 1997.

A4.33 Project Management

Dr. Claude Lajuenesse, President of Ryerson Polytechnic University, will visit SUT for discussions in July of 1997. He will also be a speaker at the international conference to be held at SUT in July 1997.

3. Budgetary Report

Budgetary report and requirements are included in the minutes of the PRC meeting.

III. Attachments

1. Report of a study tour of Prof. Dr. Ruben C. Umaly to Canada.
2. Training / study visit programme arranged by CUTC institutions for Ms. Mantana Thammachoti.
3. Acceptance Letters for 1995 IUP students by CUTC universities..
4. Acceptance letters for Ph.D students from SUT by CUTC universities.
5. Acceptance letters/contracts for Post-doctoral research by CUTC universities.
6. Trip report by Mr. Robert Eagle on the industrial seminars
7. Minutes of the third PRC Meeting

REPORT AND SUGGESTED FOLLOW-UP ACTIONS
STUDY TOUR TO CUTC MEMBER UNIVERSITIES
AND PARTICIPATION IN PROJECT
REVIEW COMMITTEE MEETING
15-30 SEPTEMBER 1996

OBJECTIVES

1. To get acquainted with CUTC personnel involved in the project so that issues/problems in the implementation the programs/activities can be discussed;
2. To familiarize with the organization, functions and activities of the International Relations Officer of partner universities;
3. To identify other possible areas of cooperation even after the CIDA funded project;
4. To meet some of the SUT students presently in CUTC member universities;
5. To participate in the 3rd PRC meeting at the University of Waterloo

15 SEPTEMBER
SUNDAY

- 16:30 Arrival at Halifax Met by Mr. Robert Eagle, TUNS Office of International Relations and Ms. Mantana, SUT, CIA
- 17:20 Check in at Halliburton House Inn. 5184 Morris St. Halifax, Nova Scotia Canada B3J 1B3

Free Evening

16 SEPTEMBER
MONDAY

- 09:30 Courtesy Call on Dr. Adam C. Bell
Dean Faculty of Engineering
1360 Barrington St.
PO Box 1000
Halifax, Nova Scotia
Canada B3J 2X4
Tel: (902) 420.7788
FAX: (902) 492-3744
Email: bellac@tuns.ca

Briefing was made by Dr. Bell on some ,major programs in Engineering. Dr. Umaly in turn briefed Dr. Bell on SUT-organization, missions and programs. DR. Umaly expressed SUT's appreciation for the assistance given to the program specially the IUP, Graduate Program and the Industry-based seminars.

10:00 Meeting with Mr. Robert Eagle.
Discussion on the Term of Reference for his next visit and briefing on the participation of experts from TUNS in the recently concluded international workshop on Water Resources Management and Wastewater Treatment Dr. Umaly reiterated his request for the submission of the papers presented to facilitate the printing of the Proceedings.
Lunch with Mr Eagle and Ms. Mantana.

14:30 Meeting with Dr. Hamdullapur Dr. B.Caley. Dr. W. Hart and Dr. H.Willy (Director, Center for Water Resources Studies)
- Dr. Umaly briefed the group on the latest status of the program activities as accomplished by SUT
- Dr. Hamdullaphur on the other hand reported on the status of the 3 IUP students in mechanical engineering who have applied to TUNS; the status of the Ph.D.students and the postdoctoral candidates; the industry based seminars and the TOR of the coming visit of Mr. Robert Eagle to SUT in October'96

Follow Up Action:

The CIA of SUT must confirm the travel and other logistical requirements during the visit of Mr. R. Eagle. Arrangements will be made for him to meet the staff of TECHNOPOLIS incharged of training courses; some managers of industries in Thailand specially those from Korat and the Eastern Seaboard; some SUT staff who may be involved in future seminars. Major topics/areas for the industry-based seminars will have to be identified together with targeted participants, possible lecturers and dates..

16:30 Reception at the Faculty Club-meeting with administrative officials and professors form TUNS, St. Mary's University and Dalhousie University.

19:00 Dinner with 2 Thai SUT Students at TUNS and Ms. Mantana
Discussion of their programs, problems (if any) and
impressions.

17 SEPTEMBER
TUESDAY

09:00 Visit and meeting with Dr. Carol A. Connor
Director, Continuing Education Division
Tel: (902)420.7510
FAX: (902)423.9859
Email: caconnor@tuns-ca

Dr. Umaly briefed Dr. Connor on SUT and the reason
for the interest in the Continuing Education Division of
TUNS-ie. SUT is mandated to provide the community
academic services in the form of short-term training courses
specially for industry and the professional engineers.

Dr. Connor described the organization programs and
activities of TUNS Continuing Education Division (see
documents).

Follow-up Activities:

The models for organizing continuing education courses done
by TUNS can be used as one of the models for SUT's
Continuing Education Program. If the proposed activity of
SUT though Technopolis of providing life-long education to
professional engineers would materialise, then the CED of
TUNS could be considered for partnership. SUT could learn a
lot from their experiences and activities.

11:00 Visit to Industrial Engineering Laboratories

Follow up Action:

It should be one of the laboratories that the Director of
the Center for Equipment of SUT must visit during the
proposed study tour to Canada.

11.50 Courtesy Call on Dr. Ted Rhodes, President of TUNS.

Dr. Rhodes promised to submit the paper he presented during
the International Colloquium on Science park at SUT last 26
July, 1996.

Dr. Rhodes reconfirmed his continuous support to the SUT-
TUNS partnership.

12:30 Dr. Umaly & Ms. Mantana invited Mr. Robert Eagle. for
lunch.

14:30 Meeting with Dr. Denis Leclaire Director of International
Activities of Saint Mary's University Halifax Nova Scotia ,
Canada B3H 3C3

Tel: (902) 420-5177
FAX: (902) 420-5530
Email: denis.leclaire@stmarys.ca

Dr. D. Leclaire briefed Dr. Umaly on SMU organization and programs. In turn, Dr. Umaly described SUT's organization, missions and programs.

Dr. Umaly thanked Dr. Leclaire for facilitating the possible admission of three SUT IUP students to their English program prior to admission to TUNS.

Discussion on was made on possible assistance or collaboration with SMU in the fields of business management specially in Agribusiness if the SUT- HAU program in Agroindustrial Technology and Agribusiness is approved by the Thai government.

- 15:30 Final briefing was made with Mr. Robert Eagle on his assignment at SUT in October, 1996 with regards to the planning of Industry based seminars in Thailand.
- 17:00 Check out of the hotel
- 19:15 Departure from Halifax for Toronto on AC639
- 20:30 Met at the Airport by Dr. Stalin Boctor of Ryerson International ;
- 21:00 Check in at Delta Chelsea Inn
33 Gerrard St-W
Toronto, Ontario
Canada M5G 1Z4
Tel: (416)595-1975
FAX: (416)585-436

18 SEPTEMBER WEDNESDAY

- 09:30 Meeting with Dr. Sam Mikhail, Director, Ryerson International
Dr. Umaly briefed Dr. Mikhail on the progress of the SUT_CUTC project from the SUT side including the issues of IUP students transferring to Canada, new batch of IUP students who will be registering in Electrical Engineering and are therefore potential RI students; doctoral and post-doctoral programs and industry-based seminars.

his A general discussion on technology and engineering education followed after the presentation of Dr. Mikhail on comparative studies on technology-engineering education in Asia, Australia., Europe and North America.

Follow-up Action:

Dr. Umaly is to discuss with the organizers of the Seminar Workshop of Deans of Faculties of Engineering in SEA in February 1997 at SUT the possibility of Dr. Mikhail presenting a paper on his comparative study of technology-engineering education. It could be part of the SUT-CUTC activity.

12:00 Lunch hosted by Dr. Sam Mikhail

14:30 Visit and Meeting with ARA Group

Suite 405, 121 Bloor ST. E.

Toronto, Ontario

Canada M4W 3M5

Tel: (416) 961.1474

FAX: (416) 922. 5380

Email: griffin@aragroup.ca

Mr. Roger Griffin

Ms. Kim Cheah

Dr. Archie Mckinnon

5252 de Maisonneuve Ouest # 310

Montreal, Quebec

Canada H4A 3S5

Tel: (514) 485.3565

FAX: (514) 485.3210

Email: UMG@CAM.ORG

Dr. Umaly briefed the ARA staff on the progress of the programs of the SUT-CUTC project-including issues on the implementation of IUP and Ph.D. programs.

The issue of internal evaluation of the project was discussed.

Follow Up Action:

SUT will be expected to do the internal evaluation with the partner CUTC universities. CIDA may evaluate with ARA the entire CIDA- Thai project

Dr. Roger Griffin will be attending the PRC meeting at the University of Waterloo as ARA representative.

16:00 Free with afternoon to visit the University of Toronto Bookstore.

19 SEPTEMBER

THURSDAY

9:30

Meeting with Dr. Stalin Boctor

Dr. Umaly briefed Dr. Boctor on the progress of the project activities since the Mini-PRC meeting at SUT which was attended by Dr. Boctor.

In turn, Dr. Boctor briefed Dr. Umaly on the agenda of the coming 3rd PRC Meeting at the University of Waterloo specially on the budgetary considerations and the subsequent modifications of some activities.

12:00

Courtesy Call on Dr. Claude Lajeunesse ,President

Dr. Umaly briefed the President on recent activities at SUT and the progress of the SUT-CUTC project specially the relation of CIA with RI, as the lead institution of CUTC.

Discussion was made on the proposed visit of Dr. Lajeunesse to SUT in October 1997. Dr. Umaly proposed that the visit be done in connection with the celebration of the 7th anniversary of SUT in July 1977. The suggestion has been considered and would be proposed in the coming PRC meeting. He could give a paper on "Internationalization of High Education or on other topics deemed appropriate for the theme of the coming celebration.

12:30

Lunch with Dr. Jane Knight

Head, International Affairs, Office of the President, RPU.

Dr. Umaly briefed Dr. Jane Knight on the activities of CIA and AUAP specially the coming Higher Education Conferences with Internationalization of High Education as one of the main theme.

Dr. Knight briefed Dr. Umaly on the activities of the International Affairs Office under the office of The President of RPU.

She also reported on the coming conferences in Australia, Hong Kong and Canada where the main theme is the internationalization of higher education. Invitation was extended to SUT/AUAP to participate in the mentioned Conferences.

Follow Up Action:

Dr. Umaly proposed to discuss with the organizers of the the Tokyo Conference to include Dr. Jane Knight as one of the major speakers on the themes of internationalization of Higher Education

14:30

Visit to the Center for Advanced Technology Education

and meeting with Dr. Al Oatridge, Director, 4th Floor, 87 Gerrard St.E.

Follow-Up Action:

It would be suggested to SUT that such laboratory be included in the proposed study tour of the Director of the Center for Equipment, SUT.

Possible collaborations in robotics, laser physics, , CAD, space technology with CATE, RPU must be explored.

15:30 Meeting with M. Booth, Dean, Continuing Education, RPU. Jorgensen Hall A-106

Dr. Umaly explained the interest of SUT in determining the modalities of Continuing Education at RPU and the possible collaboration in the proposed Continuing Engineering Education Network of AUAP which could be based at SUT. Their means of producing teaching-learning materials and managing of courses can be studied by SUT.

16:30 Free late afternoon

20 SEPTEMBER
FRIDAY

9:30

Meeting and visit at Rogers Communication Center, Rm V 202 with Dr. Michael Murphy
Tel: (416)979-5000
FAX: (416) 979-5203
Email: mmurphy@acs.ryerson.ca
Ms. Cathy Gee and Mr. Jay
Tel: (416) 979.5282
FAX: (416) 979. 5207
Email: cgee@acs.ryerson-ca

Dr. Umaly explained the interest of SUT in the use of multimedia for teaching-learning processes specially by distance mode of delivery. He also mentioned the coming AUAP-BU Conference in Japan in April 1997 Globalization and Applications of Multimedia in Higher Education for the 21st Century.

The RCC staff briefed Dr. Umaly on the organization and activities of the Center. A tour of the facilities and demonstration of some of the modules prepared by the faculty and students were also arranged.

Follow Up Action:

Dr. Umaly would suggest to the Rector of SUT the possible partnership with the RCC of RPU in the production

of technology learning modules and the training of SUT staff in the Center..

Dr. Umly would propose to the organizers of the AUAP-BU Conference to invite Dr.M. Murphy as one of the key paper presenters on the topic of multimedia technology. Hospitality may be extended to him while in Japan by the organizers.

12:00 Lunch with Dr. Stalin Boctor
14:30 Visit and meeting with Prof. Jane Pollard, Director , School of Early Childhood Education
Faculty of Community Services, RPU
350 Victoria St.
Toronto, Ontario
Canada M5B 2K3
Tel: (416)979-5000 Extn 7635
FAX: (416) 979-5239
Email: fporlord@acs.ryerson.ca

Dr. Umaly explained the possible interest of SUT in Early Childhood Education. It is planned that an Early Childhood Education Center be established in collaboration with a private company at SUT as part of the community service of Technopolis for the staff of SUT and neighboring community

Dr. Pollard briefed Dr. Umaly on the concepts and philosophies adhered to in the handling of children in the school. . Dr. Pollard has expressed interest in assisting SUT if ever the plan is pursued.

Follow Up Action.:

Dr. Umaly will report to Dr. Weerapun Sribonlue the offer of Dr.Pollard to assist in this endeavor of SUT Technopolis.

16:30 Visit to the RPU Bookstore and to the Biggest Bookstore at the city.

21 SEPTEMBER
SATURDAY

Free day for cultural visit of Toronto

22 SEPTEMBER
SUNDAY

10:30 Check out at the Delta Chelsea Inn
11:00 Departure from Toronto for Guelph by car.
13:30 Arrival at Guelph-Check in at College Inn

716 Gordon St.
Guelph, Ontario
Canada N1G 1Y6
Tel: (519) 836.1240
FAX: (519) 763.5225

Free Afternoon and Evening : However, because of the heavy rain, was. unable to visit the Campus.

23 SEPTEMBER
MONDAY

- 9:00 Meeting with Dr. James Shute, Director, Center for International Programs, Guelph University
Dr. Shute briefed Dr. Umaly on the international programs of the university during the study tour of the campus.. He also explained the organization and activities of CIP.
A meeting with the CIP staff was made for further briefing on the various activities of CIP and for Dr. Umaly to meet the CIP staff . Dr. Umaly also reported on the progress of the SUT-CUTC project since the last PRC Meeting. in SUT
- 11:15 Courtesy Call on Prof. Constance Rooke.
Associate Vice President for Academic.
Dr. Umaly briefed the Vice President on the organization, missions and programs of SUT in general and the SUT- UG projects in Food Science in particular.. Dr. Umaly expressed SUT's appreciation in the assistance of UG specially in the training of SUT staff and the acceptance of SUT co-op students.
- 12:00 Lunch at the University Club hosted by Dr. James Shute
- 13:30 Further briefing by Ms. Isobel Lander, Executive Secretary, CIP on the organization and activities of CIP Tour of the Center was included.
- 16:00 Visit to UG Bookstore
- 18:30 Dinner with Prof. & Ms Truman Phillips Acting Chair, Agricultural Economics and Business, Ontario Agricultural College Guelph, Ontario, Canada N1G 2W1
Tel: (519) 824-4120 Ext. 2713
Fax: (519) 767-1510
E-mail: truman@agrc.uoguelph.ca
Dr. Turman Phillips was formerly the consultant for SEAMEO SEARCA on the SEAMEO-UGH project on Food Security. Dr. Umaly briefed Dr. Truman on his new post and the

SUT-CUTC project in general and the SUT-UG project in Food Science in particular.

Dr. Truman Phillips briefed Dr. Umaly on the Agribusiness program of UG especially the MBA-Agribusiness which is offered by distance mode.

The proposed SUT-HAU project on Agroindustrial Technology and Agribusiness was presented by Dr. Umaly and possible assistance and collaboration by the School of Agricultural Economics and Business, UG was discussed.

Follow up Action:

Dr. Umaly will inform the Institute of Agricultural Technology, SUT of the possible, collaboration with Dr. Philips in the field of Agribusiness specially in the proposed Vietnam project.

24 SEPTEMBER TUESDAY

9:00 -Meeting with Dr. David Swayne, Department of Computing Information and Science

-A debriefing on the Water Resource Seminar was held with discussion on possible follow-up seminars on more specific aspects of Water Resources Management and the use of RAISON Software

Follow up Action:

The subject will be suggested as one of the areas on the proposed additional industry-based seminars at SUT.

10:00 -Visit to the Office of Open Learning (Distance Education)

Dr. Umaly was given literature on the programs of the Center.

Follow- up Action:

Dr. Umaly will give a copy of the documents received from the Center to Technopolis so that they could be reviewed for possible collaboration in the offering of Continuing Education Courses specially in Science, Technology (including Food Science) and Agribusiness.

10:45 Meeting with Dr. C. Ronald Harris, Chair, Department of Environmental Biology Room 1107 Bovey Building

Dr. Umaly briefed Dr. Harris on SUT programs and the proposed Graduate Program in Environmental Biology by the School of Biology SUT. Dr. Harris in turn briefed Dr. Umaly on the Undergraduate and Graduate programs on Environmental Biology of UG. He also explained the other interdisciplinary program of UG in Environmental Science and Environmental Studies.

Follow up Action:

Dr. Umaly would suggest collaboration with UG in Environmental Biology if the proposed graduate Program is approved. Their major strength is on Environmental toxicology especially on pesticides in environment and on biological control of pests.

11:30 Short meeting with Ms. Podjona Chumnkhunthod and Ms. Piyachat Sintudeacha, SUT Co-op Students at UG

12:00 Lunch with Dr. John De Man and Dr. Doug Goff. Department of Food Science

-Dr. Umaly briefed them on the progress of the IUP and other activities of the SUT-CUTC Project.

-Dr. De Man and Dr. Goff reported on the progress of the Co-op students with them.

There was also discussion on the proposed activities during their next assignment at SUT. Dr. Umaly briefed them on the proposed SUT-HAU partnership on Agroindustrial Technology/Agribusiness which would include Food Technology. They have expressed interest in collaborating during its planning and implementation

Follow up Action:

Dr. Umaly is to discuss with the Institute of Agricultural Technology details of the Term of Reference for the coming assignment of Dr. Goff & Dr. De Man to SUT in September 1997. This would include the arrangement for short-term training courses they can organize as part of the industry-based seminar component of the project. Dr. Umaly is also to inform Dr. Terds of the interest of UG to participate in the Vietnam project with possibility of waiting a CIDA Project proposal also in cooperation with the Food Science group of TUNS

13:30 Briefing by Ms. Lynne Mitchel on the use of Students in helping foreign and Canadian students interested in international programs (Peer Help Program)

Follow up Action:

Similar kind of Peer Help Program can also be organized by CIA. at SUT for the IUP students using some of the student assistants presently working with CIA.. These would free the program officers from minor questions of IUP students and other students interested in international programs (including co-op studies abroad)

14:30 Coffee break with the same 2 Thai Coop students.

Further discussions on their problems and future plans were made. As a whole they are very satisfied with their program.

Follow up Action:

Such Co-op students can be requested to help in the promotion of the IUP and Coop Programs abroad by giving seminars to students at

SUT. and other schools. They can also assist Dr. Goff in the training course that will be organized next year.

15:00 Meeting with Mr. Benny Quoy, International Student Advisor

Mr. Quay briefed Dr. Umaly on some of the services offered to international students by his office together with the most common problems and issues presented or encountered by the students.

Follow up Action:

Some of the services provided by the IS adviser can also be provided by the CIA, SUT when foreign students are present in the IUP in the future.

16:45 Return to the hosted for check out and drive to Waterloo by car with a UG staff.

18:00 Arrival at Waterloo and check in at Waterloo Motor Inn

475 King St. N

Waterloo, Ontario

Tel: 1-800-361-4708

Fax: (519) 884-0321

25 SEPTEMBER

WEDNESDAY

9:30 Visit to the Mechanical Engineering Office with Dr. Gerry Schneider and Ms. Mantana

10:00 Meeting with Ms. Pauline C. O'Neil, Director, Research Grants and International Programs

Dr. Umaly briefed Ms. O'Neil on SUT organization, missions and programs specially the activities of CIA and the SUT-CUTC Project in particular.

Ms. O'Neil described the organization of the Research Division of the University where Research Grants & International Programs belong. Linkages with other countries and areas of research were explained.

Some the areas of possible interest to SUT aside from mechanical engineering are in applied mathematics and computer science, environmental science, telemetry and biotechnology.

The Research Division of SUT may find this Division of UW interesting to visit.

1200 Lunch with Ms. O'Neil and M. Denis Leclerc, Director/International Liaison Office, of the Wilfred Laurier University

Waterloo, Ontario, Canada N2L 3C5

Tel: (519) 884-0710 ext. 6704

Fax: (519) 884-8853

Email: dleclerc@mach2wlu.ca

M. Leclerc briefed Dr. Umaly on the organization and activities of Wilfred Laurier University in general and international programs in particular.

Follow up Action:

Dr. Umaly promised to send the 6th year Annual report of SUT to Dr. Leclerc and study further their programs which may be of interest and relevance to SUT.

14:00 Meeting with Mr. Kenneth A Lavigne Registrar

Dr. Umaly and Ms. Mantana were briefed on the organization and activities of the Registrar's Office. The major interest was on procedures for application and main requirements for admission of foreign students... so that prospective SUT students intending to transfer to UW could be advised and informed properly

Follow up Action:

Documents and information obtained will be given to the Office of the Registrar of SUT.

15:00 Meeting with Ms. Judy Brown Contracts Manager Office of Research

Waterloo, Ontario, Canada N2L 3G1

Tel: (519) 888-4567 ext. 2022

Fax: (519) 746-7151

Email: jabrown@mcladm.uwaterloo.ca

Dr. Umaly and Ms Mantana were briefed on the procedure for undertaking research contracts of professors or the university with industry and other sources of grants.

Follow up Action:

The documents and information obtained will be transmitted to the Office of Research of SUT. This could be a good place to send SUT research administrators for training.

16:30 Return to Hotel

Free Evening-Dinner with Ms. Mantana

26 SEPTEMBER

THURSDAY

9:00 PRC Meeting

12:30 Lunch hosted by UW

14:00 PRC Meeting

16:30 Reception hosted by UW

20:00 Dinner at Binah Warung Restaurant hosted by Dr. Gerry Schneider (UW)

27 SEPTEMBER

FRIDAY

10:00 Review of the Minutes of the PRC Meeting

12:00 Lunch hosted by UW

14:00 Finalization of the Draft of Report and Discussion of other Matters

15:30 Departure for Toronto with Dr. Sam Mikhail and Ms. May Jane Curtis

18:00 Check in at Colory Hotel in Toronto

Free Evening

The Agenda and Minutes of the Meeting will be submitted as separate Documents

Follow up Action:

Suggested follow-up actions, to be done by SUT are given in the minutes and will be considered by SUT PRSC and CIA.

28 SEPTEMBER

SATURDAY

Free Day at Toronto

20:30 Departure from Colony Hotel for Toronto Airport

23:55 Departure from Toronto for Hong kong on CX 829

29 SEPTEMBER

SUNDAY

Lost in crossing the International Date Line

30 SEPTEMBER

MONDAY

6:45 Arrival in Hong Kong

10:25 Departure from Hong kong for Bangkok on CX 913

11:30 Arrival in Bangkok

John C. Pinsky
8/19/96

Ms. Mantana Thammachoti
Center for International Programs
Suranaree University of Technology
Thai-Canadian HRD Project, CUTC-SUT consortia
Program Schedule at Ryerson Polytechnic University

September 9-13

Sun, Sept. 8	8:25 arrival - Bay/Dundas Bus Terminal (MJ Curtis to meet)
Mon, Sept 9	9:30-10:00 Introduction to Ryerson and RI Dr. Sam Mikhail, Director
	10:15-11:45 Project Administration Campus Orientation, M.J. Curtis
	Lunch Hosted, RI (by invitation)
	p.m. open/free
Tues, Sept 10	9:30-11:30 Project Finance, Oracle Computer Systems 10th Floor, Jorgenson Hall, Mr. Richard Leung
	lunch open/free
	2:00- 4 p.m. Dr. Stalin Boctor, Electrical Engineering T-200B, 87 Gerrard St. East
	Evening CN Tower (Vira Kozlowsky to accompany)
Wed Sept 11	9:00-noon Office of Development, Alumni and Community Relations, Mr. Ian Marlatt 2nd Floor, Jorgenson Hall
	p.m. Open/free
Thurs, Sept 12	9-8 p.m. Niagara-on-the-Lake, Niagara Falls Pick up at 9 a.m., M.J. Curtis V. Kozlowsky
Fri, Sept 13	9:00-noon International Student Services and Admissions Margaret Phillips, 3rd Floor, Jorgenson Hall
	Lunch open/free
	2:00-4 p.m. Kim Cheah, ARA Associates 121 Bloor Street East, Suite 405
Sat, Sept 14	3:15 p.m. pick up at 1101 Bay Street, Bay/Bloor Exec. Suites (Vira Kozlowsky to drive to Toronto airport) Departure for Halifax: Air Canada #142, 5:05 pm

STUDY TOUR
Ms. Mantana Thammachoti

September 14 and September 21, 1996

September 14

8:00 pm Robert Eagle to pick up Ms. Thammachoti at the Halifax International Airport. Arrival at the hotel at approximately 9:45 pm.

September 15

10:00/3:00 Robert Eagle to pick up Ms. Thammachoti for a tour of Peggy's Cove

September 16

9:00am Welcome by Dr. Adam Bell - Dean of Engineering
Room A102

9:30/11:30 Discussions with Robert Eagle - Director, Research Services, on Research Services and IP functioning at TUNS
Room A210

12:00/1:30pm Lunch

2:00/4:00pm Discussions with Dr. F. Hamdullahpur, Dean of Graduate Studies and Research - how office works and general project discussion
- with R. Eagle, Dr. B. Caley, and Dr. B. Hart
Financial Services Board room

4:30/7:00pm Reception at University House

September 17

9:00/11:00 Continuing Education Program overview with Ms. Carol Connor, Director

11:00/12:00 Discussions with Robert Eagle on joint projects; Mekong, Vietnam and Thai Seminars, Room A210

12:00/1:30pm Lunch

2:00/4:00 Ruth Murray, CIFT and Darcy Bears, Financial Services to discuss accounting practices in Financial Services Board room

September 18

10:00/2:30 Pearson Institute, Dalhousie to see all aspects of their operation (student advice, financial, and policy review) see attached
- R. Eagle to provide transportation to the university/return by taxi

2:30/3:30 Dalhousie International Student Advisor - Lynn Shakry

September 19

9:30-10:30

Meeting with Dr. Ronald Gilkie, Dean of Students and the International student advisor in the Dean's office Room A212

11:00 -3:00

Visit Saint Mary's University - Ms. H. Taylor,
Alana Robb, International Student Advisor and Neill Evans, International Marketing Officer

4:00-6:00

International Students Welcome Reception in Common Room - *A Building*

September 20

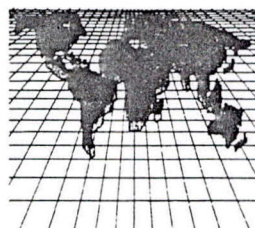
Dr. Dave MacKay (all day) 454-4917

September 22

flight to Toronto (same as the Saturday flight #627 departs at 5:00 pm)



Dalhousie University



**Lester Pearson
International
Institute**

1321 Edward Street
Halifax, Nova Scotia
Canada B3H 3H5

**Visit of Ms. Mantana Thammachoti, Program Officer,
Centre for International Affairs
Suranaree University of Technology (SUT), Thailand
to the Lester Pearson International Institute (LPI),
Dalhousie University
Wednesday, September 18, 1996**

ITINERARY

<u>TIME</u>	<u>NAME & LOCATION</u>
10:15 a.m.	Greeted by Pat Rodee , Associate Director/Projects & Administration, LPI Location: LPI Reading Room, 1321 Edward Street
10:25 a.m.	Depart LPI for Henson College, accompanied by Bernadette Mount , Special Events Coordinator/Secretary, LPI
10:30 a.m.	Meeting with Lloyd Fraser , Associate Professor, Continuing Education, Henson College of Public Affairs and Continuing Education Location: Henson College
11:30 a.m.	Meeting with Lynn Burgess , Projects Assistant, LPI Location: LPI Reading Room
12:30 p.m.	Luncheon meeting with Pat Rodee Location: Dalhousie University Club
2:00 p.m.	University tour with Bernadette Mount Depart from LPI
2:30 p.m.	Meeting with Gary Newkirk , Program Director, Island, Sustainability, Livelihood & Equity (ISLE) Program and Project Director, Coastal Resources Research Network (CoRR) Location: LPI Reading Room
3:30 p.m.	Depart LPI for Haliburton House Inn

Itinerary for Ms. Mantana Thammachoti

	Monday Sept. 23, 1996	Tuesday Sept. 24, 1996	Wednesday Sept. 25, 1996	Thursday Sept. 26, 1996	Friday Sept. 27, 1996
8:00am					
8:30am					
9:00am	Pickup. G.E. Schneider	Pickup. G.E. Schneider	Pickup. G.E. Schneider	Pickup. G.E. Schneider	Pickup. G.E. Schneider
9:30am	G.E. Schneider	G.E. Schneider		PRC Meeting	PRC Meeting
10:00am			P. O'Neill. International Programs		
10:30am	To be determined	H. Ratz. Director of Exchange Programs			
11:00am					
11:30am					
12:00pm			Lunch. P. O'Neill		
12:30pm	J. Westlake. Cooperative Education and Career Services. G.E. Schneider.	Darlene Ryan. Counselling Services. International Student Advisor			
1:00pm					
1:30pm					
2:00pm			Registrar's Office. Ken Lavigne (x2262)		
2:30pm		Elizabeth Adrian. Career Services			
3:00pm	Study		Contracts. Judy Brown (x2022). or Sue Nelson (x2021)		
3:30pm		Study Katharine Scott Assoc. Provost H.E. & Student Services			
4:00pm			Pick-up at NH		
4:30pm	Return to hotel. G.E. Schneider	Return to hotel. G.E. Schneider	Return to hotel.	Reception Return to Hotel. G.E. Schneider plus ...	Return to hotel. G.E. Schneider plus ...
P.M.				Dinner Bhima's Warung, pickup at 8:00	Dinner at the Duke's, pickup at 8:00



August 27, 1996

Nuttapon Poopipat
105/20 Soi Amornpan4, Vipavadee Rangsit Road
Bangkok
Thailand 10900

Student Number: 2831832

Dear Mr. Poopipat:

I am pleased to advise you that you have been accepted for full-time study at Conestoga College.

Preparatory:	Special Studies
Location:	Waterloo Campus
Start Date:	September 3, 1996
End Date:	December 31, 1996

Program:	General Arts and Science - Language Option
Location:	Waterloo Campus
Start Date:	January 2, 1997
End Date:	August 31, 1997

The language of instruction for all programs at Conestoga College is English.

This offer of admission is conditional upon the following requirement, which must be met before the start of classes:

STUDENT VISA AUTHORIZATION

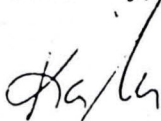
The payment of fourteen thousand four hundred and two dollars and forty cents Canadian dollars (\$14,402.40 CDN) is required to reserve your place in the program. Methods of making this payment, and details of fees are outlined in the enclosed letter. The receipt of your fees will be considered confirmation of your acceptance.

You are required to obtain a Student Visa from a Canadian Embassy/Consulate in order to register and attend classes in Canada. You may present this Letter of Acceptance to a Canadian Embassy/Consulate as proof of your admissibility to Conestoga College. You must submit a copy of your Student Visa to the Office of the Registrar prior to the start of classes.

This letter of acceptance will continue to be valid after September 15, 1996 if the above fees are received by Conestoga College. If the fees are not received, this letter of acceptance will expire on September 16, 1996.

I wish you success in your studies at Conestoga College.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Larry Rechsteiner', written in a cursive style.

 Larry Rechsteiner, Director of International Education and
Associate Registrar - International Admissions



August 27, 1996

Sutthinart Chansatja
114/20 Soi Permpatana Bandonthom Road
Ratchaburi
Thailand 70110

Student Number: 2831816

Dear Mr. Chansatja:

I am pleased to advise you that you have been accepted for full-time study at Conestoga College.

Preparatory:	Special Studies
Location:	Waterloo Campus
Start Date:	September 3, 1996
End Date:	December 31, 1996
Program:	General Arts and Science - Language Option
Location:	Waterloo Campus
Start Date:	January 2, 1997
End Date:	August 31, 1997

The language of instruction for all programs at Conestoga College is English.

This offer of admission is conditional upon the following requirement, which must be met before the start of classes:

STUDENT VISA AUTHORIZATION

The payment of fourteen thousand four hundred and two dollars and forty cents Canadian dollars (\$14,402.40 CDN) is required to reserve your place in the program. Methods of making this payment, and details of fees are outlined in the enclosed letter. The receipt of your fees will be considered confirmation of your acceptance.

You are required to obtain a Student Visa from a Canadian Embassy/Consulate in order to register and attend classes in Canada. You may present this Letter of Acceptance to a Canadian Embassy/Consulate as proof of your admissibility to Conestoga College. You must submit a copy of your Student Visa to the Office of the Registrar prior to the start of classes.

This letter of acceptance will continue to be valid after September 15, 1996 if the above fees are received by Conestoga College. If the fees are not received, this letter of acceptance will expire on September 16, 1996.

I wish you success in your studies at Conestoga College.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Larry Rechsteiner'.

 Larry Rechsteiner, Director of International Education and
Associate Registrar - International Admissions

Office of the Registrar

October 2, 1996

Mr. Jirath Buakaew
c/o Center for International Affairs
Suranaree University of Technology
111 University Avenue
Nakhon Ratchasima 30000
THAILAND

Dear Mr. Buakaew:

CERTIFICATE OF ACCEPTANCE

Student No. 960885

I am pleased to advise you that you have been conditionally accepted into the Bachelor of Engineering Program in Mechanical Engineering at Technical University of Nova Scotia beginning January 1997. Please refer to the enclosed "Guidelines Concerning Your Acceptance."

The condition of your acceptance is that you must successfully complete the following courses by September 1997:

Thermodynamics
Dynamics I
Engineering Mathematics 4
Strength of Materials
Fluid Mechanics
Dynamics 2 or equivalent
Graphics and Design

All of these courses will be taken either at Saint Mary's University or Dalhousie University. Thermodynamics and Dynamics I will be taken during the Summer.

To assist you in your financial planning, the following is an estimate of expenses for the academic year 1996/97. For further information, I refer you to the enclosed "Information for Foreign Students Accepted for Study at the Technical University of Nova Scotia."

.../2

Mr. Jirath Buakaew
October 2, 1996
Page 2

Tuition Fees	\$ 3,730.00 per year
Foreign Students (studying in Canada on a student visa or ministerial warrant)	\$ 3,730.00 per year
Student Society Fees	\$ 105.00 per year
Medical Health Insurance Coverage	\$ 546.00 per year
Books and Supplies	\$ 1,300.00 per year
Food and Lodging	\$ 5,200.00 per year.

Your registration package will be available at the Registrar's Office upon your arrival.

I hope that you enjoy your studies and extracurricular activities at the Technical University of Nova Scotia and I look forward to meeting you.

Your truly,



L. Pelletier
Registrar

LP/hh
Enclosures

cc: Department Head

September 16, 1996

Mrs. Guntima Polprasert
2199, Muekkamontri Road
Maung
Nakhon Ratchasima 30000
THAILAND

Dear Mrs. Polprasert:

CERTIFICATE OF ACCEPTANCE

Student No. 960852

I am pleased to advise you that you have been accepted into the Doctor of Philosophy Program in Chemical Engineering at the Technical University of Nova Scotia commencing January 1997. Please refer to the enclosed "Guidelines Concerning Your Acceptance."

A letter accepting our offer of admission and a cheque in the amount of \$100.00 must be received by my office by October 1996 to reserve your place in the program. This deposit is non-refundable but it will be applied to your tuition fees.

Dr. A.M. Al Taweel of the Chemical Engineering Department will be your graduate supervisor. Funding will be provided through the CIDA SUT-CUTC agreement.

A candidate for a Ph.D. degree must spend the equivalent of three calendar years of full time work on lectures and the thesis.

To assist you in your financial planning the following is an estimate of expenses for the academic year 1996/97. For further information I refer you to the enclosed "Information for Foreign Students Accepted for Study at the Technical University of Nova Scotia."

.../2

Mrs. Guntima Polprasert
September 16, 1996
Page 2

Tuition Fees - First Three Years	\$ 5,650.00
(First Year - \$3,390.00 per year)	
(Second Year - \$1,130.00 per year)	
(Third Year - \$1,130.00 per year)	
Foreign Students (studying in Canada on a student visa or ministerial warrant)	\$ 3,730.00 per year
Student Society Fees	\$ 105.00 per year
Medical Health Insurance Coverage	\$ 546.00 per year
Books and Supplies	\$ 1,950.00 per year
Food and Lodging	\$ 8,000.00 per year.

Please find enclosed your registration package.

I hope that you enjoy your studies and extracurricular activities at the Technical University of Nova Scotia and I look forward to meeting you.

Yours truly,

Original Signed by
L. PELLETIER

L. Pelletier
Registrar

LP/hh
Enclosures

cc: Department Head
✓ Dean of Graduate Studies and Research



Technical
University
of Nova Scotia

Office of the Registrar

December 9, 1996

Mr. Rangsan Wongsan
Institute of Industrial Technology
Suranaree University of Technology
111 University Avenue Rd., Muang District
Nakhonratchasima 30000
THAILAND

Dear Mr. Wongsan:

CERTIFICATE OF ACCEPTANCE

I am pleased to advise you that you have been conditionally accepted for the Doctor of Philosophy Program in Electrical Engineering at the Technical University of Nova Scotia commencing September 1997. Please refer to the enclosed "Guidelines Concerning Your Acceptance."

The condition of your acceptance is that you must take and pay for a full-time English as a Second Language course at Saint Mary's University prior to registration at TUNS.

A letter accepting our offer of admission and a cheque in the amount of \$500 must be received by my office by the end of June 1997 to reserve your place in the program. This deposit is non-refundable but it will be applied to your program fees.

Dr. Z. Chen of the Electrical Engineering Department will be your graduate advisor. I regret to advise that no financial support is available.

A candidate for a Ph.D. degree must spend the equivalent of three calendar years of full-time work on lectures and the thesis.

To assist you in your financial planning the following is an estimate of expenses for the academic year 1996/97. For further information I refer you to the "Information for Foreign Students Accepted for Study at the Technical University of Nova Scotia."

P.O. Box 1000
Halifax, Nova Scotia
Canada
B3J 2X4

Tel: (902) 429-7520
Fax: (902) 429-2591

Mrs. Guntima Polprasert

September 16, 1996

Page 2

Tuition Fees - First Three Years	\$ 5,650.00
(First Year - \$3,390.00 per year)	
(Second Year - \$1,130.00 per year)	
(Third Year - \$1,130.00 per year)	
Foreign Students (studying in Canada on a student visa or ministerial warrant)	\$ 3,730.00 per year
Student Society Fees	\$ 105.00 per year
Medical Health Insurance Coverage	\$ 546.00 per year
Books and Supplies	\$ 1,950.00 per year
Food and Lodging	\$ 8,000.00 per year.

Please find enclosed your registration package.

I hope that you enjoy your studies and extracurricular activities at the Technical University of Nova Scotia and I look forward to meeting you.

Yours truly,

Original Signed by
L. PELLETIER

L. Pelletier
Registrar

LP/hh
Enclosures

cc: Department Head
✓ Dean of Graduate Studies and Research

August 20, 1996

Dr. Chongchin Polprasert
School of Environmental Engineering
Suranaree University of Technology
111 University Avenue
Tambon Suranaree
Muang District
Nakhon Rachasima 30000
Thailand

Center for International Affairs	
No.	618/89
Date	11 2 SEP 1996
Time	10:40
1.2.1.1	

Dear Dr. Chongchin :

Further to Dr. Hamdullaphur's letter of July 22nd, you are invited to Canada as a Post-doctoral Fellow in the Centre for Water Resources Students at the Technical University of Nova Scotia for a twelve-month period from January to December 1997 for 2 academic terms. (*ammended from September 1996 to September 1997 as of August 20th, per discussion with TUNS*)

Your program is funded through CIDA's Thai Canadian HRD Program under the CUTC-SUT Institutional Linkage Project # 906/14868 Section 2.25. An airline ticket will be purchased by Ryerson International (RI) and sent to you c/o Centre for International Programs, SUT. Please advise us of your preferred travel dates so that the airline ticket can be booked and sent to you. A contract will be set up with TUNS to support your program costs as follows:

\$ 47 weeks @ \$300 per week	\$14,100 living & food
	1,000 local transporation
	<u>1,600</u> research program
	\$16,700 (TUNS contract)

Yours sincerely,


Mary Jane Curtis
Program Coordinator

c: Dr. Sam-arng, SUT
Dr. Umaly, SUT
Feridun Hamdullahpur, Ph.D., P.Eng., TUNS
Dr. Stalin Boctor, Ryerson Polytechnic University

*note
7/10/16
2*

July 22, 1996

Dr. Chongchin Polprasert
School of Environmental Engineering
Surinaree University of Technology
Nakhon Ratchasima 3000
THAILAND

Dear Dr. Polprasert:

Further to our agreement, I am pleased to offer you an appointment as a Post-doctoral Fellow in the Centre for Water Resources Studies at the Technical University of Nova Scotia commencing in September 1996 for a twelve-month period, ending in September 1997.

You will receive full financial support from the SUT/CUT fund. The details will be arranged by Dr. S. Boctor, Ryerson Polytechnic University.

This letter, once accepted, shall constitute the only employment agreement between you and the Technical University of Nova Scotia.

I would appreciate receiving your written acceptance of this offer of appointment as soon as possible.

Yours sincerely,



Feridun Hamdullahpur, Ph.D., P.Eng.
Dean of Graduate Studies and Research

/pgh

cc Dr. D. Waller, CWRS
Dr. W. Hart, CWRS
Dr. S. Boctor, Ryerson Polytechnical University
Director, Personnel Services, TUNS

F
T
C
B

Te 420-7570
Fa 420-7581

CONTRACT FOR PROFESSIONAL CONSULTING SERVICES

between

RYERSON INTERNATIONAL (RI)

Ryerson Polytechnic University
350 Victoria Street
Toronto, Ontario
M5B 2K3
Telephone: (416) 979-5026
Fax: (416) 979-5352

and

Institution: Technical University of Nova Scotia
Attention: Dr. Feridun Hamdullahpur
Dean of Graduate Studies and Research

Address: P.O. Box 1000
Halifax, Nova Scotia
B3J 2X4

Tel: (902) 420-7660
Fax: (902) 420-7551

I BACKGROUND

- Whereas for the consideration herein stipulated, the parties have agreed to provide Ryerson International (RI) with the services described in this contract and the parties hereto have agreed to be bound by the terms and conditions herein contained.
- This contract involves services by the Canadian institution and parties to RI, the project implementation unit responsible for the management of a project of institutional Development and Capacity Building between Suranaree University of Technology, (SUT), Thailand and Canadian Universities Technology Consortium, (CUTC), Canada.

II ARTICLES OF THE AGREEMENT

Article 1: Scope of Work

It is agreed that the duties, responsibilities, and obligations of the parties will be carried out according to the Terms of Reference (TOR) outlined in Appendix A. The TOR may not accurately reflect the particular situation as it becomes evident on site, and if required, the consultant agrees to restructure and revise activities to respond to the identified needs in the field.

Article 2: Period of Service

The terms of this contract will be from January 1 to December 31, 1997 unless terminated prior to that date pursuant to articles 11 and 12.

Article 3: Payment Schedule

Payment for services will be made in accordance with the terms and conditions outlined in Appendix B.

Article 4: Transportation and Accommodation

All expenses in this regard are the responsibility of the parties involved (Canadian coop students in Thailand, each assignment of four-months duration).

Article 5: Liability

The parties agree to save RI harmless against claims related to death, disease, illness, injury or disability suffered by the consultant or by dependants arising out of, or attributable to the performance of services under this contract or to conditions encountered during the period of the service of the consultant.

Article 6: Confidentiality and Diplomacy

The parties agree that, during the period of service and for a further period of 12 months, the individual and/or dependants shall not issue any written material or express publicly and personal opinions concerning the consultant's service under this contract, except with the prior approval of RI.

Article 7: Conflict of Interest

Except to the extent required for the performance of services described herein, the parties shall not engage directly or indirectly in any political, business, professional or occupational activity in the host country during the period of service, unless otherwise agreed to by RI. In particular, the consultant shall not make any loans or invest in any business in the host country.

Article 8: Debts Left in Host Country

The parties or any dependants shall not have any outstanding indebtedness in the host country during or upon termination of the period of service. If at the end of the said period of service, RI determines that a debt has been incurred and remains unpaid by the said consultant, RI, may elect to pay on behalf of the consultant, outstanding debt and any cost pursuant thereto. In the event that RI elects to pursue that option of payment of said outstanding debt, RI may in its own discretion, pursue an action in the Province of Ontario. The consultant agrees that RI's payment of said outstanding debt shall be considered proof that said debt was outstanding, unpaid and incurred by the consultant. The consultant agrees to reimburse RI for the payment made on his/her behalf with respect to the payment of debt of any costs pursuant thereto.

Article 9: Waiver

No condition of covenant of this contract may be waived by the parties except with the written consent of RI. Any tolerance or indulgence of RI in any regard whatsoever shall not constitute a waiver of any condition or covenant of this contract.

Article 10: Termination for Cause

Any misconduct, negligence, abandonment of this assignment or non-compliance with any of the terms and conditions of this contract by the parties shall constitute grounds for the immediate termination of this contract by RI. In such case, all payments to or on behalf of the consultant shall stop as of the date of termination, unless otherwise agreed to in writing by RI.

Article 11: Termination for Convenience

Both parties in this agreement may, without cause as specified in Article 11, at any time, by notice in writing terminate this contract. In such case, the consultant shall be entitled to all payments required to be made in accordance with Articles 2 and 3 for the period of which services were performed until the date of termination mentioned in the notice.

Article 12: Force Majeure

This contract shall not render RI liable to any damages or loss of any kind sustained by the parties or his/her family as a result of war, invasion, act of foreign enemies, national or civil hostilities, civil war or riots, rebellion, terrorism, revolution, insurrection or natural disasters such as explosions, hurricanes, floods, earthquake, fire etc.

Article 13: Governing Law

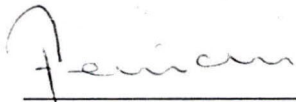
This contract shall be governed by and interpreted in accordance with the laws of the Government of Canada and the Province of Ontario.

Article 14: Assignment and Subcontracting

This contract shall not be assigned or performed in whole or part by any person or persons other than the names parties, except with formal approval from RI.

III SIGNATURES:

We, the undersigned accept the articles described in Section II and the associated terms of reference and/or Appendices as described herein, as the basis of this contractual agreement:



Dr. Feridun Hamdullahpur
Dean, Graduate Studies and Research
TUNS

Sept 16, 1996

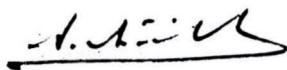
Date



Dr. Sam Mikail
Director Ryerson International

Sept 5, '96

Date



Suranaree University of Technology

26 Sept. '96

Date

APPENDIX A
ACTIVITIES TERMS OF REFERENCE

<i>Assignment:</i>	A 2.25 Post Doctoral Research Fellowship: <i>Dr. Chongchin Polprasert</i> <i>School of Environmental Engineering, SUT</i>
<i>Duration of Assignment:</i>	January to December 1997
<i>Location:</i>	Technical University of Nova Scotia Centre for Water Resource Studies (CWRS)
<i>Academic Advisors;</i>	Dr. W. Hart, CWRS, TUNS Dr. D. Waller, CWRS, TUNS
<i>Program:</i>	Co-ordinated by TUNS Written report required: - Dr. Chonching Polprasert - TUNS (program advisers)

APPENDIX B
FINANCIAL TERMS OF REFERENCE

Fellowship

Per Diem:

\$14,100 (47 weeks @ \$300/week - living & food)
- disbursed by TUNS, based on a mutually agreeable schedule

Transportation:

\$ 1,000 local transportation
To be provided for the duration of the program by TUNS

Research Program

Materials:

\$800 x 2 terms = \$1,600

Travel Costs:

Full Economy airfare \$3,400
Covered by the project. Purchased by Ryerson
International and couriered to SUT. Dates of travel
to be verified by candidate to RI.

SUT:

To provide additional living allowance and support trainee
salary and benefits for duration of assignment.

Summary:

1st Payment: 60% advance (upon signing of the contract and submitted invoice)	\$10,020
Final Payment: 40% balance (upon completion of assignment, a short report from Fellow and Academic Advisor, together with invoice)	<u>6,680</u> \$16,700

Account # breakdown:

1-51-57374-7812	\$3,400 International (airfare)
1-51-57374-7812	\$1,000 In-Canada transportation
1-51-57374-7811	\$14,100 Living Allowance
1-51-57374-8004	\$ 1,600 Research Program Material (2 terms)

CONTRACT FOR PROFESSIONAL CONSULTING SERVICES

between

RYERSON INTERNATIONAL (RI)

Ryerson Polytechnic University
350 Victoria Street
Toronto, Ontario
M5B 2K3
Telephone: (416) 979-5026
Fax: (416) 979-5352

and

Institution: Technical University of Nova Scotia
Attention: Dr. Feridun Hamdullahpur
Dean of Graduate Studies and Research

Address: P.O. Box 1000
Halifax, Nova Scotia
B3J 2X4

Tel: (902) 420-7660
Fax: (902) 420-7551

I BACKGROUND

- Whereas for the consideration herein stipulated, the parties have agreed to provide Ryerson International (RI) with the services described in this contract and the parties hereto have agreed to be bound by the terms and conditions herein contained.
- This contract involves services by the Canadian institution and parties to RI, the project implementation unit responsible for the management of a project of institutional Development and Capacity Building between Suranaree University of Technology, (SUT), Thailand and Canadian Universities Technology Consortium, (CUTC), Canada.

II ARTICLES OF THE AGREEMENT

Article 1: Scope of Work

It is agreed that the duties, responsibilities, and obligations of the parties will be carried out according to the Terms of Reference (TOR) outlined in Appendix A. The TOR may not accurately reflect the particular situation as it becomes evident on site, and if required, the consultant agrees to restructure and revise activities to respond to the identified needs in the field.

Article 2: Period of Service

The terms of this contract will be from January 1 to May 31, 1997 unless terminated prior to that date pursuant to articles 11 and 12.

Article 3: Payment Schedule

Payment for services will be made in accordance with the terms and conditions outlined in Appendix B.

Article 4: Transportation and Accommodation

All expenses in this regard are the responsibility of the parties involved (Canadian coop students in Thailand, each assignment of four-months duration).

Article 5: Liability

The parties agree to save RI harmless against claims related to death, disease, illness, injury or disability suffered by the consultant or by dependants arising out of, or attributable to the performance of services under this contract or to conditions encountered during the period of the service of the consultant.

Article 6: Confidentiality and Diplomacy

The parties agree that, during the period of service and for a further period of 12 months, the individual and/or dependants shall not issue any written material or express publicly and personal opinions concerning the consultant's service under this contract, except with the prior approval of RI.

Article 7: Conflict of Interest

Except to the extent required for the performance of services described herein, the parties shall not engage directly or indirectly in any political, business, professional or occupational activity in the host country during the period of service, unless otherwise agreed to by RI. In particular, the consultant shall not make any loans or invest in any business in the host country.

Article 8: Debts Left in Host Country

The parties or any dependants shall not have any outstanding indebtedness in the host country during or upon termination of the period of service. If at the end of the said period of service, RI determines that a debt has been incurred and remains unpaid by the said consultant, RI, may elect to pay on behalf of the consultant, outstanding debt and any cost pursuant thereto. In the event that RI elects to pursue that option of payment of said outstanding debt, RI may in its own discretion, pursue an action in the Province of Ontario. The consultant agrees that RI's payment of said outstanding debt shall be considered proof that said debt was outstanding, unpaid and incurred by the consultant. The consultant agrees to reimburse RI for the payment made on his/her behalf with respect to the payment of debt of any costs pursuant thereto.

Article 9: Waiver

No condition of covenant of this contract may be waived by the parties except with the written consent of RI. Any tolerance or indulgence of RI in any regard whatsoever shall not constitute a waiver of any condition or covenant of this contract.

Article 10: Termination for Cause

Any misconduct, negligence, abandonment of this assignment or non-compliance with any of the terms and conditions of this contract by the parties shall constitute grounds for the immediate termination of this contract by RI. In such case, all payments to or on behalf of the consultant shall stop as of the date of termination, unless otherwise agreed to in writing by RI.

Article 11: Termination for Convenience

Both parties in this agreement may, without cause as specified in Article 11, at any time, by notice in writing terminate this contract. In such case, the consultant shall be entitled to all payments required to be made in accordance with Articles 2 and 3 for the period of which services were performed until the date of termination mentioned in the notice.

Article 12: Force Majeure

This contract shall not render RI liable to any damages or loss of any kind sustained by the parties or his/her family as a result of war, invasion, act of foreign enemies, national or civil hostilities, civil war or riots, rebellion, terrorism, revolution, insurrection or natural disasters such as explosions, hurricanes, floods, earthquake, fire etc.

Article 13: Governing Law

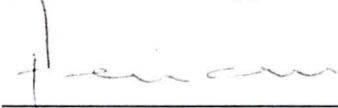
This contract shall be governed by and interpreted in accordance with the laws of the Government of Canada and the Province of Ontario.

Article 14: Assignment and Subcontracting

This contract shall not be assigned or performed in whole or part by any person or persons other than the named parties, except with formal approval from RI.

III SIGNATURES:

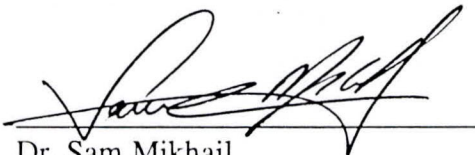
We, the undersigned accept the articles described in Section II and the associated terms of reference and/or Appendices as described herein, as the basis of this contractual agreement:



Dr. Feridun Hamdullahpur
Dean, Graduate Studies and Research
TUNS

Sept - 26, 1996

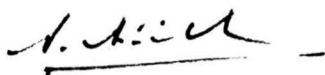
Date



Dr. Sam Mikhail
Director Ryerson International

Sept 12, 96

Date



Suranaree University of Technology

26 Sept - 1996

Date

APPENDIX A
ACTIVITIES TERMS OF REFERENCE

Assignment: A 2.25 Post Doctoral Research Fellowship:
Dr. Somprasong Suttayamully
School of Transportation Technology, SUT

Duration of Assignment: ~~January to May 1997~~

APRIL - APRIL 1997

SEE ATTACHED
CORRESPONDENCE

Location: Technical University of Nova Scotia

Academic Advisors; Dr. Nouman Ali
Department of Civil Engineering, TUNS

Program: Co-ordinated by TUNS

Written report required:

- Dr. Somprasong Suttayamully
- TUNS (program advisers)

APPENDIX B
FINANCIAL TERMS OF REFERENCE

Fellowship

Per Diem: \$ 6,600 (22 weeks @ \$300/week - living & food)
- disbursed by TUNS, based on a mutually agreeable schedule

Transportation: \$ 1,000 local transportation
To be provided for the duration of the program by TUNS

Research Program

Materials: \$800

Travel Costs: Full Economy airfare \$3,400
Covered by the project. Purchased by Ryerson
International and couriered to SUT.

SUT: To provide additional living allowance and support trainee
salary and benefits for duration of assignment.

Summary:

- 1st Payment: 60% advance
(upon signing of the contract
and submitted invoice) \$ 5,040
- Final Payment: 40% balance 3,360
(upon completion of assignment,
a short report from Fellow and Academic
Advisor, together with invoice) **\$ 8,400**

Account # breakdown:

1-51-57374-7812 \$3,400 International (airfare) - Ryerson International

1-51-57374-7812 \$1,000 In-Canada transportation

1-51-57374-7811 \$ 6,600 Living Allowance

1-51-57374-8004 \$ 800 Research Program Material (2 terms)

\$ 8,400 Contract with TUNS

Ryerson International

Fax: 15 57386# 9-011-66-44-216122

October 11, 1996

Dr. Sureelak Rodtong
School of Biology
c/o Centre for International Affairs,
Suranaree University of Technology (SUT)
Tambon Suranaree, Muang District
Nakhon Rachasima 30000, Thailand

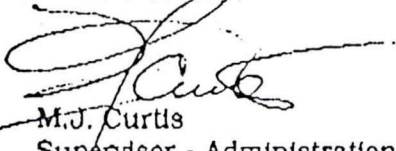
Dear Dr. Sureelak Rodtong:

As part of the CIDA funded Thailand-HRD CUTC-SUT Institutional Linkage Project with Suranaree University of Technology, #906-14868, you are invited to Canada to participate in a five-month Post Doctoral Program (22 weeks) at the University of Guelph from January to May, 1997. You will be supervised by Dr. Stephanie DeGrandis, Agricultural and Food Laboratory Services Branch, Ontario Ministry of Agriculture, Food and Rural Affairs. You will receive a Letter of Acceptance from the University of Guelph shortly.

A contract has been set up with the University of Guelph, Centre for International Programs, Dr. Jim Shute, which will support the following program costs: a) disbursement of your weekly allowance of \$300 (food, accommodation, incidentals; b) local transportation including transportation to and from the Toronto airport to Guelph and c) research program. Ryerson International is responsible for purchasing your airline ticket and applying for Emergency Health Care Coverage for Canada. Your airline ticket will be sent by courier c/o the CIA Office at SUT by our travel agent in Toronto. Please contact me by e-mail or by fax to confirm your anticipated arrival date so that RI can pursue airline reservations with our travel agent.

With this letter you can apply for the necessary visa documentation for your trip to Canada.

Yours sincerely,



M.J. Curtis
Supervisor - Administration, RI
Project Coordinator
Thailand-HRD CUTC-SUT

c: Mr. Peter Landfield, Counsellor Immigration Section (Visa)
Canadian Embassy - Bangkok
Fax: 15 57386# 9-011-662-236-7467

Dr. Jim Shute, University of Guelph
Fax: 15 57386# 9-1-(519) 767-0756

CONTRACT FOR PROFESSIONAL CONSULTING SERVICES

between

RYERSON INTERNATIONAL (RI)

Ryerson Polytechnic University
350 Victoria Street
Toronto, Ontario
M5B 2K3
Telephone: (416) 979-5026
Fax: (416) 979-5352

and

Institution: University of Guelph

Dr. James Shute
Director, Centre for International Programs
Guelph, Ontario
N1G 2W1

Tel: (519) 824-4120, ext. 6910

Fax: (519) 767-0756

I BACKGROUND

- Whereas for the consideration herein stipulated, the parties have agreed to provide Ryerson International (RI) with the services described in this contract and the parties hereto have agreed to be bound by the terms and conditions herein contained.
- This contract involves services by the Canadian institution and parties to RI, the project implementation unit responsible for the management of a project of institutional Development and Capacity Building between Suranaree University of Technology, (SUT), Thailand and Canadian Universities Technology Consortium, (CUTC), Canada.

II ARTICLES OF THE AGREEMENT

Article 1: Scope of Work

It is agreed that the duties, responsibilities, and obligations of the parties will be carried out according to the Terms of Reference (TOR) outlined in Appendix A. The TOR may not accurately reflect the particular situation as it becomes evident on site, and if required, the consultant agrees to restructure and revise activities to respond to the identified needs in the field.

Article 2: Period of Service

The terms of this contract will be from January 1 to May 31, 1997 (22-weeks) unless terminated prior to that date pursuant to articles 11 and 12.

Article 3: Payment Schedule

Payment for services will be made in accordance with the terms and conditions outlined in Appendix B.

Article 4: Transportation and Accommodation

All expenses in this regard are the responsibility of the parties involved (Canadian coop students in Thailand, each assignment of four-months duration).

Article 5: Liability

The parties agree to save RI harmless against claims related to death, disease, illness, injury or disability suffered by the consultant or by dependants arising out of, or attributable to the performance of services under this contract or to conditions encountered during the period of the service of the consultant.

Article 6: Confidentiality and Diplomacy

The parties agree that, during the period of service and for a further period of 12 months, the individual and/or dependants shall not issue any written material or express publicly and personal opinions concerning the consultant's service under this contract, except with the prior approval of RI.

Article 7: Conflict of Interest

Except to the extent required for the performance of services described herein, the parties shall not engage directly or indirectly in any political, business, professional or occupational activity in the host country during the period of service, unless otherwise agreed to by RI. In particular, the consultant shall not make any loans or invest in any business in the host country.

Article 8: Debts Left in Host Country

The parties or any dependants shall not have any outstanding indebtedness in the host country during or upon termination of the period of service. If at the end of the said period of service, RI determines that a debt has been incurred and remains unpaid by the said consultant, RI may elect to pay on behalf of the consultant, outstanding debt and any cost pursuant thereto. In the event that RI elects to pursue that option of payment of said outstanding debt, RI may in its own discretion, pursue an action in the Province of Ontario. The consultant agrees that RI's payment of said outstanding debt shall be considered proof that said debt was outstanding, unpaid and incurred by the consultant. The consultant agrees to reimburse RI for the payment made on his/her behalf with respect to the payment of debt of any costs pursuant thereto.

Article 9: Waiver

No condition of covenant of this contract may be waived by the parties except with the written consent of RI. Any tolerance or indulgence of RI in any regard whatsoever shall not constitute a waiver of any condition or covenant of this contract.

Article 10: Termination for Cause

Any misconduct, negligence, abandonment of this assignment or non-compliance with any of the terms and conditions of this contract by the parties shall constitute grounds for the immediate termination of this contract by RI. In such case, all payments to or on behalf of the consultant shall stop as of the date of termination, unless otherwise agreed to in writing by RI.

Article 11: Termination for Convenience

Both parties in this agreement may, without cause as specified in Article 11, at any time, by notice in writing terminate this contract. In such case, the consultant shall be entitled to all payments required to be made in accordance with Articles 2 and 3 for the period of which services were performed until the date of termination mentioned in the notice.

Article 12: Force Majeure

This contract shall not render RI liable to any damages or loss of any kind sustained by the parties or his/her family as a result of war, invasion, act of foreign enemies, national or civil hostilities, civil war or riots, rebellion, terrorism, revolution, insurrection or natural disasters such as explosions, hurricanes, floods, earthquake, fire etc.

Article 13: Governing Law

This contract shall be governed by and interpreted in accordance with the laws of the Government of Canada and the Province of Ontario.

Article 14: Assignment and Subcontracting

This contract shall not be assigned or performed in whole or part by any person or persons other than the names parties, except with formal approval from RI.

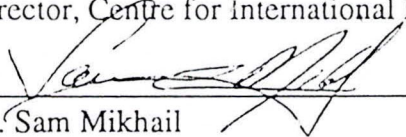
III SIGNATURES:

We, the undersigned accept the articles described in Section II and the associated terms of reference and/or Appendices as described herein, as the basis of this contractual agreement:



James Shute
Director, Centre for International Programs

Oct 23 / 96
Date



Dr. Sam Mikhail
Director Ryerson International

Oct 15, '96
Date



Suranaree University of Technology

Dec. 18, '96
Date

APPENDIX A
ACTIVITIES TERMS OF REFERENCE

- Assignment:*** A 2.25 Post Doctoral Research Fellowship:
***Dr. Sureelak Rodtong, School of Biology,
Institute of Science, SUT***
- Duration of Assignment:*** January to May 1997 (22 weeks)
- Location:*** Ontario Ministry of Agriculture
Agricultural and Food Laboratory,
Food and Rural Affairs
- Academic Supervisor:*** Dr. Stephanie DeGrandis
Agricultural and Food Laboratory
- Program:*** Co-ordinated by University of Guelph:
- Written report required by:
- Dr. Sureelak Rodtong
 - Dr. Stephanie DeGrandis
 - Dr. Jim Shute (summary)

APPENDIX B FINANCIAL TERMS OF REFERENCE

Fellowship

Per Diem: \$ 6,600 (22 weeks @ \$300/week - living & food)
- disbursed by U of Guelph, based on a mutually agreeable schedule

Transportation: \$ 1,000 local transportation
To be provided for the duration of the program by U. Of Guelph

Research Program

Materials: \$2,800
(includes \$2,000 additional research funds, approved
At September 26/27, 1996 PRC meeting)

Travel Costs: Full Economy airfare \$3,400
Covered by the project. Purchased by Ryerson
International and couriered to SUT.

SUT: To provide additional living allowance and support trainee
salary and benefits for duration of assignment.

Summary:

- 1st Payment: 60% advance
(upon signing of the contract
and submitted invoice) \$ 6,240
- Final Payment: 40% balance 4,160
(upon completion of assignment,
a short report from Fellow and Academic
Advisor, together with invoice) **\$10,400 TOTAL**

Account # breakdown:

1-51-57374-7812	\$3,400	International (airfare) - Ryerson International
1-51-57374-7812	\$1,000	In-Canada transportation
1-51-57374-7811	\$ 6,600	Living Allowance
1-51-57374-8004	<u>\$ 2,800</u>	Research Program Material
		\$10,400 Contract with the University of Guelph

Industrial Seminars, Trip Report

*Prepared for
SUT/CUTC Partnership*

*by
Robert Eagle*

December 16, 1996

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Introduction

During the week of October 6, 1996 and until October 17, 1996, Robert Eagle visited the campus of Suranaree University of Technology in Nakhon Ratchasima in order to help establish a program of industrial seminars in which the Canadian Universities Technology Consortium would play a supportive role. The goals of the visit were to identify a process for selecting seminar topics, select a structure to give the seminars and to select the first few areas where CUTC could assist SUT with the seminar packages. The expected outputs of the visit were to be suggestions of specific topics, potential lectures, potential revenue, expected expenses and available resources.

Visit Schedule

The program schedule began in Nakhon Ratchasima on Monday October 7, 1996 and finished in Bangkok with a wrap up meeting on Thursday October 17, 1996. The program included meetings with senior SUT officials, industry representatives, executives of the Federation of Thai Industries, SUT Faculty members, Technopolis staff and Centre of International Affairs staff. The detailed program is attached in Appendix A.

Suranaree University of Technology

SUT has two departments that will be directly involved with organizing the seminar series. These being Technopolis and the Centre for International Affairs.

Technopolis is a science park established for technology innovation and fine tuning, technology transfer, and exhibition. Technopolis, an innovation in Thai higher education, has three directives:

1. Serving the industrial sector in research and development, individually or jointly with the University;
2. Promoting and supporting creative inventors; and
3. Offering service to both government and private sectors, to strengthen ties and cooperation between the University and those sectors for mutual benefit.

More specifically the facilities, resources and services which Technopolis offers are shown in Appendix B. Also in Appendix B is a list of Technopolis' Activities over its first 5 months. These activities included an industrial survey, the results of which are shown.

Under its mandate, Technopolis has been offering a series of seminars to industry and

government. Appendix C shows the seminars which are planned to be offered in the coming year.

Technopolis will be the delivery arm for the industrial seminar series. However, the Centre for International Affairs, which is responsible for all international activity at SUT will plan a key co-ordination role. CIA will be involved for two reasons:

- CUTC is an international contact and the project we are working on is administered by CIA.
- Some of the seminars may wish to draw from an international clientele.

There have been some talks about using the CUTC speakers to help with an extension program which may be offered by the Association of Universities of Asia and the Pacific (AUAP). CIA would lead this initiative.

One further point on SUT participation should be mentioned. The local Thai speakers will in many cases come from the SUT faculty. At the present time the faculty have extremely heavy work loads and thus may not be able to take the time required to fully participate. This may mean that speaker fees will have to be paid to SUT faculty to reimburse them for this added commitment.

North East Region Industry

Until recently the North East sector was the least developed area of Thailand. The Thailand Board of Investment has in recent years targeted the NE for growth and has financial incentives to encourage new, modern and technically advanced industries to the area. This initiative, coupled with an increase in the infrastructure linking Khorat to Bangkok has stimulated considerable growth in the area around Nakhon Ratchasima. The industrial base has been largely agro industry, however in recent years the advanced manufacturing sector (auto parts, telecommunications, electronics, plastics) has been on the increase. In Appendix D is a brief report on the economy of the NE sector.

At this point there is some concern about the absorptive capacity for advanced technology of the local industry. The industry has been relatively small with local family ownership and few technical people on staff. New technology in general has been bought and not developed locally. Few plants have engineering staff and the training of the workforce has largely been done in-house. Little attention has been given to safety or environmental issues.

The newly established industries tend to have more advanced technology, more engineering and technical staff, and in general a higher level of absorptive capacity.

There is a problem in the NE of attracting and keeping skilled labour. Labour has tended to move to the Central and Southern regions where wages are higher. A move to a better work environment with such benefits as affordable housing, good schooling, training, increased wages, etc., could help to reverse this trend.

Some of the training requirements that industry indicated an interested in participating in include:

- industrial safety
- a practical course in quality management
- industrial/environmental management-water related in particular
- management skills - in particular financial management/accounting
- computer management
- precision machinery

No industry specific courses were recognized in either the industry talks or the Technopolis questionnaire. More work needs to be done to identify these topics.

Technopolis is addressing many of the fundamental training requirements in the seminar program they have prepared for the coming year (Appendix C).

Course Criteria

Objective - The objective of the CUTC/SUT Industry Seminars is to assist industry in understanding and transferring new advanced technologies. The focus will be on local industry initially, however, topics for a broader participant base will also be sought.

Organization - Technopolis will be the main vehicle to deliver the courses, assisted by CIA, the SUT faculty and staff, and outside Thai expertise when necessary. CUTC will assist only where expertise is not available in Thailand.

Technopolis will be responsible for the organizing, administration and marketing of the seminars. CIA will assist when there is an international component to either the delivery or the audience.

Delivery - Technopolis will seek out the most appropriate speakers from SUT, CUTC, industry and government. A course director will be appointed to help bring together curriculum or course content, speakers, topics, etc. Each speaker will be asked to have a copy of their address in advance of the seminar. Technopolis will arrange for the translation of papers when necessary. Consideration should be given to having translation at the seminars.

Revenue/Expenses - The seminars will be set up to recover all costs including room rental, food, lodging, speakers fees, marketing costs, copies, supplies, telephone/communications, speakers living and travel costs, and some degree of overhead or profit. The early seminars should try to recover some of the CUTC cost so that they can be used to help bring in speakers for future seminars.

To save on costs, the seminars could be given in more than one location or country. This would allow for better use of resources. Travel cost would thus be written off over a larger number of participants.

Size & Duration - The seminars should try to be industry specific and applied in nature. This means a smaller participation but of more practical use.

Also the length of the seminars should be kept to 2 to 3 days so that industry can attend. Combining weekends or at least Saturday makes it more accessible to industry.

Topics

The topics that have been discussed for potential industry seminars are as follows:

1] Food Processing

Dr. Doug Goff from Guelph will be at SUT for the September to December term of 1997. He has agreed to offer one or two seminars in the food science area. The topics suggested are:

a] Food Technology for the Dairy Industry - This will be a 3 day course offered in the 3rd week of September 1997 [the week of the 15th]. It will emphasize advanced food processing processes. Three or four faculty members from SUT will assist in the giving of the material. It may be combined with a course offered by Germantown, an Australian Ice Cream Company that Doug has worked with in the past.

b] Food Quality and Safety - There have been a number of courses offered in this area but the emphasis has always been on the principles. This course will concentrate more on the application, process and documentation of the principles. It will be a two day course given either at the exam break in November 1997 [11th] or on a Friday/Saturday in that month.

Dr. Suwayd is the SUT contact person for these two courses. Robert Eagle has contacted Dr. Goff to express the changes to his program from the one he originally suggested.

2] Integrated Watershed Management of an Industrial Site

In July 1996, CUTC & SUT offered a seminar in water resources management. Although this was well received, there appeared to be a need for a more detailed hands-on workshop. Local industry are also concerned with how to dispose of or treat their industrial waste water. This course would address both of these needs. It would be 2 to 3 days in duration. It will be fit into the Technopolis schedule at a convenient time. The presenter from Canada would likely be Dr. William Hart. He would be assisted by SUT faculty he has already made contact with.

Prof. Manoo and Dr. Hart will exchange thoughts on this project with these two also being responsible for its implementation. Dr. Hart needs more information before he can proceed, thus Eagle to update him.

3] Community Based Environmental Resource Management

In January 1997, Technopolis will begin a series of meeting or workshops to discuss environmental resource based management. The first step would be a workshop in January [20 to 30] for Government, university and private sector organizations, to discuss the concepts surrounding CBERM. The second workshop, which would be held latter in the year , would develop an operational plan for CBERM of the North East Region. The third step would be to select pilot projects, one of which would be the establishment of a center of coordination at Technopolis.

The CUTC/SUT fund would be used to bring in a facilitator for the first workshop. It is likely that the speaker would come from either Guelph or Ryerson. Eagle is to get a name of someone to SUT. Prof. Manoo is to approach the Ministry of Science and Technology for support of this workshop.

The second workshop could be run at the same time as the SUT Anniversary [July 27 and the following week].

It is likely that this series of workshops will help identify other topic areas for technical seminars. Certainly technology gaps will be identified during the process.

4] Computer Technology in Industry

This could be a course aimed at showing the benefits of advanced computer technology to industry. It could address such topics as computer control systems, CAD/CAM, e-mail,

internet, management control systems, robotics, etc. This concept needs more work and a more specific focus.

It will be integrated into the Technopolis program of computer courses. Technopolis already has computer courses planned in:

- 1] introduction to programmable logic controllers;
- 2] basic computer training, and
- 3] training for computer mapping, increased efficiency of library work with internet.

The two areas that SUTC can assist with are:

- 1] Integrated Manufacturing through Dr. Vorapot of Mechanical Engineering, and
- 2] something on computer aided management.

The first of these will take place in August 1997 after the new equipment is in place. Eagle will try to arrange an expert. The second will be explored with CUTC members and Technopolis.

Other Ideas

The remainder of these courses and workshops are ideas that need further exploration. Dr. Hueng is to prepare an industrial questionnaire to get more information about industrial needs. The process will be to interview a select number of industries to get detailed information and send the questionnaire out to the other firms in the area. Eagle to send a copy of the questionnaire TUNS is preparing for our manufacturing program.

- 1] Industrial Safety - This course would be aimed at showing the benefits of increased safety to local industry. The North East is losing its labour force to the more highly industrialized areas of Thailand. A cleaner/safer environment for workers would help to keep skilled labour in the area. The emphasize should be on industrial health and safety. The local regulations lack enforcement.
- 2] Industry Specific Courses - The need exists to develop a series of industry specific course aimed at transferring to industry specific technologies. Technopolis needs to refine there contacts with industry to more clearly identify these opportunities. Some of the areas to be considered include;
 - a] Ceramics - The ceramics industry is made up of a large number of small producers, whose products are largely for the craft sector. Nova Scotia College of Art and Design has done some work with such industries in other countries in increasing the quality of their products with enhanced production techniques, new coatings, etc. Bill Caley has some expertise in this area.

- b] Plastics/Polymers
- c] Other industries - need information
- 3] Quality Assurance - Courses have been given in ISO 9000 and one is being planned in ISO 14000. What appears to be missing is a workshop that is more applied in nature. Again the concepts seem to be known but the process of application is weak.

Industry Trade Mission To Canada

The local branch of The Federation of Thai Industries is interested in taking a trade mission to Canada. This project would be self financing and would be arranged jointly by Technopolis and CUTC, support would be sought in Canada from CIDA. Industry Canada and the provincial economic development departments. Eagle had a meeting with Trade Officers in the Canadian Embassy on Thursday Oct. 17th. They would offer logistical; and administrative support.

Timing would be in the summer of 1997 and would be linked to a major industrial trade show in Canada. CUTC will begin the process by identifying potential shows and communicating with FTI.

Technopolis Training

At the April meeting of PRC in Halifax, a proposal will be put forward to offer training in Canada to two or three Technopolis staff members in the areas of technology transfer, continuing education and industrial outreach. This will include visits to TUNS Continuing Education program, Waterloo Innovation Centre, Waterloo and Guelph's industrial parks, along with other components yet to be identified. The visit would be 3 weeks in length.

Appendix A
Visit Schedule

Tentative Program
Visit SUT of Mr. Robert Eagle

7 October 1996

- 08.20 Arrival at Nakhon Ratchasima Airport
- 09.00 Refreshment at hospitality house
- 11.00 Courtesy call on VR Planning, Dr. Pongchan Na-Lampang, Technopolis Coordinator, Dr. Neung Teaum voong, VR Development, Director, and Dr. Ruben Umaly, Director, CIA
- 12.00 Lunch with Director, CIA
- 13.00 Campus tour
- 19.00 Dinner with VR Planning, Director CIA, Dr. Prasart, VR Administrative Affairs, and Prof. Manoo, Director, Technopolis, O-makwbt

8 October 1996

- 09.30-11.00 Meeting with SUT executives/staff at Saranithas Conference Room, Admin. Bldg.
- 12.00 Lunch
- Afternoon Visit Technopolis - Ms. Panpimol (On)

9 October 1996

- 09.30 Visit Sa-nguanwong Industry Co. Ltd. - Mr. Eakarin Yanubol, Mr. Dedanan, Labour Consultant, Wongkom Chan
- 11.00 Babcock Plant - Mr. Boontham Phaeprodit & TUNS Co-op Student, John Sole
- 12.00 Lunch
- 13.30 Visit S.W. Group Co. Ltd., Mr. Chaiya Wongprasert, Dr. Kiltisak, SUT

10 October 1996

- 14.00 Meeting with executives of the Federation of Thai Industries, Nakhon Ratchasima and SUT executives in FTI office. Chair - Mr. Chaiya Wongprasert

11 October 1996

- 09.30 Visit Chao Phraya Crop Co., Ltd. - Chol Anukulkit, President
- 12.00 Lunch
- 13.30 Visit Chao Phraya Marble Co., Ltd. - Wong-A-Mart Amatyakul, Suvith Kruawan

12-13 October 1996

Toured local area

14 October 1996

- a.m. Prof. Manoo, Director of Technopolis
- p.m. Visit Suranaree Industrial Zone - Jimmy Panyarit Lawansirc

15 October 1996

- 09.00 Meeting with Dr. Terce, Dean, Institute of Agricultural Technology and
Chair, Food Technology at Institute of Agricultural Technology, &
Dr. Suwayd
- 12.00 Lunch
- 13.00 Final planning of seminars with SUT, Technopolis and CIA

16 October 1996

- 08.00-16.30 Wrote draft report
- 18.00 Transfer to Nakhon Ratchasima Airport for TG Flight to Bangkok

17 October 1996

- 10.00 Canadian Embassy - Thawee Thaiprasithiporn
- 18.00 Final Meeting - Dr. Ruben Umaly

Appendix B

Technopolis

TECHNOPOLIS
SURANAREE UNIVERSITY OF TECHNOLOGY (SUT)

SUT BACKGROUND

According to the Fifth National Social and Economic Development Plan prescribed among other things an increased distribution of opportunities for post-secondary education to rural areas as a major higher education development policy. Five new regional colleges were recommend to established by Ministry of University Affairs. Suranaree University of Technology (SUT) in Nakhon Ratchasima is one of those which chosen for serving the trends of national development needs and future direction of higher education management in country. Finally, His Majesty the King signed the Suranaree University of Technology BE 2533 Act on 27 July 1990, to conclude the process. Hence, SUT considers this auspicious date as her founding date.

SUT is a state University of Thailand, neither a government agency nor a government enterprise. It is a juridical body under the supervision of Minister of University Affairs and, hence, a state University supervised by government as defined in the 2533 BE SUT Royal Decree and in the Ministry of University Affairs operating Guidelines Act 2537 BE.

Supervised by the government, SUT has instituted its own administrative structure and system by concentrate in decentralizing authority using full automony. Thus, the University's administrative and management decision making is practically self-contained with the University Council being the highest authority. The organizational structure of SUT is compact as to ensure a high degree of flexibility and efficiency.

MISSION

SUT has a five-fold mission:

1. The training and production of highly qualified scientetific and technological personels in response to national development needs.
2. Research and development for academic advancement and national development.
3. Adapting and disseminating suitable technologies for increased national and technological self-reliance.
4. Academic service to the public and various, both government and private.
5. National and Regional cultural preservation, especially that of the Northeast.

TECHNOPOLIS

BACKGROUND

Regards to the Eight National Economic and Social Development Plan (1997-2001), the approaches for solving problems concerned with direction of development by science and technology are as follows:

- a. To develop the group of scientist and researcher in both term of quality and quantity.
- b. To fill the gap of linkage between government and private sectors using cooperation in term of research and development.
- c. To follow up the globalization, technology transfer and development of information technology must be adapted.

SUT has been realized that mainly four of five from our mission can be served for these approaches. Since the Technopolis has occupied one tenth of the SUT total area to support the special mandate of technological adaptation and development. However, prior Technopolis will be established for serving these mandate, the site of Technopolis was used for WORLDTECH'95 Thailand, the World Agricultural and Industrial Exhibition, from 4 November to 16 December 1995 which aimed as follow:

1. To exhibit technological progress in agriculture, industry, and the environment of various countries, as well as leading companies from all over the world and from Thailand.
2. To stimulate agricultural and industrial growth through the use of suitable technology.
3. To build business relationships between exhibitions and vistors, as well as to promote information exchange.
4. To provide an academic forum for discussion of issues concerning agriculture, industry, and the environment.
5. To strengthen relations between Thailand and other countries.

From these aims we expected that WORLDTECH'95 Thailand could motivate both government and private sector for increasing recognized the cooperation each other as well as higher education institutions. However, there will not happen without concerted and sustained efforts in research and development by universities, industries, business enterprises and government agencies as well as infomed and concerned general public. These, SUT converted some of the buildings and facilities into TECHNOPSIS, a science park for technology innovation and fine tuning, technology transfer, and exhibition.

Technopolis, with a total area of 128 hectares, is an innovation in Thai higher education initiated by SUT with 3 directives:

Directive 1: Serving the industrial sector in research and development, individually or jointly with the University.

Directive 2 : Promoting and supporting creative inventors.

Directive 3 : Offering services to both government and private sectors, to strengthen ties and cooperation between the University and those sectors for mutual benefit.

Technopolis was constructed by the Royal Thai Government and assigned to be site of the World Agricultural and Industrial Exhibition 1995 (WORLDTECH'95 Thailand), held from 4 November to 16 December 1995. After the exhibition, the government handed over the land and various buildings of WORLDTECH'95 Thailand to the University. They were 10 permanent buildings, namely, Surapat 1, to house the Technopolis administrative office and incubation units, with 7,138 square meters of usable area; Surapat 2, to house the National Synchrotron Light Source Research Laboratory Center, with 9,907 square meters of usable area; Surapat 3, to house various exhibition, with 9,891 square meters; Surapat 4-5-6, to house various exhibitions and the Butterfly Park, with 5,264 square meters of usable area; Suranitat, a semicircular amphitheater for cultural events with a 3,000 seats capacity and 4,056 square meters of usable area; the Golden Jubilee Building, for Royal project exhibition, with 1,505 square meters; Suranapa Tower, the Technopolis symbolic tower from which SUT's campus may be viewed, 82.30 meters in height; and the Scientific and Technological Equipment Building, with a total of 8,232 square meters of usable area.

The University has also received buildings from exhibitors of WORLDTECH'95 Thailand to use in education, teaching, and research, including Exhibition Buildings 1-4. Exhibition building 1 was given to SUT by the Electrical Generating Authority of Thailand and the Metropolitan Electric Authority, with 5,600 square meters of usable area. Exhibition Building 2 was given by the Ministry of Science, Technology, and Environment, with 3,000 square meters of usable area. Exhibition Building 3 was given by the Laemthong Company,Ltd., with 1,200 square meters of usable area, and Exhibition Building 4 was given by the Charoen Pokapan Company, with 480 square meters of usable areas.

Technopolis serves as a University center for academic support, working as the central unit in the adaptation, transfer, and development of appropriate technology, as well as academic servicing to society. Technopolis and the SUT campus will be refurbished to become;

1. A Technology Incubation Department, a place to generate support for research and development, with Surapat 1 serving as the technology incubation unit, Technopolis management office, and central business center.

2. An Innovation Department, a place for prototype projects under development, or new projects that need testing and fine tuning before being released for marketing, such as the High Tech Thai House.

3. A Technology Extension Department, to promote the transfer and adaptation of technology for maximum production efficiency, with the Scientific

and Technological Equipment Building being the main unit, along with laboratories to enable academic servicing.

4. An Exhibition Division, mainly with Surapat 2-5 and Exhibition Buildings 1-4 and the Butterfly Park.

5. Academic Services Division, to provide academic services to society on the local, national and international levels; such as expert speakers, presentation of project results and academic papers, project assessment and academic documentation expert and organization of meetings/seminars/workshops.

Technopolis's Activities (March - July 1996)

1. Servey of status, problems and needs assessment in term of technology and management from government and private sectors in local area. The concluded data are as follow;

1.1 Government Sectors (106 departments)

Percent of Ministry

Departments from Ministry of Interior	33%
Departments from Ministry of Education	20%
Departments from Ministry of Agriculture and Cooperatives	16%
Departments from Ministry of Public Health	13%
Departments from other Ministries	18%

Education status of officers

- Higher than Bachelor's Degree	7.4%
- Bachelor's Degree	27.4%
- Lower than Bachelor's Degree	26.8%
- Temporary Empolyees	36.4%

Problems and needs assessment

1. Needs technology with related work and want SUT to be the center of technology transfer.
 2. Needs improvement for officers quality.
 3. Needs development of information and communication system.
 4. Needs increasing of efficiency in administration and management system.
 5. Needs more research and development
- (1 = most needed 5 = less needed)

1.2 Private Sector (64 companies)

Status

* Type of industry	
- Engineering Industry	40.3%
- Agricultural Industry	25.6%
- Manpower Industry	19.3%
- Electrical and Machinery Industry	8.1%
- Other industries	9.7%
* Size of capital outlay Expenditure	
- 1-25 million baht	40%
- 26-50 million baht	27.5%
- 51-75 million baht	12.5%
- 76-100 million baht	10%
- more than 100 million baht	10%
* Employees according to work characterization	
- Production	90.5%
- Administration	5.4%
- Quality control	3.3%
- Research and Development	0.8%

Problem and needs assessment

1. Development of products quality
 2. Increasing the efficiency of production
 3. Needs improvement of workers quality
 4. Needs developments of processing system
 5. Improve the quality of raw materials
- (1 = most needs.....5 = less needs)

R&D experiences

- Ever 19.6 %
- Never 80.4%

Problems with R&D establishment

- not enough experteers 41.7%
- not enough equipment 27.0%
- not enough knowledge 25.2%
- other 6.1%

2.High Tech Thai House

The High Tech Thai House, powered by solar energy, is a prototype project received by the Invention Unit from Thai Gypsum Products Company,Ltd. It was displayed at WORLDTECH'95 Thailand. The house design considered the environment, used high quality material, saved energy and insulated from heat, as well as brought energy of the sun into daily home use. There was also a water restoration system using natural methods and large numbers of fish.

To adapt, transfer, and develop technology, SUT has a cooperative research project with the private sector to develop the High Tech Thai House further by testing various system such as agricultural systems, water purifying systems, and energy conservation, eventually to form an "Eco-Village" consisting of such houses. Upon completion, this project will be the prototype of environmental care, using resources suitably, and improving the quality of agricultural personel.

3. Butterfly Park

The Butterfly Park is a project to instill into the public consciousness the values of nature conservation and appreciation, along the line of the plant and wild animal preservation used by Her Majesty the Queen. The Butterfly Park provides scientific knowledge about insects, biology, ecology, habits, agricultural and environmental impact, etc.,through exhibitions, creating natural aestheics, as well as providing a place for recreation.

The Butterfly Park is a large netted park in Surapat 6 building. Within the park are waterfalls, brooks, flowering plants, plant species, and plants which are food for the insects, with diverse kinds of butterflies.

4. The National Synchrotron Light Source Research Laboratory Center

The Synchrotron Light Source Generator is a high level instrument of technology useful in research in the fields of Physical Sciences, Material Sciences, Biological Sciences, Medicine and Industry, especially in the production of very small parts and telecommunications components. Industrially development countries such as the United States of America, Japan, South Korea, and China all use the Synchrotron Light Source Generator to support research impacting industrial development. As Thailand does not yet have such a Synchrotron Light Source Generator, the National Research Council appointed a committee of academics to perform a study involving Synchrotron feasibility and suitability for national research. As the study concluded that it was necessary for Thailand to have a synchrotron light source, the National Research Council Office was in the process of drafting a proposal to government showing details for the construction of a syncrotron light source, when it received news from scientists in Japan that the SORTEC Corporation and Japan, Ministry of Industries and Commerce were interested in giving a medium sized synchrotron light source generator (1 GeV in size) to Thailand, since the Corporation had finished their research projects by the end of 1996. A Group of Thai academics traveled to inspect the condition of the generator, and after careful analysis concluded that it was in excellent condition, with no less than twenty years of use remaining. Receiving the generator would

save time and national resources, for building one from scratch take about 5 years and about 4,500 million baht

Since the Synchrotron light Source Generator is a high caliber instrument, and perhaps in the beginning, too advanced for the use of any one unit, the Prime Ministerial Cabinet Meeting on 5 March 1996 resolved to establish the "National Synchrotron light source Research Laboratory Center" under the supervision of the Ministry of Science, Technology, and the Environment, using an administrative system free from the civil service, with a Center Administrative Board to supervise. The Center will be located at Surapat 2, Technopolis, SUT, Nakhon Ratchasima Province, a technological university with a basic structure amenable to the support of the installation of the synchrotron light source generator as well as the operation of the National Synchrotron light Source Research Laboratory Center. Installation is expected to be completed and the Center open for operations in 1998.

The Synchrotron light source generator will be a national instrument, used to conduct scientific and technological research in various fields. Moreover in the research of faculty, researchers, graduate student from universities, institutes of higher education, and in industrial research and development projects both public and private will be further established. Thus Thailand has increased potential to be a leader and center of high level technology and research in the Southeast Asia region.

5. Academic Services

- Organizing conferences/seminars/training session:

- * ISO 9000 and techniques for quality Improvement

- University personnel serve as special lecturers and speakers:

- * Special lecture for science high school teachers
- * Special lecture for science primary school teachers
- * Special lecture for mathematics high school teachers
- * Special English course for industry
- * Special English course for general

- Consultation to project /research for outside units:

- * Conservation of electrical energy for local industries
- * Product development of granite for local industries
- * Iron strength analysis for local industries

TECHNOPOLIS AND OPPORTUNITES

As the results indicated from survey of both government and private sectors problem and their needs assessment, those are correspond to our mission. From the requirement data obtained from government sector, transferring of technology from university is the most wanted item as well as the development of human resources particularly in their units. On the other hand, from industry sectors more technological needs is required rather than government sectors.

Thus, Technopolis has set up four important tools for these requirement and problem from them. First, **technological manpower**, mainly from Institutes (92 doctorate and 45 master's degree level) , center of scientific equipment of SUT (87 staffs) who able to support the technological needs from both biological and physical science as well as social sciences. Second, **science and technology infrastructure**, piece of land, seminar hall ,and building spaces for example with Surapat 1 building serving as the incubation unit and Technopolis administration. Surapat 1 initially can provided 30 small incubator units size ranged from 48 m²-160 m²/ unit) from total usable area 7,138 m². In addition, High Tech Thai House can be the place for innovate new research in term of high quality material for saving energy and insulated from heat, development of solar energy system and various system of agriculture etc. Third, **technological capability**, which mainly served from Scientific and Technological Equipment center and the National Synchrotron Light Source Research Centre in the near future. Fourth, **information technology and knowledge technology**, can be served by SUT's facilities such as satellite communication system, "SUTnet" network of type FDDI with a speed of 100 Mbps. and the subcomponents of the information system which are capable of Integrated Hypermedia information services, consisting of Hypertext, Electronic mail, Internet, Applications, www, FTP, and two-way Teleconference etc.

Hence, SUT is located in the area where easily conducted to various countries in Indochina as well as these four tools as mentioned above togetherwith to construct the linkage between Universities, government and private sectors in local. Thus, rendering, Technopolis aims to make use of these opportunities to create strong production relationships among those concerns to open the gateway for business and development of country and the Indochina region. And further more expand economic and commercial which based upon technological development to international level.

Appendix C

Schedule at Technopolis
Academic Services Plans
1996-97

SCHEDULE OF TECHNOPOLIS ACADEMIC SERVICES PLANS (96-97)

TIME	TOPICS	ORGANIZED BY
NOV 96	1. "SCIENTIFIC PLANNING FOR PRIMARY SCHOOL TEACHER"	TECHNOPOLIS
	2. "AGRICULTURAL EXCURSION" : ADVANCEMENT FOR ECONOMICAL FLOWERS : ADVANCEMENT FOR ECONOMICAL FRUITS	TECHNOPOLIS
DEC 96	1. "AGRICULTURAL SEMINAR ON" : CUT FLOWERS	TECHNOPOLIS
	2. "AGRICULTURAL TRAINING FOR" : MANAGEMENT TECHNOLOGY OF AGRICULTURAL MARKETING	TECHNOPOLIS
	3. "INDUSTRIAL TRAINING FOR": INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLERS (PLC)	TECHNOPOLIS + PRIVATE SECTOR
JAN 97	1. "WORKSHOP ON ALGEBRAIC ANALYSIS"	TECHNOPOLIS+CIA(SUT)
	2. "ENVIRONMENTAL SEMINAR FOR": NATURAL RESOURCES MANAGEMENT IN THE NORTH-EASTERN PART OF THAILAND	TECHNOPOLIS
	3. "TRAINING FOR EVALUATION TECHNIQUE FOR QUALITY CONTROL IN PROJECT MANAGEMENT"	TECHNOPOLIS
FEB 97	1. "AGRICULTURAL SEMINAR ON" : TECHNOLOGY FOR ORCHARDS	TECHNOPOLIS
	2. "AGRICULTURAL TRAINING FOR" : TECHNOLOGY FOR ECONOMICAL FLOWERS PRODUCTION IN NORTH-EAST	TECHNOPOLIS
MAR 97	1. "INDUSTRIAL EXCURSION": IN TAIWAN	TECHNOPOLIS
	2. "BASIC COMPUTER TRAINING"	TECHNOPOLIS + SUT - COMP.CENTRE
	3. "TRAINING FOR COMPUTER MAPPING"	TECHNOPOLIS

TIME	TOPICS	ORGANIZED BY
APR 97	1. "AGRICULTURAL SEMINAR ON" : FISHERIES TECHNOLOGY 2. "AGRICULTURAL EXCURSION ON" : ADVANCEMENT OF ECONOMICAL CUT FLOWERS	TECHNOPOLIS
APR- MAY 97	1. "TRAINNING FOR" : INCREASING EFFICIENCY OF LIBRARY WORK WITH INTERNET 2. "TECHNICAL TRANNING FOR" : BALLROOM DANCE FOR HEALTH	TECHNOPOLIS SUT-LIBRARY CENTRE TECHNOPOLIS+ SUT-SPORT CENTRE
APR- JUN 97	1. "SUT MEETS PEOPLE" (LOCAL SEMINAR, TRANNING, LOCAL PRODUCTS CONTEST)	TECHNOPOLIS+SUT -PR DIVISION
MAY 97	SEMINAR ON "MANDATE OF SCIENCETIFIC TEACHER" 1. "AGRICULTURAL TRANNING FOR" : PRODUCTION OFF-SEASON FRUITS	TECHNOPOLIS TECHNOPOLIS
JUN 97	1. "AGRICULTURAL SEMINAR FOR" : AGRICULTURAL MACHINERY	TECHNOPOLIS
JUN- AUG 97	1. "COMPUTER TRANNING PROGRAMMES"	TECHNOPOLIS+SUT- COMP.CENTRE
JUL 97	1. "SCIENCETIFIC PROJECT CONTEST" 2. "TRAINNING FOR COMPUTER MAPPING" 3. "TRAINNING FOR HIGH LEVEL BALLROOM DANCER"	TECHNOPOLIS TECHNOPOLIS TECHNOPOLIS
AUG 97	1. TRAINNING FOR SPORT TRAINNERS	TECHNOPOLIS+SUT- SPORT CENTRE

- All year round projects are as followed:

- A. Services for scientific analysis equipments
- B. Survey and study of electrical energy saving in industries
- C. Community English language courses
- D. Fitness test
- E. TECHNOPSIS Tours

- The projects which have not been indicated the exact time are as followed:

- A. Short-term training (CIA-SUT&Vietnam national Univ. and ICEE)
- B. Industry-based seminar (CIA-SUT&CUTC)
- C. "Green conservation" (School of Biology)

Appendix D

Regional Economic Performance The Northeast

REGIONAL ECONOMIC PERFORMANCE : The Northeast

In 1993, the Northeastern regional economy expanded at a satisfactory rate, somewhat higher than that in the previous year. Price stability, meanwhile, improved, with the inflation rate falling to a very low level. A growth-cum-stability economic situation in this region was in keeping with that of the entire country. Fuelling growth of the economy in the Northeast in 1993 were a number of factors, including principally the following. Manufacturing, construction and local and border trade expanded, while private sector investment recovered, thanks largely to the government policy of strongly promoting investment in zone 3. Consumption was, meanwhile, on the uptrend, driven by an increased purchasing power. Nonetheless, the 1993 pace of economic expansion failed to match that in the late eighties, having been reined in by a slowdown in the rate of growth of agriculture, which was affected by drought.

The Research Department, Bangkok Bank Public Co., Ltd., estimated the growth rate the Northeast's gross regional product (GRP) in 1993 at 6.2-6.5 per cent and the inflation rate at 2.5 per cent.

For 1994, a number of positive factors are at work (some continuing from prior year) to provide the impetus for further growth. Principal ones of these are growth in real estate, construction, personal consumption and border trade; continued recovery of investment; large government expenditure on infrastructure; strengthening prices of farm commodities and world economic recovery. But agriculture in this region continues to face drought, affecting overall economic expansion.

The Research Department expects the rate of increase of the Northeast's GRP to be 6.4-6.7 per cent in 1994. Inflation should hot up slightly, with the consumer price index (CPI) for the region advancing by an estimated 3.0-3.2 per cent.

Agriculture

This sector is the backbone of the Northeast's economy, accounting for an estimated 30 per cent of this region's GRP. Of the figure, production of crops, which are not numerous comprising principally rice, cassava, sugarcane, maize, kenaf and eucalyptus, makes up 20 per cent. The remaining 6 per cent and 4 per cent shares go to

fishery and forestry production and simply agricultural processing respectively.

The Northeast grows more glutinous than the ordinary variety, with the ratio between the former and the latter being about 60 to 40 per cent. This region is famous for its jasmine fragrant high quality rice, which falls under the ordinary rice category and which constitutes a popular export item, commanding a high price. In 1993/94, rice cultivation was affected by a combination of a dry spell at the start of the planting season and the general low rainfall of this particular region. As a result, paddy output dropped 30 per cent to about 7.2 million tons. However, farmers were partially compensated, as they could fetch higher prices due to a 1.87 per cent fall in global paddy production, with China, Japan, South Korea and Taiwan suffering from inclement weather.

In 1992/93, production of cassava in the Northeast amounted 19.8 million tons, a drop of 2.7 per cent from 1991/92 and an equivalent of about 90 per cent of the country's total production of the crop. The price fetched by farmers averaged Baht 0.62 per kilogramme, down 7 per cent, due to

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Key Economic Indicators of the Northeast

	1988	1989	1990	1991	1992	1993	1994
Regional economic growth (%)	11.9	8.1	6.7	6.4	5.7	6.3*	6.6*
Agriculture (%)	15.0	8.9	3.5	3.2	2.8	2.7*	2.8*
Non-agriculture (%)	10.6	7.7	8.1	7.8	7.2	7.7*	8.1*
Change in CPI (%)	3.9	3.1	4.4	5.8	6.6	2.5*	3.1*
Border trade with Laos							
(million baht)	1,896.9	2,872.2	2,976.0	3,496.3	3,982.5	5,897.8*	8,610.8*
- Exports	1,287.3	1,673.1	1,563.3	1,902.9	2,837.9	4,313.6*	6,642.9*
- Imports	609.6	1,199.1	1,412.7	1,593.4	1,144.6	1,584.2*	1,967.9*
Change in bank deposits (%)	13.5	19.0	24.7	18.1	21.9	19.0**	-
Change in bank credits (%)	25.6	25.6	25.7	16.4	23.0	29.2**	-
Change in credits for:							
- Personal consumption (%)	45.4	41.5	22.9	16.0	25.4	35.4**	-
- Construction (%)	18.0	9.2	33.4	14.1	21.2	49.0**	-
- Real estate	3						
business	0.2	48.3	44.6	-2.1	31.8	74.1**	-

Source: Bank of Thailand Northeastern Branch

* Estimated by the Research Department, Bangkok Bank Public Company Limited

** Jan.-Nov.

the impact from the European Union's (EU's) agricultural reform policy implemented since July 1, 1993 and limited domestic usage of cassava. For 1993/94, cassava output of cassava in the Northeast is projected to stagnate at 19.8 million tons. Planted areas are expected to shrink somewhat on account of unattractive prices, which are weakened by exporters'

refraining from buying the crop ahead of time. Thailand's exports of tapioca products, particularly pellets, are expected to continue to decline in the wake of a weakened demand in the EU market, where prices of animal feed fall leading to a drop in the use of tapioca pellets as a substitutes for other feed items. Moreover, the remaining amount of the quota for

tapioca exports to the EU is only 4.3 million tons. However, exports of tapioca flour is foreseen to tend upwards on the heels of decreased competition from Indonesia, with principal markets being Taiwan, Japan and Hong Kong.

Area under sugarcane and output in the Northeast expanded, thanks to the relocating of a number of

	1994
3*	6.6*
7	2.8*
	8.1*
	3.1*
	8,610.8*
5*	6,642.9*
	1,967.9*
	-
	-
..	-
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sugar mills from the Central Region where land is increasingly expensive and the supply of labour for cane cutting is insufficient. It is expected that sugarcane will be planted more and more in the Northeast as a substitute for cassava, maize and kenaf. (Other crops also gaining in popularity include mulberry, eucalyptus and rubber, while those, the importance of which is on the wane, are cassava, kenaf, cotton and cashew nuts.)

Agro-industries in the Northeast with bright prospects are ready-to-drink milk and modified starch (made from cassava). The former has lately been growing, on an average, by 20 per cent annually. This has been thanks largely to the country's economic expansion, the successful official campaign to promote milk consumption and increased popularity of milk as a nutritious food item among the public. Principal types of ready-to-drink milk are pasteurized milk, sterilized milk, UHT milk and yogurts. Currently, sixty-odd ready-to-drink milk factories are operative throughout the country, the majority of them being located in Nakhon Ratchasima (in the Northeast), Saraburi and Ratchaburi, where the bulk of raw fresh milk is produced. Dairy farms in the Northeast account for 20-30 per cent of the country's total production of ready-to-drink milk, totalling 392,163 tons in 1993. Practically all of the ready-to-drink milk produced in the country is earmarked for domestic consumption, due mainly to the fact that Thailand's production costs of fresh milk are relatively high and domestic demand for dairy products is firm. The local market for ready-to-drink milk is worth about Baht 5,600 million a year, growing at an esti-

mated 13-14 per cent annually. Of the market, UHT milk corners the largest share, followed by pasteurized and sterilized milk.

In regards to modified starch, which is a product made from cassava, a total of about 10 manufacturers with Board of Investment promotion are now operative in the country. Their combined production capacity totals roughly 300,000 tons per annum. Locally made modified starch consists of two grades, one being suitable for use as a feedstock for production of manufactured products, such as, textiles, paper, cosmetics, drugs, forged metals and mining, the other being processed into a raw material for a variety of food product industries. Both local and overseas demand for modified starch has been growing steadily and currently exceeds supply forthcoming from local factories. Thus, prospects for investment in this industry is promising and will help solve the problem of excess cassava production. Exports of modified starch amounted to 318,562 tons, worth Baht 1,840.4 million in 1992, compared to 295,140 tons, worth Baht 1,787.4 million in prior year, up 7.9 per cent and 3.0 per cent. In 1993, these exports are estimated at 200,000 tons, worth Baht 1,100.0 million. Principal markets are Japan, the USA, Australia, the Netherlands and Taiwan.

Manufacturing

The manufacturing sector contributes an estimated 9 per cent to the Northeast's GRP. Investment in industries in this region expanded satisfactorily in 1993, due mainly to the government's policy of giving high priority to the distribution of progress to the outlying provinces.

Industries that continued to grow well in 1993 included certain agro-industries and labour-intensive industries. The latter consisted of factories relocated to this region to take advantage of its abundant, inexpensive, easily trainable and reasonably disciplined labour. These are, for instance, garments, artificial flowers, fishing nets and seines. The former, meanwhile, make use of locally available raw materials to produce goods for both the local and overseas markets, with emphasis being placed increasingly on the latter. These include paper pulp, animal feed, silk canned vegetables and fruit and sugar. Concerning the last-mentioned, two large sugar mills were relocated from the Central Region to Nakhon Ratchasima in the Northeast. This has considerably increased output of sugar in this region and has helped promote sugarcane cultivation in the areas surrounding the factories.

Garments

Garment manufacture in the Northeast used to be a cottage industry, run by family members and supplying the local market. It has, however, expanded rapidly in the past few years, driven particularly by the relocation of the production base by entrepreneurs mainly from the capital area to this region. In the process, many garment factories have been established, with the highest concentration in Nakhon Ratchasima, followed by Udon Thani, Ubon Ratchathani, Maha Sarakham, Khon Kaen, Kalasin and Nong Khai. The vast majority of them are small and medium-sized concerns, with relatively low technology and very labour-intensive. They are, for the most part, subcontractors, taking orders from

to the EU is only
However, exports
foreseen to tend
levels of decreased
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sugarcane and output
expanded, thanks
to a number of

large-sized manufacturers in the capital area, who usually supply them with the raw materials needed. Important items produced in the Northeast are, for instance, sports wear, jeans and knitted shirts and blouses. They are destined either for local or overseas consumption, with however the actual marketing of the finished left in the hands of the large-sized firms in the capital area.

At end-1992, garment factories in the Northeast numbered 58, with a total investment of Baht 439.63 million and a combined workforce of 6,423. In the first half of 1993, roughly another 20 factories were set up, being located in Udon Thani, Nakhon Ratchasima and Ubon Ratchathani. The mushrooming of garment factories in the Northeast has lately been thanks to the fact that the Board of

Investment no longer requires that garment production be totally export-oriented to qualify for its promotion given to a garment maker in the provinces. Moreover, Japanese and Taiwanese investors have been attracted by low labour costs and a trainable and sufficiently disciplined workforce to invest in garment manufacture in especially the Suranari Industrial Estate in Nakhon Ratchasima.

Promotion of Investment by Industry

(Million baht)

	1992			1993 (Jan.-Sept.)		
	No. of factories	Investment	Employment	No. of factories	Investment	Employment
Garments	6	128.3	1,875	4	64.1	2,440
Canned food	2	52.7	332	-	-	-
Footwear	-	-	-	-	-	-
Sports equipment	-	-	-	1	130	75
Electronic products	2	239.5	1,570	2	20.0	238
Gems and jewellery	1	45.0	752	-	-	-
Toys	2	30.0	378	1	40.0	396
Spinning and weaving	-	-	-	4	332.3	1,409
Spare parts	2	352.2	359	5	406.8	406
Machinery	-	-	-	2	42.0	278
Glass and ceramic products	-	-	-	-	-	-
Plastic products	1	101.7	280	5	502.3	1,429
Leather products	1	15.0	118	1	40.0	418
Chemical products	1	89.0	104	-	-	-
Animal products	2	10.0	66	1	120.0	97
Agricultural products	2	388.8	286	5	355.7	271
Mining	1	7,514	1,260	5	461.5	611
Paper products	-	-	-	-	-	-
Wood products	-	-	-	-	-	-
Watches and clocks	-	-	-	-	-	-
Hotels and resorts	1	55.0	41	4	693.0	382
Hospitals	2	200.0	324	2	550.0	1,209
Others	2	2003.4	169	9	741.3	831
Total	20	11,254.3	7,914	49	4,107.7	10,490

Source: Board of Investment

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Employ- ment
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278
-
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418
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611
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382
1,209
831
10,490

From a survey, it was found that garment producers in Nakhon Ratchasima utilized only about a third of their total capacity in 1993, manufacturing only about 3,000 dozens per month. This was due mainly slackened world trade on account economic slowdown in major markets, namely the USA, the EU and Japan. Moreover, competition intensified further by increased sales of low-cost countries like China, Indonesia, Bangladesh and Vietnam. However, it is expected that production in Nakhon Ratchasima will rise to about 6,000 dozens a month in 1994, with prices strengthening and exports tending upwards, as importers' stocks were drawn down substantially in 1993.

Future prospects appear reasonably bright for the garment industry in the Northeast, which should as a base for export-oriented production for many more years to come. As it has turned out, certain garment makers in the Northeast, who moved to Laos, being attracted by the US GSP privileges given to that country, have encountered many grave problems particularly a lack of certain and clear-cut regulations and procedures and high transportation costs. In the meantime, the Northeast has a large supply of labour and the government has been active in training and enhancing the skills of workers in this region. The BOI is giving very generous incentives to investment in zone 3, which takes in all of the Northeast, and grants promotional privileges to R & D on garment manufacture. The garment has a policy of promoting sub-contracting by factories as well as households in the provinces. All these factors should help ensure a continued

bright future of garment manufacture in the Northeast.

Industrial estates

Unfortunately, despite the decision of the Chatichai government set up 5 industrial estates in Nakhon Ratchasima, Khon Kaen, Udon Thani, Nong Khai and Ubon Ratchathani, the Northeast is still not in possession of any industrial estate operated by the public sector. However, the private sector has launched a number of projects to set up industrial estates as follows.

Suranari Industrial Estate. Located in Nakhon Ratchasima, this industrial estate has recorded the most progress. Its location is highly appropriate, as Nakhon Ratchasima serves as the gateway to the Northeast and is well linked up with Bangkok and the Eastern Seaboard through a well developed highway system. The Suranari Industrial Estate has been granted Board of Investment (BOI) promotional privileges and is situated in investment zone 3, which enjoys the most generous promotional privileges from the BOI. It encompasses a total of 2,800 rai. The first portion amounting to 530 rai has been developed and sold to investors. Application has been made to the BOI for its promotion for another 1,500 rai. Currently, a total of 31 factories have been approved for operations in this industrial estate, involving a combined investment of Baht 1.5 billion and hiring a total workforce of 5,000. Investment in the factories in this industrial estate has been mostly by Thais, who have relocated their production bases from Bangkok to this Northeastern province. There is also a number of foreign inves-

tors, the most numerous being Taiwanese, followed Americans, Japanese and Pakistanis. Topping the list of industries established there is agro-processing, followed by engineering industry, computers and parts, metals, plastics, carpets (for cars), household textiles and sports equipment. Most of the industries are small-sized, with investment ranging from Baht 10 to 60 million.

Udon Thani Industrial Estate.

This is the first industrial estate project to be implemented by the private sector in the Upper Northeast. Udon Thani has the advantage of being a major urban centre in the Northeast. It also borders on Nong Khai, which is located on the Mekong River opposite Vientiane, the capital of Laos. A total of 2,000 rai has been set aside for the project. Currently, development of utilities to serve this industrial estate is in progress, with about 80 per cent of the work having been undertaken. It is expected that utility development will be fully carried out by mid-1994.

Needless to say, the establishment of both private and public sector industrial estates in the Northeast should be given high priority by the government, as this region has abundant labour with a high degree of stamina, relatively inexpensive and easily trainable. Moreover, the Northeast possesses considerably potential of being a gateway to Indochina and perhaps also South China.

Investment

Investment in the Northeast, all of which lies in investment zone 3, picked up perceptibly since April

1, the date on which the government zone 3 promotional measure became effective. According to BOI statistics, in the first three quarters of 1993, applications for promotional privileges for projects in the Northeast numbered 110, proposing to invest Baht 11.7 billion, increases of 3.6 times and 1.3 times over the same period of prior year. Roughly half of these projects are in Nakhon Ratchasima. During this period, 49 projects were approved, for promotion, up 1.3 times, with a combined investment of Baht 4.11 billion, up 1.8 times, and a combined workforce of 10,559, up 80 per cent. The majority of these projects were medium-sized. Topping the list were projects to manufacture garments, followed by agro-industrial projects and those to make machinery and parts. Twenty-nine were proposed to be set up in Nakhon Ratchasima, nine in Khon Kaen with the remainder being distributed among several other provinces.

An interview with businessmen in the Northeast revealed that there was still considerably potential for growth in investment there, particularly in medium and small-sized industries. There is strong likelihood that industries will be set up to do sub-contracting work, especially for major manufacturers in the Capital area. Many local entrepreneurs are expected to enter joint-ventures with big-time Thai investors and foreign investors. It is also expected that the Northeast will be as a base for production of goods earmarked for Indochina.

Construction

Public and private sector construction in this region expanded briskly

Investment Indicators

	1991	%+-	1992	%+-	1993	%+-
Private sector investment						
No. of new plants	554	-17.8	138	-75.1	n.a.	n.a.
Expansion	100	35.1	55	-45.0	n.a. ^{1/}	n.a.
Construction area (1,000 sq.ms.)	105.7	-10.6	128.1	21.2	86.7	22.7
Investment promotion					2/	
No. of applications	63	-24.1	38	-39.7	110	358
Investment (billion baht)	10	-10.7	8.2	-18.0	11.69	132
Applications approved	65	22.6	31	-52.31	49	178
Investment (billion baht)	8.5	23.5	11.5	35.29	4.11	-63
Promotion certificate granted	31	-25.0	26	-16.13	27	35
Investment (billion baht)	3.2	-65.6	3.3	0.31	1.93	-36
Firms starting operations	9	125.0	17	88.89	8	-27
Investment (billion baht)	0.9	50.0	1.6	77.78	0.44	-41
Commercial bank credits (million baht)					2/	
Manufacturing	14,941.2	11.19	17,530.7	17.33	19,512.9	21.94
Construction	4,359.5	14.36	5,284.0	21.10	6,692.5	33.32
Real estate business	1,482.3	-1.98	1,953.9	35.71	3,223.5	86.97

Source: Bank of Thailand Northeastern Branch

1. Jan.-Jul.
2. Jan.-Sept.
3. Jan.-Aug.

in the first seven months of 1993. Municipal areas given permission to construct totalled 86,731 sq.m., an increase of 22.7 per cent over the same period of prior year. Areas given permission to build homes and commercial buildings grew at relatively faster rates of 28.6 per cent and 34.4 per cent respectively. This was due to strong demand for low and medium-price housing facilities and stepped up construction of commercial buildings in keeping with high economic growth. By province, Chaiyaphum topped the

rest with the highest percentage growth in the areas given construction permits, followed by Sakon Nakhon and Roi Et. On the public sector front, construction to lay down infrastructure is being undertaken in many parts of the region, for instance, expansion of highway construction in Khon Kaen province.

The real estate business expanded satisfactorily. In the first half of 1993, land transacted in this province was worth Baht 7,675 million, more than doubling

1993	%+-
n.a.	n.a.
n.a.	n.a.
86.7	22.7
2/	
110	358
2/	
11.69	132
2/	
49	178
2/	
4.11	-63
2/	
27	35
2/	
1.93	-36
2/	
8	-27
2/	
0.44	-41
3/	
19,512.9	21.94
3/	
6,692.5	33.32
3/	
3,223.5	86.97

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that in the same period in prior year, and the number of transactions was 4,627, an increase of 42.2 per cent. The province with the highest transaction value was Nakhon Ratchasima, followed by Khon Kaen, Surin and Buriram. Credits granted to real estate-related businesses in the Northeast rose by as steeply as 86.9 per cent, with Nakhon Ratchasima being provinces with the highest amounts of this type of credit.

Factors fuelling growth in the real estate business included strong housing demand and land speculation on the expectation that the Northeast will become a gateway to Indochina.

Consumption

Consumption expenditure particularly in urban centres in this region expanded at a rather high rate. This was thanks to continued economic expansion, which became more evident in 1993. The situation is reflected particularly by the fact that in the first eleven months of 1993 commercial bank credits for consumption purposes grew by slightly over 35 per cent over the corresponding period in prior year. Another factor driving consumption was the sales promotional campaigns by department stores and shopping centres, which have mushroomed throughout the region. Remittances by overseas workers moreover put more money in the pockets of consumers, who spent more as a consequence.

In 1994, it is expected that consumption expenditure in the Northeast will continue on the uptrend as the positive factors will continue to be at play. In addition, the

value of agricultural production in this region will rebound in 1994.

Car sales

The car market in the Northeast is the Kingdom's second largest after Bangkok, with car sales in this region accounting for roughly 15 per cent of the country's total. Pick-up trucks dominate the market, with a ratio between their sales and those of passenger cars being roughly 85:15 per cent. In 1993, car sales rose by about 17 per cent on the back of overall economic growth, expansion of commerce and border trade and strengthened purchasing power of those who had become suddenly wealthy due to their sales of real estate especially land.

Broken down, sales of commercial vehicles in 1993 rose 15 per cent, a slight drop from the rate of increase in 1992. This was due largely to weak prices of cassava and affected crop production in drought stricken areas. Moreover, the market for large trucks and buses had become saturated, due to a sharp rise in their sales in 1990-1992.

In contrast, sales of passenger cars soared by about 40 per cent. This was thanks to strong demand by consumers in the non-agricultural sector. Furthermore, distributors waged strong campaigns to promote car sales, which proved very enticing and effective. Hire-purchases accounted for an estimated 60 per cent of passenger car sales, 70 per cent of the sales of pick-ups and 85-90 per cent of the sales of large trucks and buses.

It is expected that a similar pattern of car sales will prevail in 1994,

i.e., a smaller growth in sales of commercial vehicles compared to that in sales of passenger cars. This is due to the fact that a similar set of factors remains to affect the car market in 1994.

Tourism

In 1993, tourism in the Northeast was much affected by the collapse of a hotel building in Nakhon Ratchasima. The building mishap, which occurred in August, nudged the tourism sector into the doldrums in the three subsequent months. This, it is estimated that visitors to the six major tourism provinces (namely, Nakhon Ratchasima, Khon Kaen, Udon Thani, Ubon Ratchathani, Buriram and Nakhon Phanom) in 1993 numbered 4,651.5 thousand, up 3.7 per cent on 4,486.4 thousand in the preceding year. Of the total, 97.5 per cent or 4,535.0 thousand were Thais and the remaining 2.5 per cent or 116.5 thousand foreigners. Most popular provinces were, in order of importance, Nakhon Ratchasima (with a 33.1 per cent share), Khon Kaen (21.7 per cent), Udon Thani (18.3 per cent), Ubon Ratchathani (14.8 per cent), Buriram (6.3 per cent) and Nakhon Phanom (5.8 per cent). Hotel occupancy was satisfactory, averaging 70-90 per cent.

In terms of spending in 1992, Udon Thani and Ubon Ratchathani, with their numerous entertainment places, headed the list, recording an average tourist expenditure of Baht 897.51 and Baht 886.26 per person per day, followed by Khon Kaen (Baht 816.15), Nakhon Ratchasima (Baht 797.89), Nakhon Phanom (Baht 711.32) and Buriram (Baht 443.05). For 1993, the average tourist expenditure is estimated to increase by

about 20 per cent. The average tourist spending is kept low by the fact that many Thai vacationers stay in the homes of their relatives while sojourning in the region.

It is expected that the number of tourists visiting the Northeast will rise by 6.1 per cent in 1994. Future prospects for tourism in the Northeast are promising as the region holds considerable potential as the gateway to Indochina. Moreover, its transportation and telecommunication systems are pretty well developed.

Thai-Lao trade

Total bilateral Thai-Lao trade, comprising border trade and transshipments from third countries through Thailand to Laos, should exceed the milestone Baht 10 billion for the first time in 1996. Available statistics show that in the first eight months of 1996, the total bilateral trade grew dramatically by 52.1 per cent over the same period of prior year to Baht 6,980.7 million. Of the amount, border trade accounted for Baht 3,576.4 million, up 41.8 per cent, and transshipments through Thailand to

Laos another Baht 3,404.3 million, up 64.8 per cent.

Border trade between Thailand and Laos is being undertaken through six check points, namely those at Nong Khai, Mukdahan, Nakhon Phanom, Phiboonmungsaharn and Khemmarat in Ubon Ratchathani and Loey. Of these, Nong Khai is the most important, with the lion's share or 63 per cent of total border trade, followed by Mukdahan with an 18 per cent share. Major export goods in the Thai-Lao border trade include cars, motorcycles and parts and electrical appliances. Rice, which used to be a leading Thai export to Laos, has lately declined in importance, with Laos becoming more self-sufficient in the staple. Capital goods and raw materials accounted for 14.4 per cent and 2.6 per cent of exports to Laos. In particular, construction materials shipped to Laos have grown satisfactorily, with Laos expanding its utilities and enjoying brisk economic expansion. On the import front, sawn wood is the most important import commodity from Laos, making up 90.1 per cent of imports from that country, and metal scrap, making up another 1.3 per cent.

In regards to goods in transit through Thailand to Laos, machinery and parts account for a major portion, originating from Singapore, Hong Kong and Japan. They are followed by textiles from Singapore and Hong Kong, and oil products from Singapore. Leading products in transit from Laos through Thailand to third countries and garments to France, Italy, Canada, the USA and Holland and sawn wood to Japan, Hong Kong and Taiwan.

The Structure of Thai-Lao Trade (Jan.-Aug. 93)

	Share (%)	Value (million baht)
Total exports	100	2,518.6
<i>Consumer goods</i>	29.1	732.8
- Rice	0	0.4
- Vehicles and parts	6.3	157.7
- Electrical appliances	6.4	161.2
- Others	16.4	413.5
<i>Raw materials</i>	2.6	64.2
<i>Capital goods</i>	14.4	362.3
- Construction materials	8.8	221.3
- Machinery and parts	2.5	63.9
- Others	3.1	77.1
<i>Others</i>	12.1	305.7
<i>Unclassified goods</i>	41.8	1,053.6
<i>Total imports</i>	100	1,057.8
Timber	90.1	953.0
Metal scraps	1.3	13.7
Others	8.6	90.9

Source: Bank of Thailand Northeastern Branch

Thai-Lao Trade

(Million baht)

	1992	+-%	1993 ^a	+-%	1994 ^a	+-%
Border trade	3,982.5	13.9	5,897.8	48.1	8,610.8	46.0
Exports	2,837.9	49.1	4,313.6	52.0	6,642.9	54.0
Imports	1,144.6	-28.2	1,584.2	38.4	1,967.9	24.2
Balance	1,693.3	447.1	2,729.4	61.2	4,675.0	71.2
Goods in transit	3,418.0	18.3	5,800.0	69.7	8,004.0	48.2
From Laos	1,153.3	31.1	2,133.0	85.0	3,071.5	44.0
To Laos	2,264.7	12.8	3,667.0	61.9	4,932.5	34.5
Total	7,400.5	15.9	11,697.8	58.0	16,614.8	42.0

Source: Bank of Thailand Northeast Branch

^a : Estimated by the Research Department, Bangkok Bank Public Company Limited

Throughout 1993, border trade is estimated at Baht 5,897.8 million, up 48.1 per cent. Exports amounted to Baht 4,313.6 million and imports Baht 1,584.2 million, with the surplus being Baht 2,729.4 million in Thailand's favour.

In 1994, prospects for growth in Thai-Lao bilateral trade are promising, as the Thai-Lao Friendship Bridge are open to traffic further facilitating trade between the two countries. It is expected that the bilateral trade will total Baht 16,614.8 million, up 42 per cent. Of the figure, border trade amounts to an estimated Baht 8,610.8 million and transshipments of goods through Thailand another Baht 8,004 million.

Banking and finance

Deposits outstanding at end-August 1993 at commercial banks and the Government Savings in the Northeast amounted to Baht 143,865.4 million, an increase of 18.7 per cent or Baht 22,680.2

million over end-August 1992. Commercial banks accounted for 91.2 per cent or Baht 131,216.7 million and the Government Savings Bank the remaining 8.8 per cent or Baht 12,648.7 million.

At end-August 1993, commercial bank branches in this region numbered 402 (of which 23 were sub-branches), an increase of 17 branches. A total of 132 ATMs were installed, up 16 machines. Deposits at commercial banks in the Northeast rose 19.8 per cent, compared to 21.8 per cent in prior year and the country's average growth figure of 17.7 per cent. Nakhon Ratchasima, Khon Kaen, Udon Thani and Ubon Ratchathani topped the list as the provinces with the largest amount of deposits, with shares of respectively 21.3 per cent, 15.1 per cent, 12.1 per cent and 9.8 per cent.

At end-August 1993, the Government Savings Bank operated 122 branches in the Northeast, up 6 branches. Its outstanding depo-

sits stood at Baht 12,648.8 million, up 8.1 per cent.

Outstanding credits at commercial banks and the Bank for Agriculture and Agricultural Cooperatives in the Northeast totalled Baht 148,682.1 million, an increase of 32.3 per cent or Baht 36,268.3 million over end-August 1992. Commercial banks accounted for 82.2 per cent of the total and the Bank for Agriculture and Agricultural Cooperatives the remaining 17.8 per cent.

Commercial bank credits in the Northeast rose 30.7 per cent to Baht 122,193.2 million at end-August 1993, compared to 18.2 per cent in prior year and the country's average figure of 21.1 per cent. Similarly, Nakhon Ratchasima, Khon Kaen, Udon Thani and Ubon Ratchathani were provinces with the largest amount of credits, boasting percentage share figures of respectively 20.2 per cent, 16.6 per cent, 11.8 per cent and 9.8 per cent.

At end-August, the Bank for Agriculture and Agricultural Cooperatives' outstanding credits amounted to Baht 21,848.3 million, up 41.6 per cent.

At end-1993, the number of securities trading offices in the Northeast was 33, up 7 over prior year. Securities turnover at these offices amounted to Baht 37,198.4 million, down 10.6 per cent.

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Third PRC Meeting September 26, 27, 1996
University of Waterloo

Attending

CUTC: Dr. Sam Mikhail, Dr. Stalin Boctor, Ms. Mary Jane Curtis, Dr. Gerry Schneider,
Dr. Feridun Hamdullahpur, Dr. William Caley, Mr. Robert Eagle, Dr. James Shute
Guest: Dr. Doug Goff, University of Guelph
SUT: Dr. Sam-arng Srihita, Dr. Prasart Suebkha, Dr. Thawit Chisomboon,
Dr. Ruben Umaly, Ms. Thammachoti Mantana
ARA: Mr. Roger Griffin

1. *Opening Remarks:*

G. Schneider: Welcome and introductions, review of the activities planned. Dr. Sam-arng announced his retirement. No replacement has been named.

Sam Mikhail: Remarked that the Internal Monitoring and Evaluation Sub-Committee of the Canadian-Thailand HRD project has used quantitative indicators in assessing the CUTC/SUT project; an inappropriate approach for this project. Indicated that this has been remedied in discussion with the Committee. It is time to look at future co-operations both in Canada, Thailand and SE Asia. Thanked SUT for their co-operation in handling the affairs of Dr. Frank Juranka. A moment of silence was held in his memory.

2. *Selection of Chair:*

Dr. G. Schneider and Dr. Sam-arng, proposed as co-chairs by Dr. S. Boctor and acclaimed by the PRC.

3. *Review and Approval of Second PRC and Minutes of Mini-PRC Meetings, including the Modified Budget approved by the Second PRC Meeting.*

Dr. J. Shute proposed approval, motion seconded by S. Mikhail and carried.

4. *Review of Completed/on-going Project Activities (October 1995 - September 1996)*

Notes: (1) RI = Ryerson International (2) CIA =Committee for International Affairs at SUT

Sub-Program	Issues Discussed	Action Recommended
Program 1: Development of Institutional Capacity		
A 1.31 Provision of Customized Training in Canada	S. Boctor reported that all activities have been completed according to modified plan.	Report completion of activities to ARA
A 1.32 Provision of Technical Services to SUT by two Canadian Consultants in MIS and Computer Networks	Activities completed in October 1996. S. Boctor indicated that a balance of \$20,297 remains in Program 1. S. Mikhail proposed that SUT/CUTC prepare a report on outcome of Program 1 for the next PRC.	RI (1) to submit final report on Sub-Program to ARA. RI and CIA (2) to prepare a joint report on outcome of Program 1.
Program 2: International Academic Programs		
A 2.11 Academic Program Planning and Coordination A 2.12 Curriculum Implementation of International Engineering Programs	Problems causing delays in admission of eligible SUT Thai students to CUTC institutions including: ESL proficiency, length of time required to obtain medical clearance and visa, and individual students family circumstances.	Waterloo and TUNS would consider accepting students and issuing formal unconditional letters of admission and an additional letter to the student outlining the criteria for progress in the Canadian program. Allow sufficient time for completion of the formal process of application. Contact Department of External Affairs, Canada, to explore the possibilities of streamlining the approval and process for medical clearance and visa approval.
A. 2.21 Selection of Thai Supervisors A 2.22 Provision of Ph.D Courses A 2.23 Jointly Supervised Research Work	4 Ph.D Students: (Pornsiri Jongkok, Anat Oonsiviali, Guntima Polprasert and Rangsan Wongsan) will be registered at TUNS by January 1997. A 5th candidate, presently studying in USA has requested transfer to TUNS. 1 Ph.D. candidate being considered for admission to Guelph.	TUNS and Guelph will continue to monitor the development of medical clearance and visa applications of the Ph.D candidates to ensure their admission in early 1997.

Sub-Program	Issues Discussed	Action Recommended
A 2.25 Post Doctoral Research Fellowships for Thai Scholars	2 Post Doctoral Fellowships being considered by TUNS for 1997: -Dr. Somrasong Suttayamully, Transportation Engineering - 5 months, from April 1997. -Dr. Chongchin Polprasert, Environmental Engineering, 12 months from January'97. This candidate applied directly to CUTC without formal approval by the SUT Selection Committee. -1 Post Doctoral Fellowship (Dr. Sureelak Rodtong, Biology) accepted by Guelph at the Agrafood Canada Lab for January 1997. Additional research funds requested by Guelph.	TUNS and Guelph will continue to monitor the development of medical clearance and visa applications of the Post Doctoral candidates to ensure their admission in early 1997. TUNS to confirm April start date for Dr. Somrasong. In the future CUTC will consider only candidates formally approved by the SUT Selection Committee. PRC approved additional research funds allocation of \$2,000
A 2.3 1 Thai Co-op Students in Canada A 2.32 Canadian Co-op Students in Thailand	PRC reviewed status of Co-op Program as follows: - 4 TUNS students worked in Thailand for 16 weeks; May-Aug'96 - 1 TUNS student scheduled to work in Thailand from Sept-Dec'96 - 2 Thai students worked at U. Of Guelph, Food Science, for 16 weeks June to December 1996. - 2 additional Thai students scheduled to work at TUNS from September 1996 to January, 1997.	PRC request that Anne Marie Coolen, TUNS, prepare a report on the Co-op Program for distribution via RI to SUT and CUTC institutions.

Sub-Program	Issues Discussed	Action Recommended
Program 3: University Industry Linkage Program		
A 3.21 Development of a Framework for Industrial Training Seminars	Development of a Framework is being replaced by a monitoring and follow up mission by Robert Eagle in October 1996.	Robert Eagle will disseminate a seminar report to SUT and CUTC and pursue follow up opportunities.
A 3.22 Delivery of Industrial Training Seminars in Thailand	Two seminars involving 5 Canadian consultants were delivered by SUT/TUNS in July 1996 and attended by 60 participants from Industry. Subjects of seminars included: -University/Industrial Technology Transfer (Seminar) -Water Resource Management (Workshop)	More attention will be paid in the planning of the seminars to make them more relevant to Industry and more financially sustainable.
Program 4: Project Management		
A 4.32 PRC Meeting in Canada	Committee agreed that the next PRC meeting would take place at TUNS, April 3 and 4, 1997.	
A 4.4 Project Communication Costs	CUTC institutions enquired about recovery of communication costs for the project period 1993-1998.	Each CUTC institution will submit invoices for estimated communication costs to RI.

5. *Planning for New Project Initiatives*

Sub-Program	Issues Discussed	Action Recommended
Program 1: Development of Institutional Capacity		
A 1.32 Provision of Technical Services to SUT	2 additional activities were considered by the PRC: - participation by CUTC Institutions in the Conferences of Asian Deans of Engineering at SUT in February 1997. - organization of a workshop on continuing and distance education at SUT.	Funds from activities A 2.11, and 4.33 be allocated to support the participation of 4 representatives of the CUTC at the conference to a maximum of \$2,600 per participant. Proposed by S. Mikhail, seconded by Robert Eagle and approved. Workshop to be discussed at the next PRC meeting in Halifax, April 3, 4, 1997.

Sub-Program	Issues Discussed	Action Recommended
Program 2: International Academic Programs		
A 2.11 Academic Program Planning and Coordination	PRC was informed by SUT that 12 Thai students are registered in the IUP Program for September 1996.	Students ESL and academic progress will be monitored and CUTC informed Dr. Boctor to undertake planning, coordination and monitoring of the program during his February '97 visit to SUT.
A 2.12 Curriculum Implementation of International Engineering Programs	PRC reviewed and approved the potential participation of the following Canadian professors in the IUP Program for 1997: Prof. P. Barta, Ryerson, 14 weeks, January to April '97, Circuits I; Prof. M. Zywno, Ryerson, 14 weeks, May to August '97, Circuits II; Prof. H. Hinton, Ryerson, 14 weeks, May to August '97, Digital Computing; Prof. D. Kennedy, Ryerson, 14 weeks, May to August '97, Applied Science (Semi-Conductor); and Prof. D. MacKay, TUNS, 14 weeks, May to August '97, ESL and Engineering Practise. Dr. D. Goff, Guelph, 14 weeks, September to December '97, Food Technology; Dr. J. DeMann, Guelph, 7 weeks, September-October '97, Food Technology. Strategies for the recruitment of new IUP students from Thailand and S.E. Asia were discussed by the PRC.	RI to send CV's and contracts for SUT approval and manage consultant's travel preparations. SUT to send academic management/calendar schedules and guidelines to RI. Preparation of Food Technology Laboratories to be discussed with Dr. Terd. TUNS participation in Food Technology and Agribusiness to be discussed with Guelph. CUTC will liaise with Canadian educational services offices in S.E. Asia to promote the marketing of the IUP programs. CIA will launch a marketing campaign in the region.

Sub-Program	Issues Discussed	Action Recommended
A. 2.21 Selection of Thai Supervisors A 2.22 Provision of Ph.D Courses A 2.23 Jointly Supervised Research Work	PRC discussed plans for the development of Post Graduate Engineering Programs at SUT in Mechanical, Chemical, Civil and Electrical Engineering. Proposals for the assignment of the following Canadian Professors to lead a 4-week CUTC mission to SUT were considered: Dr. F. Hamdullahpur, TUNS, Mechanical and Chemical Eng. TBA, TUNS, Civil Eng. Dr. M. Zeytinoglu, Ryerson, Electrical Eng.	5 graduate students accepted by TUNS and one by Guelph for January '97. Two additional applications are anticipated. RI to prepare CV's and contracts to SUT for approval.
A 2.25 Post Doctoral Research Fellowships for Thai Scholars	PRC considered the allocation of funds for the Post Doctoral Research Fellowships - \$44,400, ie. \$4,400 over budget corresponding to a total of 86 person weeks.	Additional Post Doctoral Research Fellowships to be considered at the next PRC meeting at TUNS. April 3, and April 4, 1997.
A 2.26 Thai Research Advisors	PRC considered and approved the assignment of the following Thai Research Advisors: Dr. Rewat Vipia, Electrical Engineering, at U. Of Waterloo, 1 week, November 1-7, '96. Dr. Kontorn, Mechanical Engineering, at U. Of Waterloo, 1 week, November 1-7, '96	SUT to provide CV's of Research Advisors to RI to facilitate issuance of letters of invitation, and dates for the proposed visit by Dr. Veril (Equipment Centre)
A 2.27 Collaborative Ph.D Supervision	PRC considered plans for reallocation of funds for this activity and deferred action to the next PRC meeting at TUNS, April 3, 4, 1997.	Include issue in agenda of next PRC meeting
A 2.3 1 Thai Co-op Students in Canada	PRC approved the participation of 2 additional Thai Co-op students: -Atit Koonsrisuk and -Hathaikarn Nilawat for a 16-week assignment at TUNS from September '96 to January '97.	RI to prepare contracts.
A 2.32 Canadian Co-op Students in Thailand	Final group of Canadian Co-op students to be approved at next PRC.	Anne Marie Coolen, TUNS, to prepare plans for final group in consultation with other CUTC Institutions

Sub-Program	Issues Discussed	Action Recommended
Program 3: University Industry Linkage Program		
A 3.21 Development of a Framework for Industrial Training Seminars	PRC assessed status of program and approved the allocation of funds remaining from Program 1 to implement further seminar activities. The Committee also discussed proposed targeted Industries and sectors including: petrochemical, steel, mining, agribusiness, food technology and environmental technology.	Dr. D. Goff, Guelph, to prepare plans for a Food Technology/Agribusiness Seminar to be delivered in the Fall of 1997.
A 3.22 Delivery of Industrial Training Seminars in Thailand		Mr. Robert Eagle to assess and recommend seminar areas through his upcoming visit to SUT (Oct. '96).
Program 4: Project Management		
A 4.32 Final PRC Meeting in Thailand	Discussion of date for final PRC meeting deferred to the next PRC meeting in Halifax, April 3-4'97.	Discussion of final PRC meeting to be included in Agenda for next PRC meeting at TUNS. (Objective: future opportunities for collaboration)
A 4.33 Project Management	PRC discussed and approved the inclusion of the visit of Ryerson's President, Dr. Claude Lajuenesse to SUT in July 1997 as part of the project management activity.	RI will follow up with SUT on the planning of the visit, scheduled for July 1997.

6. *Remaining funds, Cash Flow and Other Issues*

PRC discussed the problem of the Project's Cash Flow with ARA. The PRC was informed that there is no difficulty in re-allocation of funds amongst the components provided the rationale for such re-allocation is acceptable and that such amounts are limited to 10% of a given activity. Also splitting project deliverables into sub-activities is acceptable. Agreement among the CUTC partners is required and all activities have to be completed by the deadline of March 31, 1998.

7. *Adjournment*

The PRC reviewed the "draft minutes for the 3rd PRC meeting", made modifications and requested that RI prepare the final minutes for distribution. The meeting adjourned at 3 p.m. on Friday, September 27, 1996.