

**Asian  
Institute of  
Technology  
1988  
Annual Report**

#### About AIT

*It is now twenty-nine years since the founding of the SEATO Graduate School of Engineering, now the Asian Institute of Technology. During this period, a small class of 18 students from Pakistan, the Philippines and Thailand, has grown to a yearly enrollment of more than 700 students from over 25 countries in Asia and outside the region.*

*From a single field of specialization in hydraulic engineering, AIT has expanded to four broad areas in its teaching and research. These are infrastructure engineering, agricultural and natural resource engineering, management and planning, and manufacturing systems engineering.*

*AIT approaches its third decade of service to Asia's development dedicated to training the best and brightest Asian first degree graduates, giving them new skills and returning them to their homelands where they can pursue their careers to their benefit and in the service of their fellow countrymen.*

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Following the opening of the environmental research station by H. E. Bernd Oldenkott, the Ambassador of the Federal Republic of Germany to Thailand (top photo, center), and the ambient laboratory by Dr. Panom Pongpaibool, Secretary General of the National Education Commission (above, left), a combined tour/demonstration of facilities was conducted.

*Illustrative of the way ideas and opportunities emerge at AIT is the subject of telecommunications. This topic has been in the minds of many of us for several years and has been the subject of discussions within the Institute and outside. In 1988 three events coincided: Finland joined our group of donor nations and included telecommunications in the technologies which it would be interested in supporting. The Asia Pacific Telecommunity and then the UN International Telecommunications Union indicated their view that this subject could and should be in the portfolio of AIT computer-related technologies. A very high level international forum confirmed this view, and an implementation and funding strategy is now being worked out.*

*As the financial pages of this report show, a combination of conservative budgeting, tight financial control and wonderful promotional and outreach activity by the whole team has brought us to a position of at least short- to medium-term stability. Most of our financial support now derives from very generous three- to five-year (rather than annual) agreements as well as being spread over a very broad spectrum of donors. These are important stability-creating factors. I should like to thank all our donors, large and small, for the support they give the Institute. It is appreciated by us all, as by those countries to which our graduates return.*

*Ending this message on a personal note, I wish particularly to acknowledge the support of my AIT colleagues. Teamwork and involvement of all faculty and staff stand at a pleasingly high level, and the progressive growth of income and academic activity could not have occurred without this cohesive effort. Trustees and alumni, too, have shared in the general excitement and drive, and their contribution is also warmly acknowledged.*

*Professor Gajendra Singh completed his term as Vice President for Academic Affairs, having made a most successful and characteristically objective contribution to the academic management of the Institute. His personal friendship, added to his untiring and invariably sensible approach, made him a most valued colleague. The new Vice President for Academic Affairs, Professor Helmut Eggers, is continuing where Professor Singh left off, and the Institute is indeed fortunate in having faculty of this calibre.*

*What a pleasure it is to work with such a harmonious, dedicated team.*

Alastair M. North



**COOPERATION  
FOR  
DEVELOPMENT -  
an agenda for donors,  
their former scholars  
and AIT**

*To our donors very few experiences are more gratifying than following the professional careers of their former scholars at AIT. For the most part, the story is of ambitious young men and women who are carving essential roles in stimulating and sustaining Asia's development. The majority have returned from the Institute to their home countries and professions and are directly engaged in development projects, national as well as regional. Counted among them are senior government officials and administrators, officials of international agencies and non-governmental organizations, educators and senior staff in research institutes.*



*Building meaningful and enduring bonds between donors and the unique mix of professionals whose education they have supported is not only a valuable undertaking: it reinforces the importance placed by AIT on joint inquiry and problem solving and is also an eminently pragmatic means of cementing collaborative ties.*





*Photographed on the preceding page are former German scholarship holders, Mr. Francis Lorilla (HEM '75) and Ms. Hee Wee Lee (CS '85) with AIT President, Prof. Alastair North and DAAD President, Prof. Dr. Theodor Berchem.*

*Above: Former SEATO Secretary General, Mr. Pote Sarasin (flanked by Prof. North and Prof. Dr. Berchem) with former German scholarship holders, Mr. Prakash Man Sakya (CS '86), Mrs. M. Supsup (GTE '86), Ms. Supunya Yonpiam (EE '85) and Mrs. Surendra Govinda Joshi (WRE '81).*

*1988 witnessed a dramatic development in this process when AIT welcomed back some 150 scholarship holders from the German Academic Exchange Service (DAAD) and the Carl Duisberg Gesellschaft e.V. (CDG). AIT President Alastair North fittingly described the returning alumni as the "third link" in a partnership – a continuing cooperation for development forged between the Institute and the Federal Republic of Germany.*

*From December 11 to 15, they held a dialogue with the Institute and their scholarship donor on critical issues confronting the Asian region: food and energy requirements, the impact of new technologies, rapid urbanization, the nature and implications of the social and cultural transformations taking place in their home countries.*

*The returning alumni represented a multitude of disciplines and diverse cultural perspectives. With their first hand experience and authoritative understanding of the region, they provided valuable insights into how cooperation for development can best be achieved.*

*How, for example, could the Institute, supported by the Federal Republic of Germany, assist their career development, or accommodate technical and academic inter-change through outreach activities, including continuing education programs? How could the professional expertise of the alumni body be consolidated to provide an input into new programs at AIT?*

*How could AIT alumni, drawing upon the professional contacts and friendships that they have developed across national boundaries, form a network of cooperation to further stimulate and sustain the growth of the region?*

*In inviting its former scholars, the Federal Republic of Germany has initiated a historic dialogue, which acknowledges cooperation for development as a worthy agenda for donors, their former scholars and AIT.*



## The Men and Women of AIT

### THE THIRD LINK

Where are the men and women whose cooperation weaves a new force into the development partnership between AIT and the Federal Republic of Germany? Do their achievements, leadership skills, and professional expertise prove the value of investments in education? How would their participation convert "cooperation for development" from a plan of action to practical action?

#### SOONTHORN HUTSPRADON

The need to effectively utilize renewable natural resources places a heavy responsibility on officials deputized to formulate policy planning programs, implement projects, and provide advisory as well as extension services. This has been the experience of Mr. Soonthorn, a land use planner in the Land Development Department in the Ministry of Agriculture and Cooperatives of Thailand. Another significant factor, adds Mr. Soonthorn, is the need to sustain cost-effective production of exportable food surpluses and other primary commodities, while remaining competitive in the international market.

Mr. Soonthorn describes the land resource evaluation and planning program in Thailand's Sixth Plan as being based on two converging situations: the increasingly complex demand for land use planning, and the development of technologies which facilitate the handling and processing of voluminous statistical and spatial information using integrated computer systems.

Says Mr. Soonthorn, land use planning as a basic program concept must be dynamic and benefit-based. It must respond to changing circumstances and to application at different planning levels.

Mr. Soonthorn (AFE '81) has been involved in various land use planning projects and land use surveys using remote sensing technology.



#### QAISER SUHAIL

For development planning to accomplish national objectives and targets, it must incorporate six main characteristics:

development planning must be imaginative, multi-dimensional, cumulative, inter-related, dynamic, and continuous.

The view is expressed by Mr. Suhail, Deputy Chief of Pakistan's Planning and Development Division, the government's central planning body responsible for large development projects in the public sector.

Currently Mr. Suhail is involved in the development of computer programs while also liaising with different energy organizations in a study of anticipated energy demands in different sectors. He is also working on two major projects: the "National Energy Data Base of Pakistan," and the "Reference Energy System of Pakistan" or RESPAK, a national energy accounting system.

Mr. Suhail (IEM '83) previously worked for the Planning Commission of Pakistan.

**K. A. JAYARATNE**

Much of the success of low-income housing projects depends on the level of community participation, a concept defined by Mr. Jayaratne as the "sharing of decision-making power by authorities implementing a program with those directly affected by the decision." By denying them active involvement in the decision-making process, poor communities are confined to being the objects of development rather than the innovators of development.

To explain his point, Mr. Jayaratne cites Sri Lanka's Million Houses Program (MHP), in which direct State intervention in the delivery of houses is minimal. The MHP is guided by the principle that "the householder is the main housebuilder", he says, adding, "Where there are no constraints on access to land, finance, services, and institutions, people build better houses by themselves". The MHP, a totally support-based housing program, participates in the housebuilding process by removing all land, legal, financial and administrative constraints. Launched in 1984, the MHP expects to reach a million families within a six-year period ending in 1990.

Mr. Jayaratne speaks of the MHP strategy with authority. He is after all Manager for Urban Housing in the National Housing Development Authority. The Authority is responsible for implementing two of six main MHP sub-programs: rural housing and urban housing.

Mr. Jayaratne (HSD '82) has extensive experience in housing development. A current project focuses on community action planning in developing low income urban housing.



**TOE HLAING**

Cooperation for national development is required at many levels. Citing the case of Burma, Mr. Toe Hlaing identifies the three

most crucial levels of cooperation as those between university and industry, among related industries, and between industries and the government. There are others. A fourth level, for example, could be cooperation among educational institutions within the country and abroad.

Mr. Toe Hlaing is employed by Construction Corporation as an Assistant Geotechnical Engineer. He is currently involved in the Bassin-Mon Ya Highway Project.

Mr. Toe Hlaing encourages vigorous university/industry cooperation in technical and scientific areas to build up the self-confidence of apprentice engineers, as well as "harmonize" theoretical knowledge with actual industrial operations and processes.

Inter-industry cooperation, particularly among related industries, could go a long way in promoting technology transfer and in coordinating the production and marketing sectors, he points out.

Mr. Toe Hlaing stresses the desirability of more extensive and detailed, systematic feasibility surveys on the economic potentials of all kinds of resources in the country, as a way of supporting and stabilizing industrial establishments.

Mr. Toe Hlaing (GTE '87) has been involved in a number of major engineering projects in Burma.

**SHREE KRISHNA JOSHI**

Shree Krishna Joshi believes that the university, as a non-political institution, is an appropriate body to undertake an overall review and evaluation of ongoing projects in Nepal.

Mr. Joshi is particularly concerned about the widening gap between the targets and achievements of development projects. In the first place, he points out, project activities are almost always not clearly spelt out at the field level. His job as an Assistant Economist in the Department of Agriculture keeps Joshi constantly aware of the complexities of his country's development dilemma.

For very good reasons, Joshi urges the expansion of Tribhuvan University's traditional specializations and the introduction of new disciplines. These complementary moves would broaden the training of technically competent students and reduce the country's dependence on foreign universities and education. Also, increased student research in problems and issues indigenous to Nepal would improve the younger generation's understanding of the country as a whole. Joshi does not discount the fact that student research provides valuable inputs in the formulation of national development plans.

Mr. Joshi (HSD '81) is responsible for programming and budgeting the Department of Agriculture's projects.







**RIGINOTO  
WIJAYA**

Mr. Wijaya heads the R&D Division for Instrumentation in the Indonesian Institute of Science. For him technology transfer, particu-

larly the manufacture of computer-based products, is always a topical issue. His views:

In any technology transfer, the most difficult problem concerns human resources development and management. Given the limited experience and skilled training of local manpower, changes have to be introduced gradually. The initiators of any technology transfer must devote much time cultivating the abilities of the workers. In the case of computer-based product manufacture, technology transfer has a better chance of succeeding if workers have some basic knowledge and understanding of computer applications. There is no reason why local manpower cannot be trained to adopt high technology transfer activities.

Mr. Wijaya (CS '83) is currently involved in a three-year project to set up an automatic message accounting system for a telecommunications company in Indonesia. The US\$ 20 million project involves the establishment of manufacturing plants, the provision of training in computer software development and the manufacture of computer products.

**MADHAV  
PRADHAN**



Mr. Pradhan offers a very instructive assessment of development efforts in Nepal. He cites two major areas

where improvements are crucial: the capacity of the Government administration to undertake major development projects, and the level of education and skill training of the population. In urging these changes, Mr. Pradhan takes into account two major natural obstacles: the country's limited natural resources, and its difficult terrain and remote geographical location which restrict the flexibility of development policies.

The Government's basic development strategies are based on the country's natural domestic resources — agriculture, water resources, forestry and tourism. These strategies are supported by policies that minimize government control and promote private sector participation in overall development, encourage foreign investment, plan population growth rates, consolidate development administration, and train and develop manpower.

On his country's industrial development, Mr. Pradhan makes the observation that while socio-economic development efforts have brought the country to the threshold of industrialization, structural change — to foster production and productivity improvement — has not been dynamic.

Mr. Pradhan describes current efforts by the Government to achieve its development objectives as being multi-dimensional. They cover policy reforms with respect to industry, fiscal trade, foreign investment and technology transfer; financial, technical and management support; and programs and projects in manpower development, the development of cottage industries as well as special industrial sub-sectors, and natural resources development.

Mr. Pradhan (IEM '79) is Division Chief (Economic) of the Economic Services Center. He has participated in various policy making exercises, including those affecting the textile industry and the importation of raw materials for various industries.

**ORASA  
SUKSAWANG**



Ms. Orasa relates a Chinese proverb to open her discussion of human action-oriented development projects.

She says: "By nature people are the same, by education they are totally different."

In the development process, the greater difficulty is not that of determining who or what have to be developed, but how to change the attitudes of the initiators of development and its beneficiaries. Given their totally different educational backgrounds, how can they reach an understanding of common development goals? Ms. Orasa is wary of projects whose focus has shifted from community development to increased productivity and income levels. Seldom do they result in improved standards of living and sustained socio-economic development, she says.

Ms. Orasa (HSD '82) is currently working as project monitor and evaluator in the Agricultural Land Reform Office, Ministry of Agriculture and Cooperatives of Thailand.

In 1988 the Institute's regular degree and short course programs experienced further consolidation through increases in the student population and the number of faculty members.

Certain Institute activities were reviewed by evaluation teams from Denmark, Italy, the United Kingdom and Switzerland. The extremely positive conclusion drawn in all cases was complemented by constructive comments and suggestions for improvement, based on detailed analyses by the different review missions. The Institute's programs were judged to be effective and its financial management to be sound.

Further into the feasibility of restructuring the academic divisions and centers, four working groups of faculty members and senior staff, formed under the auspices of the President's Working Party of the Policy and Planning Committee (PPC), studied ways of increasing the flexibility and cost-effectiveness of teaching and research programs. Their recommendations will be discussed at a meeting of the PPC in January 1989.

The academic direction is clearly towards greater choice and flexibility in the study programs by offering interdisciplinary, interdivisional areas of specialization. There is also a trend towards more outreach activities, in conjunction with mainstream programs.

## ACADEMIC AFFAIRS

## DEVELOPMENTS

### Fields of Study, Academic Programs and Courses

Agricultural Systems, which was approved in 1985 as a program in the Division of Agricultural and Food Engineering, has been officially recognized as a field of study.

Three other fields of study are being developed. These are Rational Use of Energy (in the Energy Technology Division), Construction Engineering and Management (in the Division of Structural Engineering and Construction) and Management of Technology (in the School of Management which will admit its first students in September 1989).

The Division of Human Settlements Development will admit its first students to its joint program with the University of Dortmund in spatial planning for regions in growing economies (SPRING), in May 1989.

In 1988 the addition of 15 new courses and the deletion of 16 brought the total number of courses currently offered to 256. Of the total, 35 were revised.



Prof. Eggers and President North join former Student Union President, Mr. Anthony Shun Fung Chiu (IEM '88) for a graduation photo.



### New Vice President for Academic Affairs

Prof. Helmut Eggers' appointment as Vice President for Academic Affairs commenced in September 1988, following the completion of Prof. Gajendra Singh's term of office. Prof. Singh has resumed full time teaching and research duties in the Division of Agricultural and Food Engineering.

Prof. Eggers is not a newcomer to AIT. From 1977-80 he was a faculty member of the Division of Water Resources Engineering and later served as its Chairman. He was most recently Professor and Head of the Chair for Agricultural Engineering and Water Resources in the Department of Agriculture, University of Bonn.

As with his previous appointment at AIT, Prof. Eggers is being seconded by the Government of the Federal Republic of Germany.

Prof. Eggers obtained his post-graduate degrees from the University of Karlsruhe.

### Specializations in New Technologies

#### Manufacturing Systems Engineering

Manufacturing systems engineering is concerned with the design, development, implementation or operation of modern manufacturing systems in an integrated manner through computerization and systems engineering.

The establishment of teaching and research in manufacturing systems engineering at AIT progressed steadily in 1988. The plan is to blend existing activities in CAD/CAM and other relevant programs in the Divisions of Industrial Engineering and Management, Energy Technology, and Computer Science and the Regional Computer Center (RCC). CAD/CAM modules in RCC's Program for Applications Development (PCAD) are now fully developed.

Sufficient groundwork was carried out in 1988, paving the way for the development of curriculum and procurement of facilities in 1989. The program will admit its first students in 1990.

#### Telecommunications

AIT's proposed graduate program in telecommunications could evolve from a nucleus of course offerings in computer hardware, computer software, computer networks and information systems. These programs are offered by PCAD and the Division of Computer Science.

The requirements and parameters of this proposed program were initially discussed at the Asia-Pacific Forum on Telecommunications, held under the sponsorship of the Government of Finland in December 1988.

#### Distance Learning

A feasibility study carried out in 1988 to examine the use and development of distance learning technologies at AIT yielded favorable results. Under consideration is the establishment of a pilot course using the latest distance learning technologies to be offered by the Institute's Continuing Education Center, in partnership with Lambert Multimedia of Quebec. The Provincial Government of Quebec and CIDA are providing funding support.



The Institute's plans to introduce distance learning system and a postgraduate program in telecommunications were announced at press conferences held in Bangkok. Above, center, Mr. Pierre MacDonald, the Minister of Quebec for External Trade and Technology with Mr. Jack Lambert (right), President of Lambert Multimedia of Canada, and AIT President North. Below, center, Dr. Pekka Tarjanne, Finland's Director of Telecommunications, with the Finnish Ambassador, H. E. Mr. Benjamin Bassin (left), and AIT President North.



## ENROLLMENTS

Steady growth in divisional enrollment continued throughout 1988, with the average figure for all divisional programs reaching 643, compared with 596 in 1987. As with last year, the center programs (Programs in Computer Applications Development, Applied Remote Sensing, and Pre-Master's English) accounted for around 10% of the 1988 student enrollment.

Doctoral student enrollment increased significantly and reached 12% of the degree student population. It is well on the way to the 20% share envisaged in the Institute Plan 1988-1991.

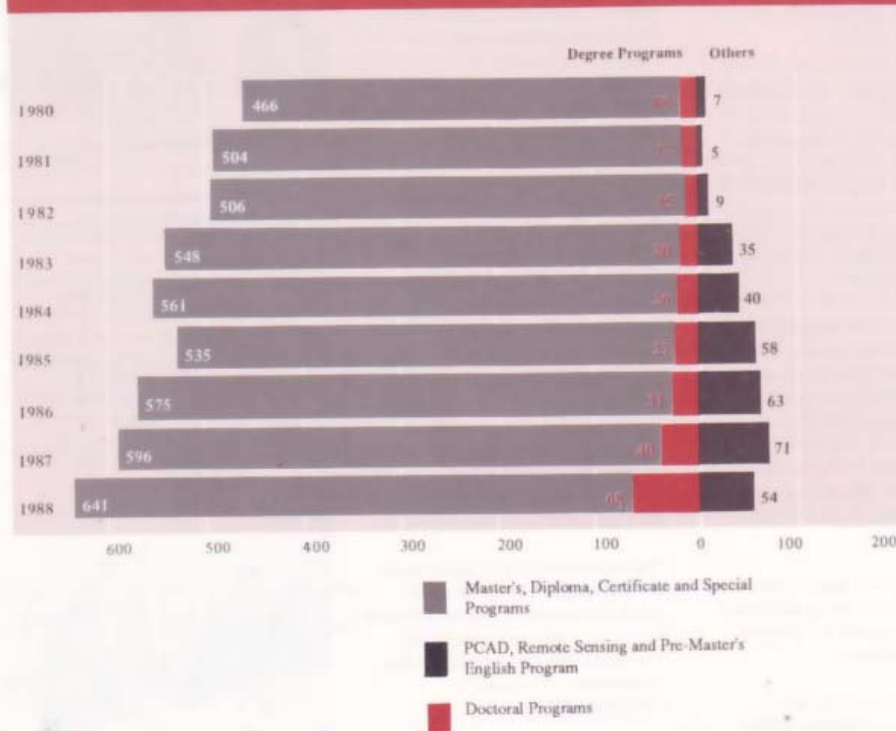
### Enrollment Distribution

1988

Term	Division	Center*	Total
January	644	59	703
May	635	29*	664
September	651	69	720
Average	643	52	695

\*Includes PM, PCAD and RS. There was no Remote Sensing course in the May 88 term.

### Average Annual Enrollment 1980 - 1988





## GRADUATIONS

A total of 307 graduates from 20 countries received the following degrees: M. Eng. (201), M. Sc. (96), D. Eng. (4), and Diploma of AIT (6).

Nine outstanding graduates were cited for their excellent thesis/research studies and significantly high GPAs.



Number of Students Enrolled by Country	1988		
	Jan	May	Sept
Bangladesh	34	33	35
Bhutan	1	-	5
Brunei	2	1	1
Burma	11	11	11
Canada	1	1	1
Chinese Taipei	52	45	50
Denmark	-	-	1
Ethiopia	1	-	-
Federal Republic of Germany	1	2	1
Hong Kong	9	5	9
India	63	69	59
Indonesia	59	57	68
Iran	1	1	1
Japan	5	3	4
Kenya	1	1	1
Republic of Korea	10	9	11
Maldives	-	1	-
Malaysia	34	20	27
Mongolia	2	-	-
Nepal	42	45	44
Pakistan	31	34	33
Papua New Guinea	-	-	1
People's Republic of China	38	35	38
Philippines	75	67	73
Singapore	1	1	2
Sri Lanka	57	53	61
Tanzania	1	1	2
Thailand	143	141	151
USA	1	1	1
Vietnam	27	27	29
<b>Total</b>	<b>703</b>	<b>664</b>	<b>720</b>

Total Graduates by Division	1988				
	M. Eng.	M. Sc.	D. Eng.	Dipl.	Total
AFE	20	-	2	-	22
CS	20	31	-	-	51
ET	21	3	1	1	26
EE	22	14	-	-	36
GTE	31	8	-	2	41
HSD	7	36	-	1	44
IEM	27	4	1	-	32
SEC	30	-	-	-	30
WRE	23	-	-	1	24

Total Graduates by Country	1988				
	M. Eng.	M. Sc.	D. Eng.	Dipl.	Total
Bangladesh	5	8	-	1	14
Burma	1	4	-	-	5
Brunei	2	-	-	-	2
Chinese Taipei	26	3	1	-	30
Hong Kong	6	1	-	-	7
India	22	6	1	-	29
Indonesia	4	3	-	-	7
Iran	1	-	-	-	1
Japan	2	-	-	-	2
ROK	3	1	-	-	4
Kenya	1	-	-	-	1
Malaysia	12	3	-	-	15
Nepal	12	4	-	-	16
Pakistan	15	2	-	2	19
Philippines	23	13	-	-	36
PRC	7	9	-	1	17
Sri Lanka	20	7	-	1	28
Thailand	35	28	2	-	65
Tanzania	1	-	-	-	1
Vietnam	3	4	-	-	7

## Graduation Awards

**Hisamatsu Prize**, given from funds provided in 1982 by Prof. Yoshihiro Hisamatsu, former Dean of the Faculty of Engineering at the University of Tokyo and now Adviser (Technology) of Nisshin Steel Co. Ltd. of Japan.

**Tim Kendall Memorial Prize**, established in 1981 from funds provided by the UK- AIT Appeal, in memory of Mr. R. M. Kendall, member of the Board of Trustees from 1971-1981.

**James A. Linen III Memorial Prize** (formerly known as the Institute Prize), established in 1988 in memory of Mr. James Linen, a charter founding and life member of the Board of Trustees from 1967-1988.

**Norsk Data Prize**, donated by Norsk Data in Norway and presented to outstanding graduates of Computer Applications.

### April

**Mr. H. M. Abdul Aziz Bin K. M. Hanifah (GTE), Malaysia**  
Adviser: Prof. A.S. Balasubramaniam

**Mr. Kanagaratham Baskaran (EE), Sri Lanka**  
Adviser: Dr. Chongrak Polprasert

**Mr. Sujan Malla (SEC), Nepal**  
Adviser: Dr. Martin Wieland

### August

**Mr. K. Muthukumarappan (AFE), India**  
Adviser: Dr. Vinod K. Jindal

**Mr. F. K. Mohideen (ET), Sri Lanka**  
Adviser: Dr. Rene Codoni

**Mr. Maddumage D.U.P. Kularatana (WRE), Sri Lanka**  
Adviser: Dr. Janos Bogardi

### December

**Mr. Sukhum Dechawongsawan (IEM), Thailand**  
Adviser: Dr. P. Awate

**Mr. Sanjib Bhuyan (HSD), India**  
Adviser: Prof. Karl Weber

**Mr. Jay Yusi David (CS), Philippines**  
Adviser: Dr. Huynh Ngoc Phien



## Honorary Degrees of Doctor of Technology

52nd graduation  
April 21, 1988

**To H. E. Mr. Walter Scheel –**  
In recognition of his outstanding service to the Asian region and to his country. Mr. Scheel, former President of the Federal Republic of Germany and Minister of Foreign Affairs, holds the distinction of being the first Minister for Economic Cooperation with Developing Countries and of having founded the German Finance Company for Investments in Developing Countries (DEG). Mr. Scheel has provided continuing service to all developing countries through his Chairmanship of the Board of Trustees of the Friedrich Naumann Foundation and Chairmanship of the Supervisory Board of DEG.

53rd graduation  
August 18, 1988

**To Mr. Masao Fujioka –**  
In recognition of his outstanding and continuing contribution to the economic, social and technological development of the Asia-Pacific region. Under the Presidency of Mr. Fujioka, the Asian Development Bank (ADB) has become a mature institution dedicated to the progress of this region. A convinced internationalist, he has fulfilled clear, wisely judged financial and administrative management objectives with a legendary boundless energy.

## RESEARCH AND PUBLICATIONS

During the year faculty and research staff in the divisions and academic centers produced an average of five publications per person. These are presented in detail below.

The total value of the 65 contract and grant research projects completed during 1988 exceeded US\$1.7 million. These were carried out in the Institute's 15 academic units.

A total of 124 research projects were started in 1988 and carried through 1989. The Institute's on-going projects have a total value of US\$7 million.

The Institute's completed and on-going contract and grant research projects are listed in the appendix. They are described in detail in the ANNUAL REPORT ON RESEARCH.

The Regional Research and Development Center assists in marketing the Institute's research potential. It identifies and solicits research projects for placement in the academic divisions and centers.



Left: The Energy Park contains more than 60 devices using renewable sources of energy. Below: The Institute's major computing facilities are housed in the Regional Computer Center.



The centers include CEC, LRDC, ADPC and RCC.

In 1988 over 3,000 participants attended these activities, which were conducted in the form of workshops, seminars, training courses, and conferences.

A complete list of continuing education activities in 1988 is found in the appendix.

## OUTREACH ACTIVITIES

The Institute conducts continuing education activities as a means of upgrading the professional and technical expertise of practicing professionals. Mostly these activities are jointly undertaken by the academic divisions and centers.

Summary of Publications During 1988

	Journal paper	Conference paper/proceedings	AIT research report	Book/chapter in a book	Total	Others*
AFE	31	51	7	-	89	9
CS	9	19	5	3	36	1
ET	16	40	20	3	79	2
EE	16	26	8	2	52	2
GTE	9	32	7	2	50	-
HSD	16	19	3	11	49	28
IEM	14	5	-	3	22	19
SEC	25	40	3	3	71	2
WRE	11	36	6	-	53	2
INRDM	-	8	-	-	8	2
LC	1	3	-	-	4	1
LRDC	2	2	-	-	4	2
ADPC	1	-	-	-	-	1

\*Monographs, working papers, reports (progress, interim, consultancy, etc), reviews, division research reports and papers, newsletters, reference materials, course handbooks, lecture notes.

## FACULTY AND INTERNATIONAL ACADEMIC AND RESEARCH STAFF

### PROMOTIONS

#### Full Professor

A.D. Gupta	1 July
Tawatchai Tingsanchai	1 July

#### Associate Professor

France Lasnier	1 July
A.T.M. Nurul Amin	1 July
Graeme Storer	1 July

### APPOINTMENTS

#### Chairman

S.G. Ilangantileke	1 July
Worsak Kanok-Nukulchai	22 Aug
Kioe-Sheng Yap	1 Dec

#### Professor Emeritus

Fude I	24 Jan
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#### Associate Professor

Hermann Waibel	1 June
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#### Assistant Professor

V.M. Maihotra	4 Jan
B.W.E. Wickramanayake	15 May
J.K. Routray	3 June
T.B. Suselo	20 June
Yukio Nishimura	13 July
Buddhima Indraratna	25 July
Juichiro Akiyama	23 Aug
Akira Goto	15 Aug

#### Visiting Faculty Member

##### Over One Year

N.K. Nanda	17 Feb
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##### Less Than One year

Kriengsak Udomsinrot	4 Jan
Saradindu Sengupta	11 Jan
D.J. Hilton	5 Jan
Mads Nygard	14 Jan
Ludwig Hartmann	22 Feb
Khin Bo	1 May
M.G. Kozgaonker	9 May
Kotaro Ohhara	22 June

#### Instructor

Assumpta O'Brien	15 June
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\*Date of Appointment as Short-Term Visiting Faculty Member

Archer	1 Jan 89
Verma	11 Jan 88
Kantor	27 Apr 88
Kuwahara	5 May 88
Bhargava	9 May 88
Subramanian	9 May 88



Prof. Tawatchai



Prof. Gupta



New Division Chairmen, from left, Dr. Yap (HSD), Dr. Ilangantileke (AFE), and Dr. Worsak (SEC).



### RESIGNATIONS

B. H. Khang	4 Jan
W.E.J. Tips	31 Jan
S.A. Nielsen	31 Aug
Masaku Mizutani	19 Aug
C. Peacock	27 Jan
A.B. Etherington	31 Aug
Y.G. Van Frausum	24 Aug
Mahesh Verma*	12 Apr
M.N. Biswas	11 Apr
S.S. Gupta	11 Apr
J.P.C. Guimaraes	30 June
N. Kantor*	26 July
Masao Kuwahara*	4 July
D.S. Bhargava*	8 Aug
D.S.K. Subramanian*	8 Aug
Kanakatti Subramanya	8 Aug
R.W. Archer*	30 Nov



## NEW VENTURES ON THE HORIZON

In addition to four new ventures under development, three areas are under study to determine the feasibility of future implementation at AIT.

### Material Sciences

The development of new materials has paved the introduction of new designs and manufacturing technologies, as well as the production of superior or less expensive products. This is reflected in the engineering of plastics, composites, magnetic materials, semi-conductors, fiber optics and ceramics. In the developing countries R&D efforts in material science are only at the threshold of what could be achieved.

AIT seeks to develop training and research capabilities necessary for the introduction and application of new materials. Emphasis is placed on the processing rather than the development of new materials.



### Biotechnology

Two areas of biotechnological manufacturing are vital to the development of an integrated rural-agricultural, urban-industrial economy. These areas concern food processing and public health.

A logical extension of the Institute's current program in post-harvest technology is seen in the proposed establishment of a pilot plant laboratory facility for carrying out processing-related activities beyond the farm level. This facility will support laboratory work related to the biotechnology of enzyme, fermentation, product concentration, and so on.

Of equal importance is the treatment of toxic and other hazardous waste. Waste treatment through biotechnology will be undertaken by the Division of Environmental Engineering.



Above and left: Ongoing biotechnology experiments carried out in the environmental engineering laboratory. Photos on the right: Teaching and research activities in RCC and the Division of Computer Science.

### Micro-Electronics

Opportunities for expert training in measurement instrumentation and control, communication and electronic device circuits are vital to the sustained industrial development of the region.

AIT could respond to this need by combining the disciplines of Computer Science and Electronics in a program which would provide in-depth knowledge of computer architectures and hardware frameworks for data communication, facilitate the man-machine interface-dialogue and generate research activities in applied automatic controls. Specific fields of study could include new laser devices and applications, new semi-conductor devices and the application of computerization in transportation.



FY 1987-88 saw the continuation of the momentum of 1986-87 in terms of donors' support. The Institute received a total of Baht 457,493,000, representing an increase of 26% over last year's figures.

#### Highlights of FY 1987-88:

##### **An established trend for multi-year cooperation programs**

This is seen in donors' renewal of long-term support and the initiation of long-term programs by donors formerly providing short-term assistance.

##### **Expressed support by donors to new, non-traditional areas being developed by the Institute**

These include the School of Management, programs in telecommunications and manufacturing systems engineering, the establishment of a development park/small business incubator, and the introduction of distance learning. France, Japan, India, Chinese Taipei, Norway and EC have made firm commitments to support the School of Management. The Republic of Korea and Italy are expected to firm up plans for support in FY 1988-89.

##### **Reaffirmation of donors' support to AIT and further validations of the Institute**

This is reflected in the largely positive outcomes of extensive evaluations conducted by Denmark, Australia, Switzerland and Japan, to determine the effectiveness of their support. These reviews also helped identify areas of development which the Institute may explore to further its role in Asian technological education.

## DONOR RELATIONS

## THE YEAR IN BRIEF

This year's contribution of Baht 457,493,000 has brought total donations to the Institute over the past 29 years to Baht 4.28 billion.

Cash contributions in FY 1987-88 totalled Baht 392,501,000, a 24% increase from Baht 316,961,000 in FY 1986-87; contributions in-kind increased from Baht 44,852,000 in FY 1986-87 to Baht 64,992,000 in FY 1987-88, representing a 45% growth.

Other salient features of FY 1987-88 are as follows:

##### **Investment in Plant**

The total value of AIT's physical facilities, equipment, and books (excluding land) is Baht 1,005,000,000. This is 7% higher than last year's.

##### **General Reserve**

This increased from Baht 126,759,000 last year to Baht 133,816,000 this year.

##### **Endowment Fund**

A slight increase of Baht 1,289,000 has brought the total Fund to Baht 50,100,000 compared with Baht 48,811,000 in FY 1986-87.

##### **Faculty and Staff Secondments**

Secondment contributions totalled 855 man/months, marking a slight increase from 822 man/months in FY 1986-87.

##### **Scholarship Support**

Two new scholarship donors, the Government of Finland and ADB, provided initial grants for 10 scholarships each. A total of 402 scholarships were awarded for the period Sept 87-May 88.

**Total Contributions in Cash and in Kind FY 1987-88**

Types of Grants	Cash	In Kind	Total
Scholarships	217,862,000	-	217,862,000
Research Projects	50,387,000	-	50,387,000
Continuing Education	35,839,000	-	35,839,000
Capital Grant	5,500,000	-	5,500,000
Equipment/Books	13,535,000	31,494,000	45,029,000
Endowment Fund	842,000	-	842,000
Faculty/Staff	9,462,000	33,498,000	42,960,000
Tax Reimbursement	39,116,000	-	39,116,000
Operating Grant	19,485,000	-	19,485,000
Local Currency Grant	473,000	-	473,000
<b>TOTAL</b>	<b>392,501,000</b>	<b>64,992,000</b>	<b>457,493,000</b>

**Percentage of Donors' Cumulative Contributions FY 1959-60 to FY 1987-88**

Donors	Percentage
<b>Governments</b>	
Australia	5.91
Austria	0.02
Bangladesh	0.03
Belgium	0.98
Canada	5.03
Chinese Taipei	3.42
Denmark	1.38
Finland	0.15
France	2.72
Federal Republic of Germany	8.75
India	0.25
Indonesia	0.15
Israel	0.05
Italy	0.25
Japan	10.89
Republic of Korea	0.33
Nepal	0.02
Netherlands	3.77
New Zealand	0.81
Norway	1.82
Pakistan	0.16
Philippines	0.21
Sri Lanka	0.02
Sweden	0.04
Switzerland	0.77
Thailand	12.16
United Kingdom	3.95
United States	12.40
Vietnam	0.01
<b>International Organizations</b>	<b>4.41</b>
<b>National Government Agencies</b>	<b>5.59</b>
<b>Business, Foundations Private and Others</b>	<b>13.55</b>
<b>TOTAL</b>	<b>100.00</b>



Prof. R. Pama, AIT Vice President for Development, in consultation with President North.

**FUTURE PROSPECTS**

The trend towards multi-year grants is growing. In FY 1987-88, the Institute signed nine long-term MOUs with different donor governments, amounting to approximately Baht 862,000,000. This is a promising development which can be used as basis for the Institute's long-term planning and implementation of future funding strategies.

Broadly, these strategies involve the following forms of donors support: the AIT Endowment Fund

and the establishment of linkages with various international institutions. Such linkages will contribute a broader perspective to AIT's programs and definitely boost the Institute's academic capabilities. Moreover they will enhance the Institute's "fund-ability" and will be an advantage in securing donor support.



## DETAILS OF DONORS' SUPPORT FY 1987-88

### GOVERNMENTS

**Australia** presented cash donation of Baht 63,992,000 and provided faculty secondments of 38.5 man/months, accounting for the largest percentage of donor government contribution for FY 1987-88.

In addition, Australia signed another three-year grant for 1988-91, providing the Institute with support totalling 4,500,000 Australian Dollars. This will cover the cost of 120 Master's scholarships, 15 Doctoral scholarships and several short-term secondments.

**Belgium** made a cash donation of Baht 1,996,000 and equipment worth Baht 3,248,000. It also provided 68.5 man/months of faculty secondments.

A new MOU for 1988-89 was signed in August 1988, providing support worth approximately 53,000,000 Belgian Francs. This will provide the secondment of three experts for a four-year period each, four short-term secondments annually, eight scholarships annually, and equipment worth 15,000,000 Belgian Francs.

**Canada** donated Baht 12,514,000 towards the CIDA Broad-Based Development Project, which extends assistance for scholarships, faculty support, research, and conferences.

A five-year grant, totalling 14,838,375 Canadian Dollars and covering the period 1988-93, was signed in July 1988. This will provide the services of Canadian experts and will support scholarships, research and demonstration projects.



Clockwise: Presentation ceremonies presided over by Their Excellencies Baron Patrick Nothomb, former Belgian Ambassador to Thailand; Mr. Ivan Bastouil, the French Ambassador to Thailand; Mr. Bernd Oldenkott, the Ambassador of the Federal Republic of Germany to Thailand; Mr. Benjamin Bassin, the Finnish Ambassador to Thailand; and Mr. Richard Smith, former Australian Ambassador to Thailand.

**Chinese Taipei** gave a cash donation of Baht 8,941,000 and faculty secondments of 14 man/months.

**Denmark** donated cash to the amount of Baht 5,573,000 and provided 23 man/months of faculty secondments.

**Finland** donated Baht 6,279,000 to support scholarships. Under an MOU signed in January 1988 a grant of 1,000,000 Finnish Marks has been allocated for scholarships during FY 1988-89. A broader range of support, covering short-term faculty secondments and assistance to short training programs, is expected in 1989.

**France** provided cash donation amounting to Baht 5,679,000, equipment grant worth Baht 400,000. Its long- and short-term secondment of faculty, totalling 128 man/months, accounted for the largest secondment contribution to AIT.

**The Federal Republic of Germany** donated cash totalling Baht 26,937,000, equipment worth Baht 14,994,000, and 106 man/months of faculty secondments.

A new three-year program of cooperation signed in October 1988 will support expert secondment, research projects, and equipment acquisition. An MOU covering the SPRING project, a joint academic program between AIT and Dortmund University, was signed in October 1988. The budget for the first three years of the program is 1,276,300 Deutsche Marks.

**India** provided a cash grant of Baht 385,000 and 38.5 man/months of faculty secondments.

**Italy** contributed 12 man/months of faculty secondments.

**Japan** gave a cash grant of Baht 35,208,000, an equipment grant of Baht 2,756,000, and faculty secondment contribution totalling 117 man/months.





MEMORANDUM OF UNDERSTANDING  
BETWEEN  
GOVERNMENT OF SWEDEN  
AND  
SIAM INSTITUTE OF TECHNOLOGY  
DECEMBER 1988



Top left: H. E. Mr. Lawrence Smith, the Canadian Ambassador to Thailand, signing an MOU with AIT. Top right: Former Japanese Ambassador to Thailand, H. E. Mr. Akitane Kiuchi, hosting a party for AIT students. Above: New Zealand Ambassador to Thailand, H. E. Mr. H. Freeman-Greene, with AIT officials and holders of New Zealand scholarships.

AIT President North receiving donors' presentations from H. E. Mr. A. P. van Walsum, the Ambassador of the Netherlands to Thailand (top); H. E. Mr. Olov Ternstrom, the Swedish Ambassador to Thailand (above); Mr. Iftikhar Hussein Kazmi, the First Secretary of the Pakistani Embassy in Thailand (left).

## INTERNATIONAL ORGANIZATIONS

Fifteen international organizations, including nine agencies of the United Nations, contributed a total of Baht 38,990,000, representing 8.52% of total contributions.

## FOUNDATIONS

Seven foundations contributed a total of Baht 16,799,000, representing 3.6% of this year's total contributions. The largest contribution came from the AIT Foundation, which donated Baht 11,737,000 on behalf of IBM Corporation.

## NATIONAL GOVERNMENT AGENCIES

Fifty-seven agencies from 13 countries extended assistance to AIT, accounting for the largest number of donor agencies in the Institute's history. The contributions amounted to Baht 26,183,000, which is 5.72% of total contributions and slightly higher than last year's ratio.

## BUSINESS AND INDUSTRIES

Business and industrial companies, totalling 72, contributed Baht 19,066,000, or 4.17% of total contributions, slightly higher than last year's ratio of 2.83%.

**The Republic of Korea** contributed 10.5 man/months of faculty secondments.

**The Netherlands** signed a three-year MOU in May 1988. The grant provides scholarship support, Asian faculty support, a literature program, and a special project on institution building and manpower development for the Ministry of Public Works in Indonesia. The grant is worth Dfl.3,630,000.

**New Zealand** remitted a cash grant of Baht 1,730,000 as part of its triennial grant (1985-88).

**Norway** renewed its grant for another year, donating cash amounting to Baht 5,358,000, equipment grant worth Baht 4,244,000, and faculty secondments of 20.5 man/months.

**Pakistan** gave Baht 1,865,000 to the Endowment Fund.

**The Philippines** continued to support operational costs with a cash grant of Baht 171,000.

**Sri Lanka** donated a local currency grant of Baht 88,000.

**Sweden** gave a cash donation of Baht 172,000. Sweden signed its first MOU with the Institute in December 1988, providing a grant of Baht 16.5 million over a four-year period. This will support scholarships for students from Laos and Vietnam.

**Switzerland** donated cash amounting to Baht 2,642,000 and faculty secondments of 24 man/months.

**Thailand** contributed Baht 54,661,000 in cash which includes tax reimbursements amounting to Baht 39,116,000.

In August 1988, the Cabinet of the Royal Thai Government approved AIT's proposal for financial assistance for the next five years. The assistance is worth Baht 225 million. It will support scholarships, construction, operating costs and tax reimbursements.

**The United Kingdom** provided a cash grant of Baht 6,757,000, an equipment grant of Baht 1,472,000, and faculty secondments of 75.7 man/months.

**The United States** contributed cash to the amount of Baht 19,735,009 and 10 man/months of faculty secondment.

## SUMMARY OF DONATIONS RECEIVED IN CASH AND IN KIND

### FY 1987-88

#### GOVERNMENTS

Australia	14.50
Belgium	1.59
Canada	2.74
Chinese Taipei	2.15
Denmark	1.51
Finland	1.37
France	2.36
Federal Republic of Germany	10.25
India	0.41
Italy	0.13
Japan	9.36
Republic of Korea	0.14
Netherlands	8.47
New Zealand	0.38
Norway	2.30
Pakistan	0.41
Philippines	0.04
Sri Lanka	0.02
Sweden	0.04
Switzerland	0.71
Thailand	11.95
United Kingdom	2.39
United States	4.46

77.68%

#### INTERNATIONAL ORGANIZATIONS

ADB	1.08
Commonwealth Secretariat	0.13
EC	3.53
ESCAP	0.53
IBRD	0.25
IRRI	0.03
Mekong Secretariat	0.33
UNCHS	0.13
UNDP	2.08
UNDRO	0.04
UNEP	0.03
UNESCO	0.25
UNFPA	0.02
WHO	0.01
UNU	0.07

8.52%

#### FOUNDATIONS

AIT Foundation	0.10
AIT Foundation/IBM	2.57
Education and Public Welfare Foundation	0.02
Keidanren	0.40
Lee Foundation	0.12
RBFI	0.24
Winrock International	0.23

3.67%

#### NATIONAL

##### GOVERNMENT AGENCIES

<b>Australia</b>	
Australian Overseas Disaster Response Organization	0.01
University of Queensland	0.01
<b>Bangladesh</b>	
Bangladesh Water Development Board	1.01
<b>Canada</b>	
IDRC	0.64
McGill University	0.02
<b>Indonesia</b>	
Department of Transmigration	0.15
Geology and Mineral Resources	0.04
Indonesian Institute of Science (LIPI)	0.19
Indonesian National Institute of Aeronautics and Space	0.01
Ministry of Plan Implementation	0.01
National Coordinating Agency for Survey and Mapping	0.19
NUFFIC	0.08
Provincial Area Development Project II	0.22
Universitas Tarumanagara	0.06
Water and Energy Resources Development Agency for Assessment and Application of Technology	0.22
<b>Malaysia</b>	
Malaysian Agricultural Research and Development Institute	0.01
Ministry of Public Works	0.18
<b>Philippines</b>	
University of the Philippines	0.01
<b>Sri Lanka</b>	
Mahaweli Development Authority	0.06
National Water Supply and Drainage Board	0.01
Sri Lanka Business Development Board	0.02

##### PRIVATE AND OTHERS

AITAA	0.04
Foster Parents Plan International	0.03
Helen Keller International, Inc.	0.01
Marden Family	0.10
Mennonite Central Committee, Bangkok	0.04
SE-Asia/Pacific Save the Children Fund	0.02

0.24%

#### Thailand

Agricultural Land Reform Office	0.05
Bangkok Metropolitan Administration	0.14
Cane and Sugar Board	0.08
Chiang Mai University	0.01
DTEC	0.06
Department of Agriculture	0.03
Department of Mineral Resources	0.05
EGAT	0.47
ERTAT	0.08
Fine Arts Department	0.06
KMIT	0.02
Lamphun Agricultural Research Project	0.01
Ministry of Public Health	0.06
Narcotics Control Board	0.03
National Agricultural Research Project	0.01
NESDB	0.34
NEB	0.07
National Inland Fishery Institute	0.05
PTT	0.04
Provincial Electrical Authority	0.09
Provincial Waterworks Authority	0.01
Royal Irrigation Department	0.01
Royal Thai Army	0.02

#### United Kingdom

University of Stirling	0.02
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#### United States

Academy for Educational Development	0.22
University of Hawaii-Manoa	0.16
University of Illinois	0.03
University of Wisconsin-Madison	0.10
Illinois Institute of Technology	0.14

#### Vietnam

State Committee for Science and Technology	0.08
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5.73%



Educational support presented on behalf of USAID by Mr. Bruce Blackman, former ASEAN Regional Development Officer (left); and presented on behalf of EC by Mr. Claude Cheysson, Member of EC responsible for North-South relations.



**BUSINESS AND INDUSTRIES**

AFRC Engineering, UK	0.08	Rural Investment Overseas Co. Ltd., Thailand	0.01
Bank of Credit and Commerce International, USA	0.22	Shell Company of Thailand Ltd.	0.02
BES Engineering Corp., Chinese Taipei	0.20	Shell International Petroleum	0.13
Botton Hennessy Sendiriam BHD, Brunei	0.04	Siam Cement Co. Ltd., Thailand	0.15
Burns and Roe Enterprises Inc., USA	0.23	Sinotech Engineering Consultants, Thailand	0.03
CH Karmchang-Tokyu Construction Co. Ltd., Thailand	0.01	Southern Bank BHD, Malaysia	0.01
Chinese Petroleum Corp., Chinese Taipei	0.21	Srisupparaj Apartment Co. Ltd., Thailand	0.03
Civil Aid Services, Hong Kong	0.01	Sverdrup and Parcel and Associates Inc., Thailand	0.09
Construction and Engineering Services Co., Thailand	0.01	Taisei Corporation, Japan	0.02
Colgate Palmolive Thailand Ltd.	0.01	Taisei (Thailand) Co. Ltd.	0.01
Envirocon International Ltd., Bangladesh	0.38	Taiwan Power Company	0.22
FIAM, Thailand	0.03	TEAM Consulting Engineering Co. Ltd., Thailand	0.14
General Engineering Co. Ltd., Thailand	0.01	Thai-Australia Land Reform Project, Thailand	0.05
Hazama-Gumi Ltd., Japan	0.03	Thai German Plant Protection Program	0.24
IBM (Thailand) Ltd.	0.15	Thai Konoike Construction Co. Ltd.	0.01
Industrial Finance Corp., Thailand	0.01	Thai Ohbayashi Corp. Ltd.	0.01
Institute of International Education, USA	0.08	Thai Nishimatsu Construction Co. Ltd.	0.01
ITC, Netherlands	0.01	Thai Shimizu Co. Ltd.	0.01
Kajima Corporation, Thailand	0.01	Thai Sumicon Co. Ltd.	0.01
Malcom Consortium Thailand	0.02	Thai Takenaka International Ltd.	0.01
Mita (Thailand) Corp. Ltd., Thailand	0.10	Thai Trade Fairs Co. Ltd.	0.01
Mitr Phol Sugar Corp. Ltd., Thailand	0.01	T.M. Thomas and Associates, Canada	0.44
N.V.Philips, Netherlands	0.04	Union Industries Corp. Ltd., Thailand	0.01
Nippon Kokan Ltd.	0.02		
Northwest Hydro Consultants Ltd., Canada	0.36		
Pacific International Consultants Co., Japan	0.11		
Pakistan International Airlines	0.01		
Ret Ser Engineering, Chinese Taipei	0.10		
		<b>Total</b>	<b>4.16%</b>
			<b>100.00%</b>

**Faculty and Staff  
Secondments 1988**

Sponsoring Country/Organization	Man Months
Australia	38.5
Belgium	68.5
Chinese Taipei	14.0
Denmark	23.0
France	128.0
Federal Republic of Germany	106.0
India	32.5
Italy	12.0
Japan	117.0
Republic of Korea	10.5
Netherlands	24.0
Norway	20.5
Switzerland	12.0
UK	75.5
USA	10.0
EC	24.0
UNDP/FAO	31.5
VVOB	11.0
IBM	24.0
N.V.Philips/ Netherlands	4.0
<b>Total</b>	<b>786.5</b>



Equipment donations. Above: A vertical milling machine presented by H. E. Mr. Vinay Verma, the Indian Ambassador to Thailand, and a MITA DC-4085 multi-tone copier from MITA (Thailand) Corp. Left: Mr. Juergen Nitzchke, Managing Director of Company Corp., presiding over the presentation of a thermomax system for the Energy Park.

**AIT/IBM  
PARTNERSHIP AGREEMENT  
FEBRUARY 20, 1988**



Top: AIT/IBM MOU being signed on behalf of IBM by Mr. Victor MacDonald, IBM Vice President and Group Executive, Asia/Pacific, and Mr. Sompop Amatayakul, IBM Thailand General Manager. Above: SPRING Program MOU being signed by Dr. B. Jenssen, representing the University of Dortmund and Mr. W. Volkmann of GTZ.



Anticipated reductions in operating funds for FY 1988-1989 have necessitated the introduction of cost saving measures. The primary focus of expenditure control has been on personnel-related costs, which represent the bulk of Unrestricted Current (Central Operating) Fund expenditures. The administrative staff per student headcount has been reduced over the past two years as a result.

In 1988 cost saving measures in central administration were carried out in matters relating to insurance, Physical Plant repairs and maintenance, subsidies to students and employees, and postage costs.

Organizational changes introduced in 1988 to improve the purchasing, receiving and warehousing functions are also expected to yield substantial materials savings.

The computerization of AIT's Commitment Accounting and Accounts Payable has placed the Institute ahead of most universities in terms of computerized financial operations.

The Finance Department underwent several internal reorganizations during 1988. In the near future, it is expected to take over the tax function from the Personnel Section of Administrative Services.

## **CENTRAL ADMINISTRATION**

### **DEVELOPMENTS IN CENTRAL ADMINISTRATION OFFICES**

Reorganization of the purchasing/receiving/warehousing functions was carried out to create a Central Stores and to provide natural checks and balances between departments. The receiving function was transferred to Physical Plant, as part of the move to create a new Central Stores, replacing the old Physical Plant Stores. In line with a new management approach to the purchasing function, the local hire position of Purchasing Agent was upgraded to international hire level under the title of Purchasing Officer.

Further improvements in operating policies and procedures will be carried out based on an ongoing study of purchasing and Central Stores operation by the Manager of the Administrative System Development Unit.

In line with the planned expansion of the Institute's personnel function, a new position of Assistant Director of Administrative Services was created. Mrs. Paritha Tritasavit assumed this position in September 1988. Plans for overall reorganization, emphasizing training, recruitment and the employee evaluation process, are under consideration.

Emergency/immediate medical care for AIT students, staff and faculty, is provided by the nearby Thammasat University Hospital, which became fully operational in 1988. This has facilitated the provision of medical services while also reducing the Institute's ambulance and off-campus student hospitalization costs. AIT will be making greater use of this medical facility as its capacity for out-patient care and referrals develops.

## CAMPUS DEVELOPMENT

### HOUSING

Staff Housing 6 (ST-6) was at the final stage of construction towards the end of 1988. Constructed from funds donated by the Royal Thai Government, ST-6 consists of 18 family units and 48 bachelor units intended for senior local-hire staff and junior international staff.

Staff Housing 1 (ST-1) is expected to be completed by July 1989. The project involves site development, the provision of infrastructure and the construction of low income housing units. Construction of the holding pond and the earth fill was carried out in 1988.



### RECONSTRUCTION OF ACADEMIC BUILDING SOUTH

Remedial work to correct subsidence problems on the ground floor of the Academic Building South was started in August 1988. Reconstruction and refurnishing are expected to be completed by January 1989. The reconstructed area will be occupied by the School of Management.

## FUTURE CONSTRUCTION PLANS

**EXECUTIVE TRAINING ACCOMMODATION BUILDING** — Connected to the AIT Center, this building is intended to provide executive style accommodation as well as training facilities. Proposed funding: the Development Fund of the Continuing Education Center (CEC) and the AIT Center Reserve.

**OUTREACH OFFICE BUILDING** — This building will house AIT's outreach units, with the exception of CEC. It will also provide office space for outside agencies engaged in collaborative activities with AIT, as well as for clients of the Industrial Development Park. Proposed funding: AIT General Reserve, to be repaid by income from office space rentals.

**STUDENT DORMITORIES** — Additional dormitories will be built to accommodate current and anticipated increases in student enrollment.

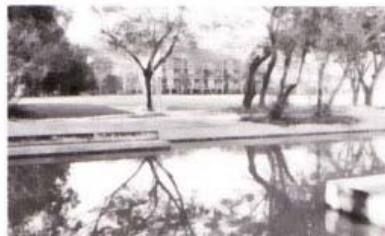
**SCHOOL OF MANAGEMENT BUILDING** — Expected to be constructed within the next five years, this building will accommodate outreach, research and academic activities to be carried out by the School.

**ACADEMIC BUILDING EXPANSION** — A bridge-connected extension of Academic Building North will be constructed to provide additional office and laboratory space for the following divisions: WRE, SEC and GTE. With this extension, the Academic Building North will be extended up to the East-West main academic road.

**ADMINISTRATION BUILDING WING** — Under consideration is another courtyard area south of the existing courtyard. Certain sections of the proposed building will be constructed on stilts to allow for future expansion of the ground floor areas.

**MARRIED STUDENT ACCOMMODATION** — Within the next five years a building to accommodate married students and their families is expected to be constructed.

**BUILDING RECONSTRUCTION** — Remedial work to check subsidence of the single storey section of the Administration Building will be carried out once the Administration Building Wing is completed.





The 18th Governing Board Meeting of the AIT Alumni Association (AITAA) was held in Jakarta from January 20-21, 1989. In his report the outgoing AITAA President, Mr. Wisit Charernnit (CO '65), expressed full confidence that "within the next ten years, the association's national chapters will become some of AIT's strongest supporters."

Mr. Wisit cited the AITAA chapters in Thailand and Chinese Taipei as being the strongest and largest at present. However, he noted the growing activity among the other chapters following their introduction of a new management style. He was referring to the growing practice of electing younger graduates to run the national chapters, while senior graduates provide leadership and financial support. "This style has worked successfully in the Philippines, Hong Kong/Macau, and Malaysia," Mr. Wisit added.

The election of the new AITAA President and Executive Secretary was proclaimed at the annual general meeting.

Prof. Srisakdi Charmonman (WRE '61) of Thailand succeeds Mr. Wisit Charernnit as AITAA President. Prof. Srisakdi is connected with the King Mongkut's Institute of Technology, Ladkrabang campus, where he is Full Professor, Director of the Artificial Intelligence and Software Center, and President of the Faculty Council.

The new AITAA Executive Secretary is Prof. Ashim Das Gupta (WRE '73 and '76), Chairman of the Division of Water Resources Engineering. Prof. Das Gupta is an Indian national.

## ALUMNI AND STUDENT AFFAIRS



Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand presented a gold medal to AITAA-Thailand President, **Roongrueng Chulajata (WRE '61)**, in recognition of his outstanding contribution to Thailand's development.

The gold medal, a replica of the AIT Gold Medal presented to His Majesty the King of Thailand in July 1987, was awarded to Mr. Roongrueng at a ceremony held on May 27.

**Kamal Raj Pandeo (GTE '83)** was conferred a Royal medal, the Prabal Gorkha Dakshin Bahu, by His Majesty King Birendra of Nepal. Mr. Pandeo was cited for his "outstanding performance of responsibilities assigned to him." The Royal medal was presented at a ceremony held on April 13, coinciding with the observance of Nepalese New Year.

Mr. Pandeo, an engineer in the Roads Department of His Majesty's Government, has carried out a number of major road projects in recent years.





### AITAA -THAILAND HONORS GENERAL PREM

To celebrate his Royal Award of Knight of the Ancient and Auspicious Order of the Nine Gems and his appointment as Statesman and Member of the Privy Council, H. E. General Prem Tinsulanonda, former Prime Minister of Thailand, was honored with a party hosted by AITAA Thailand in October.



General Prem being welcomed by AIT Thai alumni led by Commerce Minister Subin Pinkayan (WRE '61) and Dr. Snoh Unakul, AIT Trustee and NESDB Secretary General (right and second from right, respectively).

### AITAA HONORARY MEMBERS

AITAA Honorary Memberships were awarded to **Mr. Guenter Tharun**, Head of the CDG-Southeast Asia Program Office, and to **Mr. Arthur Y. Chen**, President of Ret-Ser Engineering Agency (RSEA).

Mr. Tharun is largely responsible for the establishment of the AIT-German Scholarship Holders' Association in 1983 and the Asian Society for Environmental Protection in 1984.

Mr. Chen took office as President of RSEA in 1986. He has been an active supporter of RSEA's scholarship program at AIT.

### WELCOME ON BOARD



The new AITAA President, Prof. Srisakdi, with Mr. Wisit (right). Other Executive Committee members are Prof. A. D. Gupta (WRE '73, '76), Executive Secretary, Dr. Dennes Bergado (GTE '76), Auditing Secretary, Dr. H. N. Phien (WRE '76, '78), Finance Secretary, Mr. Chainarong na Lampoon (WRE '80), Business Secretary, and Dr. G. Paudyal (WRE '82), Press Secretary.

### Distribution of AIT Alumni by Country 1961-December 1988

Country	Number
Afghanistan	18
Bangladesh	354
Brunei	8
Burma	33
Canada	2
Chinese Taipei	576
Ethiopia	1
Ghana	2
Honduras	1
Hong Kong	75
India	300
Indonesia	196
Iran	12
Japan	35
Kenya	1
Khmer Republic	3
Republic of Korea	71
Laos	1
Macau	5
Malawi	1
Malaysia	214
Nepal	148
Pakistan	311
Papua New Guinea	5
People's Republic of China	47
Philippines	472
Singapore	27
Sri Lanka	341
Tanzania	6
Thailand	1,158
Turkey	6
UK	2
USA	4
Vietnam	77
<b>Total</b>	<b>4,513</b>

At the Institute enhancement programs for the student body are carried out by the AIT Student Union (SU) through social, cultural and sports activities. Responsibility for SU rests with the Executive Council and the General Assembly, which is composed of representatives from each class in all the divisions, the Doctoral students group, and all the nationality groups.

Mr. Anthony Shun Fung Chiu (IEM '88) described his 20-month stay at AIT and his term as SU President (May - December 1988) as "the most fruitful time of my life". Most of all, he valued the friendliness of the Institute's host country, Thailand, and the experience of living in an international community. Mr. Chiu lives in the Philippines.

Ms. Euay Singhakul (AFE '88) of Thailand served as SU President from August 1987 to April 1988.

The newly elected SU President is Ms. Naruemon Pinniam (HSD), for the January-August 1988 term. Ms. Naruemon is a Thai national.



Ms. Euay and Mr. Shun Fung Chiu

### Dean of Student Affairs

Prof. Robert Exell is carrying out the duties of Dean of Student Affairs (DSA), while working at the same time as an active faculty member of the Division of Energy Technology.



Prof. Exell awarding a sports trophy

Prof. Exell has been with AIT since 1972. In recent years, his teaching and research activities have been devoted to programs in solar energy and other renewable energy resources. Prof. Exell was educated at King's College School, Wimbledon and Magdalen College, Oxford.

The former DSA, Mrs. Hilary Wongkaew, left the Institute in February 1988.

## DAYS IN THE LIVES OF AIT STUDENTS



**Dr. Chung-Yuan Chen (EE '80)** is an Associate Professor at the National Chiao

Tung University in Chinese Taipei where he is engaged in what he enjoys best — research. He thanks Dr. Yoshimasa Watanabe for showing "me what good research is all about," and AIT for cultivating his interest in research and in the academe. Dr. Chen views his professional path as being right on track of his career goals.



His first research study right after graduation from AIT was on the wastewater treatment system for the science park and industrial estate of Chinese Taipei. Many others have been carried out since. Currently he is doing a multiple toxicity assessment of various toxic chemicals and heavy metals, and a study of the dynamic process control of the activated sludge process using system simulation.

For **Ms. Hee Wee Lee (CS'85)**, exposure to valuable professional contacts and

potential employers stands out in her recollection of days at AIT. Following up on a job lead brought to her attention at an Institute seminar, Ms. Lee found herself employed by USAID in Jakarta to work in a management information system project for the Indonesian Ministry of Education. Ms. Lee has since returned to Singapore and is now a Systems Analyst with the Institute of Education.



Of faculty interactions, she speaks highly of Dr. Tasman Smith's classes in marketing and Dr. Khalid Saeed's knowledge of systems dynamics. Of her choice of academic specialization, Ms. Lee is particularly pleased. "I enjoy a career mobility not normally offered by other jobs. Professionally and financially, a career in computer technology is very "rewarding".

**Mr. Kan Hock Tan (ET '82)** says, "I owe the cultural interactions I've cultivated at AIT a great deal for my career advancement."



Mr. Tan is currently working for the Public Utilities Board of Singapore. "SU activities provided opportunities for friendships with people from different cultural perspectives. These have helped sharpen my sense of human relations. My training at AIT, on the other hand, has made me more analytical."

**Mr. Woo-Seng Khee (IEM '81)** credits SU activities for broadening his sense

of belonging to an international community. "SU activities gave me a better understanding of different cultures and how to work in an international setting."



Mr. Khee heads the Research Unit of SIRIM (the Standards and Industrial Research Institute of Malaysia). A current project concerns the establishment of a pilot plant for the production of lightweight building materials. Constantly his background in IEM is put into good use, he says. He cites the academic support of two faculty IEM members: Dr. Harry Clarke and Dr. John Tang.

**Syarifuddin Nasution (GTE '78)** credits his AIT experience for much of the

improvements in his life - "The way it has developed my thinking, attitude and sense of maturity..."



He is currently a lecturer at the Bandung Institute of Technology. Mr. Nasution attributes his motivation to succeed to his AIT spirit.

## RANDOM THOUGHTS

What do alumni remember of student days at AIT? A variety of memories come to mind... international friendships, cultural activities, academic experiences, and interactions with faculty.



## APPENDICES

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ASIAN INSTITUTE OF TECHNOLOGY BALANCE SHEET AS AT 30th JUNE  
(BAHT)

Note	Unrestricted Current Fund		Restricted Fund		Capital Fund		Sponsored Program Fund		Agency Fund		Total	
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
<b>ASSETS</b>												
Cash at banks	1,727,988	6,514,219	4,154,704	11,120,354	16,026,958	8,994,013	10,068,377	10,963,373	5,838,398	5,788,653	37,816,425	43,380,612
Investment	32,286,700	4,422,896	239,313,280	208,821,529	27,506,516	19,071,440	17,680,092	10,436,861	62,417,957	27,160,088	379,204,545	269,912,814
Advance duties and taxes	14,358,495	25,002,761	-	-	-	-	-	-	-	-	14,358,495	25,002,761
Accounts receivable and accrued income	2,228,085	1,756,595	5,213,322	4,552,150	189,615	570,394	1,706,103	1,073,008	652,167	714,658	9,989,292	8,666,805
Deposits	282,793	265,792	602,581	1,192,959	144,298	144,298	-	-	-	-	1,029,672	1,603,049
Inventories	-	-	629,313	1,039,906	-	-	-	-	-	-	629,313	1,039,906
Due from other funds	-	27,097,228	-	9,840,275	-	4,500,000	-	-	-	-	-	41,437,503
Fixed assets	-	-	-	-	1,005,160,152	935,391,801	-	-	-	-	1,005,160,152	935,391,801
<b>TOTAL ASSETS</b>	<b>50,884,061</b>	<b>65,059,491</b>	<b>249,913,200</b>	<b>236,567,173</b>	<b>1,049,027,539</b>	<b>968,671,946</b>	<b>29,454,572</b>	<b>22,473,242</b>	<b>68,908,522</b>	<b>33,663,399</b>	<b>1,448,187,894</b>	<b>1,326,435,251</b>
<b>LIABILITIES AND FUND BALANCES</b>												
<b>LIABILITIES</b>												
Accounts payable and accrued expenses	535,941	405,196	2,786,107	2,486,968	-	-	34,238	750,411	394,411	9,239	3,750,697	3,651,814
Deposits	411,800	377,700	476,647	76,940	-	-	-	-	-	-	888,447	454,640
Due to other funds	-	14,340,275	97,871	-	-	-	-	-	-	27,097,228	97,871	41,437,503
<b>TOTAL LIABILITIES</b>	<b>947,741</b>	<b>15,123,171</b>	<b>3,360,625</b>	<b>2,563,908</b>	<b>-</b>	<b>-</b>	<b>34,238</b>	<b>750,411</b>	<b>394,411</b>	<b>27,106,467</b>	<b>4,737,015</b>	<b>45,543,957</b>
<b>FUND BALANCES</b>	<b>6</b>	<b>49,936,320</b>	<b>49,936,320</b>	<b>246,552,575</b>	<b>1,049,027,539</b>	<b>968,671,946</b>	<b>29,420,334</b>	<b>21,722,831</b>	<b>68,514,111</b>	<b>6,556,932</b>	<b>1,443,450,879</b>	<b>1,280,891,294</b>
<b>TOTAL LIABILITIES AND FUND BALANCES</b>	<b>50,884,061</b>	<b>65,059,491</b>	<b>249,913,200</b>	<b>236,567,173</b>	<b>1,049,027,539</b>	<b>968,671,946</b>	<b>29,454,572</b>	<b>22,473,242</b>	<b>68,908,522</b>	<b>33,663,399</b>	<b>1,448,187,894</b>	<b>1,326,435,251</b>

The accompanying notes are an integral part of the financial statements.

PRESIDENT

ASIAN INSTITUTE OF TECHNOLOGY  
STATEMENT OF CHANGES IN FUND BALANCES FOR THE YEAR ENDED 30TH JUNE 1988 (WITH COMPARATIVE TOTAL FOR 1987)  
(BAHT)

	Unrestricted Current Fund		Restricted Fund		Capital Fund					Total		
	General	Endowment	General Reserve	General Reserve	Fixed Assets	Liquid Assets Unallocated	Liquid Assets Allocated	Maintenance and Construction Reserve	Sponsored Program Fund	Agency Fund	1988	1987
Balance, 1 July 1987 (Note 6)	49,936,320	60,309,018	48,811,204	134,883,043	935,391,801	2,498,295	25,051,552	5,730,298	21,722,831	6,556,932	1,280,891,294	1,202,018,036
<b>ADJUSTMENT:</b>												
Project closure transfer	-	-	-	-	-	-	-	-	-	-	-	(111,413)
Disposal of assets	-	-	-	-	(5,368,882)	-	-	-	-	-	(5,368,882)	(3,221,283)
<b>ADDITIONS:</b>												
Excess of revenues over expenditures	9,761,841	2,216,419	-	-	-	-	-	-	7,697,503	61,957,179	81,632,942	5,886,416
Investment income	-	-	632,136	9,352,080	-	-	-	-	-	-	9,984,216	8,641,399
Government grants and appropriations	-	842,436	(185,000)	(62,708)	-	-	19,346,834	-	-	-	20,189,270	30,198,291
Gains (loss) on exchange	-	-	-	-	-	-	-	-	-	-	(247,708)	855,956
Miscellaneous income and contributions	-	-	-	-	-	1,175,051	25,745,456	-	-	-	26,920,507	26,445,431
Contributions in kind-Fixed assets	-	-	-	-	-	-	31,087,700	-	-	-	31,087,700	11,476,310
	59,698,161	62,525,437	50,100,776	134,172,415	930,022,919	3,673,346	101,231,542	5,730,298	29,420,334	68,514,111	1,445,089,339	1,282,189,143
<b>REDUCTIONS:</b>												
Inter-fund transfer from (to)	-	-	-	3,253,947	-	-	3,253,947	3,253,947	-	-	9,761,841	11,000,000
Unrestricted Current Fund	(3,253,947)	-	-	-	-	-	-	-	-	-	(3,253,947)	-
Capital Fund	-	-	-	(3,500,000)	-	-	-	(5,152,711)	-	-	(11,906,658)	(10,320,345)
Unallocated	-	-	-	-	-	-	-	-	-	-	-	4,266,580
Allocated	-	-	-	-	-	-	-	-	-	-	-	-
Maintenance and Construction Reserve	(3,253,947)	-	-	-	-	-	-	-	-	-	(3,253,947)	-
Expenditures for plant facilities	-	-	-	-	75,137,234	-	(12,799,486)	-	-	-	62,337,748	23,577,616
Cash	-	-	-	-	-	-	(31,087,700)	-	-	-	(31,087,700)	(11,376,310)
Kind	-	-	-	-	-	-	-	-	-	-	-	(6,042,720)
Purchase equipment	-	-	-	-	-	(1,487,531)	(22,748,266)	-	-	-	(24,235,797)	(12,303,670)
Other costs	-	-	-	(246,053)	75,137,234	(1,487,531)	(63,381,505)	(1,898,764)	-	-	(1,638,460)	(1,297,849)
Balance, 30 June 1988 (Note 6)	49,936,320	62,525,437	50,100,776	133,926,362	1,005,160,153	2,185,815	37,850,037	3,831,534	29,420,334	68,514,111	1,443,450,879	1,280,891,294

The accompanying notes are an integral part of the financial statements.



ASIAN INSTITUTE OF TECHNOLOGY

STATEMENT OF REVENUES AND EXPENDITURES - UNRESTRICTED CURRENT FUND AND RESTRICTED GENERAL FUND  
FOR THE YEAR ENDED 30TH JUNE  
(BAHT)

	Total			Unrestricted			Restricted					
	1988	1987	1988	1987	1988	1987	Cash					
							1988	1987	1988	1987	1987	
<b>REVENUES:</b>												
Tuition and fees	127,996,287	128,569,238	127,996,287	128,569,238	-	-	-	-	-	-	-	-
Cash contributions	29,859,785	14,921,856	7,734,895	6,945,836	22,124,890	7,976,020	-	-	-	-	-	-
Contributions in kind - service (Note 5)	72,612,571	56,668,891	-	-	-	-	-	-	-	72,612,571	-	56,668,891
Sales and services	72,328,181	74,149,469	519,899	657,967	71,808,282	73,491,502	-	-	-	-	-	-
Contract and grant research	15,148,155	16,389,822	7,977,991	8,685,856	7,170,164	7,603,966	-	-	-	-	-	-
Sponsored programs	4,045,824	4,127,926	-	-	4,045,824	4,127,926	-	-	-	-	-	-
Other services	35,497,970	21,440,821	15,507,242	11,633,510	19,990,728	9,807,311	-	-	-	-	-	-
<b>TOTAL REVENUES</b>	<b>357,488,773</b>	<b>316,168,023</b>	<b>159,736,314</b>	<b>156,492,407</b>	<b>125,139,888</b>	<b>103,006,725</b>	<b>72,612,571</b>	<b>56,668,891</b>				
<b>EXPENDITURES:</b>												
Salaries and associated costs (Note 5)	167,251,919	144,180,627	86,105,641	83,388,217	8,533,707	4,123,519	72,612,571	56,668,891				
Academic related costs	77,859,844	54,135,420	19,726,940	17,665,725	58,132,904	36,469,695	-	-				
Student related costs	6,226,282	4,808,535	1,449,961	1,419,720	4,776,321	3,388,815	-	-				
Administrative costs	2,822,848	2,927,167	2,765,810	2,491,878	57,038	435,289	-	-				
Capital expenditure purchases	6,229,481	5,498,598	6,229,481	5,286,556	-	212,042	-	-				
Other costs	34,247,380	29,762,825	33,696,640	29,762,825	550,740	-	-	-				
Sponsored programs	5,447,164	854,103	-	-	5,447,164	854,103	-	-				
Other services	17,061,276	10,106,886	-	-	17,061,276	10,106,886	-	-				
Enterprise expenses	28,364,319	27,427,517	-	-	28,364,319	27,427,517	-	-				
Contingency reserve	-	14,340,275	-	14,340,275	-	-	-	-				
<b>TOTAL EXPENDITURES</b>	<b>345,510,513</b>	<b>294,041,953</b>	<b>149,974,473</b>	<b>154,355,196</b>	<b>122,923,469</b>	<b>83,017,866</b>	<b>72,612,571</b>	<b>56,668,891</b>				
<b>EXCESS OF REVENUES OVER EXPENDITURES</b>	<b>11,978,260</b>	<b>22,126,070</b>	<b>9,761,841</b>	<b>2,137,211</b>	<b>2,216,419</b>	<b>19,988,859</b>	<b>-</b>	<b>-</b>				

Notes to the Financial Statements

**NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**1.1 Fund accounting:**

In order to ensure observance of limitations and restrictions placed on the use of the resources available to the Institute, the books of account of the Institute are maintained in accordance with the principles of "fund accounting". This is the procedure by which resources for various purposes are classified for accounting and reporting purposes into funds which are in accordance with activities or objects specified. Within each fund group, fund balances which are restricted by outside sources are so indicated and are distinguished from unrestricted fund allocated to specific purposes by action of the governing board. As for unrestricted fund, the governing board retains full control to use in achieving any of its institutional purposes.

Investment income are recognized as income in the unrestricted current fund except for endowments, general reserve and capital funds which are accounted for in the fund to which it is restricted.

Other unrestricted revenues are recognized as income in the unrestricted current fund.

Restricted contributions, grants, appropriations and other restricted resources are accounted for in the appropriate restricted funds.

**1.2 Accrual basis:**

The financial statements have been prepared on an accrual basis except for depreciation of fixed assets and contributions.

Depreciation of fixed assets is not recorded in accordance with the fund accounting concept.

Contributions are recognized on a cash basis due to the uncertainty in receiving contributions which are at the discretion of the donors.

The statement of revenues and expenditures of unrestricted current fund and restricted general fund is a statement of financial activities of current fund related to the current reporting period. It does not purport to present the results of operations for the period as would an earnings statement.

**1.3 Contributions in kind**

These are reflected in the financial statements on a fair value basis at the time of receipt.

**1.4 Inventories**

These are valued at the lower of cost (first-in, first-out basis) and net realisable value.

**1.5 Fixed Assets**

These are stated at cost at the time of acquisition or fair value at the time of donation in the case of contributions in kind.

**1.6 Foreign currencies:**

Exchange rates adopted: Foreign currency transactions during the year -- at the rates ruling on the transaction dates

Assets and liabilities in foreign currency outstanding on the balance sheet date -- at the rates ruling on the balance sheet date

Exchange gains and losses are recognized as revenue and expenditure and taken up in the statement of changes in fund balances.

**NOTE 2 - INVESTMENTS**

	1988 BAHT	1987 BAHT
Time deposits with banks	190,731,976	120,012,277
Deposits with finance companies	188,472,569	149,900,537
	379,204,545	269,912,814

The investments of each fund as at 30th June, 1988 and 1987 are as follows:-

	1988	1987
Unrestricted current fund	32,286,700	4,422,896
Restricted fund		
General	57,231,662	43,441,893
Endowment	49,944,081	48,653,535
General reserve	132,137,537	116,726,101
	239,313,280	208,821,529
Capital fund		
Liquid assets	23,674,982	17,841,142
Maintenance and construction reserve	3,831,534	1,230,298
	27,506,516	19,071,440
Sponsored program fund	17,680,092	10,436,861
Agency fund	62,417,957	27,160,088
	379,204,545	269,912,814

Time deposits with banks amounting to Baht 4.8 M (1987: Baht 4.9 M) of the restricted general reserve fund has been

pledged with a bank as a collateral against outstanding letter of guarantee issued by the bank. (See Note 8).

**NOTE 3 - ADVANCE DUTIES AND TAXES**

This represents advance duties and taxes payments to the Government of Thailand which will be subsequently refunded to the Institute in accordance with the letter of the Office of the Secretary-General to the Cabinet dated 14th May, 1968. The refund of the advance is however subject to the annual government budget of the Government of Thailand.

	1988 BAHT	1987 BAHT
Employees personal income tax	10,034,145	22,819,320
Import duty and business tax		
- Automobile	1,841,842	147,762
- Wine and spirit	2,356,525	1,820,013
- Other	125,983	215,666
	14,358,495	25,002,761

**NOTE - 4 FIXED ASSETS**

**NOTE - 5 CONTRIBUTIONS IN KIND - SERVICES**

This represents services donated to the Institute in the form of seconded faculty or staff of which the value is estimated on a basis in accordance with the approved Institute professional salary scale. The amounts are recognized as revenues and expenditures in the restricted general fund.

	1988 BAHT	1987 BAHT
Campus development	15,533,132	15,191,939
Buildings	428,443,333	422,321,420
Furniture and equipment	494,620,064	443,524,457
Library acquisitions	51,195,098	46,442,165
Construction in progress	15,368,525	7,911,820
	1,005,160,152	935,391,801

**NOTE 7 - CAPITAL COMMITMENTS**

As at 30th June, 1988 the Institute had capital commitments in respect of building construction amounting to approximately Baht 12.9 million.

**NOTE 6 - FUND BALANCES**

Restricted fund

General	62,525,437	60,309,018
Endowment	50,100,776	48,811,204
General reserve	133,926,362	124,883,043
	246,552,575	234,003,265

**NOTE 8 - BANK GUARANTEES**

As at 30th June, 1988 there were outstanding bank guarantees of approximately Baht 4.8 million (1987 : Baht 4.9 million) issued by a bank on behalf of the Institute in respect of certain performance bonds as required in the normal course of business of the Institute.

Capital fund

Fixed assets	1,005,160,153	935,391,801
Liquid assets - Unallocated	2,185,815	2,498,295
Liquid assets - Allocated	37,850,037	25,051,552
Maintenance and construction reserve	3,831,534	5,730,298
	1,049,027,539	968,671,946

Accountants' Report to the Trustees of the Asian Institute of Technology

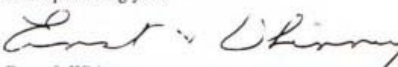
We have examined the balance sheet of Asian Institute of Technology as at 30th June, 1988 and the statement of income and expenditure of unrestricted current fund and restricted general fund, and the related statement of fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of

the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The financial statements for the year ended 30th June, 1987 as presented herein for comparative purposes were examined by other auditors whose report dated 24th November 1987, expressed an unqualified opinion on those statements.

In our opinion, the aforementioned financial statements present fairly the financial position of Asian Institute of

Technology as at 30th June, 1988 and the income and expenditure of unrestricted current fund and restricted general fund and changes in fund balances for the year then ended, in conformity with generally accepted accounting principles appropriate for non-profit organization as set out in Note 1 to the financial statements, applied on a basis consistent with that of the preceding year.

  
Ernst & Whinney  
Bangkok, Thailand  
11 November 1988



Portfolio of  
Contract and  
Grant Research 1988

**IN PROGRESS**

Implementing Division/Center	Sponsor(s)	Principal Investigator(s)	Grant Obligation
<b>AFE</b> Fish Production with Composted Water Hyacinth	GTZ	Prof. Edwards	US\$53,262
Development of Intensive Tilapia Pond Culture as a Means of Increasing Freshwater Fish Production in the Tropics	EC	Prof. Edwards	47,667
Case Study on the Economic and Technical Options of Integrated Urban Sanitation and Recycling Systems	GTZ	Prof. Edwards Dr. Chongrak , Dr. Orth (EE) Mr. Kammeier (HSD)	18,285
Development of the West End of AIT Campus	Both supported by AIT Research Initiation Grants and carried out by Prof. Nielsen		30,000
Teaching and Research in Campus West End Development			1,942
Integrated Paddy/Fish Farming	DANIDA	Prof. Nielsen	5,672
Development of Crop/Livestock/Fish Integrated Farming Systems for Small-Scale Farmers	ODA	Prof. Edwards	70,204
AIT Aquaculture Outreach Interactive Field Trials With Farmers in Northern Thailand	ODA	Prof. Edwards Dr. Demaine (HSD) Mr. Little, Mr. Innes-Taylor	1,178,858
Development of Economic Feeding Systems for Muscovy (Meat) Ducks in Duck-Fish Integrated in Thailand	IDRC	Prof. Edwards	84,294
Utilization of Non-Conventional Feedstuffs in Fish Feeds (Fish Nutrition)	IDRC	Dr. Wee	104,250
Rice Drying	USAID, Thailand	Dr. Jindal	2,172
Improvement of Irrigation Efficiency and Irrigation Association in Southeast Asian Region	JICA	Dr. Goto	19,679
Pond Dynamics/Aquaculture (Thailand)	USAID/University of Michigan	Dr. Lin Prof. Edwards	100,000
Farmer-Driven Electrostatic Low-Volume Sprayer	USAID, Thailand	Prof. Gupta, Prof. Singh	162,000
Testing/Manufacture of AIT Jab Seeder in Nepal	ICIMOD	Prof. Singh	6,000
Nitrogen Fixation by Azolla and Legumes Fertilization based on Chemical Composition of Plants	All sponsored by DANIDA and carried out by Prof. Nielsen		5,000
Cattle Use for Beef and Milk Production and for Work			5,000

Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation	
Application of Enamel to Improve the Performance of Some Agricultural Implements	AIT Research Initiation Grant	Dr. Salokhe	US\$ 1,725	
Study of Rainfed Farming Systems in Kao Perm Subdistrict, Banna District, Nakorn Nayok Province, Thailand		Dr. Waibel	1,725	
A Study for the Development of Amphor Nong Song Hong and King Amphor Na Phoe, Khon Kaen and Buriram Province*	NESDB	Dr. Athapol Dr. Kriensakee Mr. Prida (RRDC) Mrs. Samorn, Dr. Chongrak (EE)	Baht 3,584,500	
Extension of AIT-IDRC Jab Seeder Project in Thailand	IDRC	Prof. Singh Dr. Gee-Clough	US\$ 80,000	
<b>CS</b> Partial Evaluation of PROLOG Program	AIT Research Initiation Grant	Dr. Malhotra	Baht 44,000	
Performance Evaluation of Computer Systems Through Petri Net Tools		Prof. Nanda	27,000	
Microcomputer-Based Medical Expert Systems	UNU	Dr. Vilas	US\$ 28,800	
<b>ET</b> Biocoal Technology Status Report Biocoal Technology Assessment Improvement of Special Aspects of Biocoal Technology Dissemination of Information on Biocoal Technology Economic Analysis of Biocoal Production in Thailand Study of Costs and Availability of Selected Biomass Residues in Thailand	All sponsored by GTZ and carried out by Dr. Bhattacharya and Dr. Shrestha		US\$ 116,644	
Development and Maintenance of the Energy Park and Division Support		AFME/MAE	Mr. Bouix	60,000
Theoretical and Experimental Studies on Solar Ponds and Their Applications			Mr. Bouix Dr. Cubizolles	30,000
Energy Demand Analysis of the Transport Sector in Asian Countries		AFME/MAE/ESCAP	Dr. Chateau, Dr. Lapillone Mr. Bosseboeuf	45,000
Testing of Energy Equipment for Adaptation to Tropical Climate		AFME	Mr. Bouix, Dr. Mohanty	100,000
AIT-CEC Regional Energy Review and Data Base Development and Management		EC/ESCAP	Dr. Dang	50,000

Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
Energy Demand Analysis and Forecasting in Thailand (Phase II)	All sponsored by EC and carried out by Dr. Dang		US\$ 257,600
Characterization of Rural Energy Resources Consumption			63,800
Energy Diagnosis and Demand Forecasting of Capiz Province, the Philippines			42,000
Asian and Pacific Energy Planning Network	EC	Dr. Dang, Dr. Codoni	15,000
Assessment of Cogeneration and Private Power Potential in the ASEAN Region One Half-time Advisor to USAID/ASEAN	Both sponsored by USAID and carried out by Prof. Foell		61,000
Pumping Survey in Thailand	AIT/BP	All carried out by Dr. Lasnier	15,000
Suan-Som Photovoltaic Project, Thailand	Systems A.M.I.		2,000
Regional Animation in Photovoltaic	AFME/AIT		25,000
Training in the Pacific Islands on Photovoltaics for Rural Electrification	AIT/ESCAP		5,000
Phra Yuen Photovoltaics Pumping Project	AIT/THAI/Australia Team		2,500
AIT-ESCAP Photovoltaic Project in Pakistan	AIT/ESCAP		35,000
Sectoral Energy Demand Analysis	ESCAP	Dr. Chateau, Dr. Lapillone	435,000
Rational Use of Energy in Industry	AFME	Prof. Mora, Dr. Mohanty	55,000
ET Division Support	MAE	Prof. Mora	33,000
A Study for the Development of Amphor Nong Song Hong and King Amphor Na Phoe, Khon Kaen and Buriram Province*	RRDC	Dr. Prida, Prof. Exell Dr. Dang, Dr. Lasnier	112,000
ASEAN-Australian Energy Project (Energy Conservation and Biomass for Heat and Power)	ASEAN/Australia	Dr. Prida	Research Equipment Support
Biogas Plant Project (Overall Project)	All sponsored by GTZ		US\$ 218,000
● Digestion of Highly Diluted Pig Manure in a Fixed-Bed Plug-Flow Digester Packed with Bamboo Rashing Rings under Horizontal Flow Condition ● Monitoring of a Full-Scale Plug-Flow Digester at Tabkwang Research Station, Saraburi, Thailand		Mr. Tentscher Ms. Anchalee Kongbunsuk (KU)	
● Advising KURDI on Preparation of a Training Course on Construction and Operation of Farm-Scale Biogas Plants		Mr. Tentscher, Dr. Thira Chichanawong (KU)	
● Advising Two Villages in Nonthaburi Province, Sai Noi District, on Digestion of Water Hyacinth ● Ageing Test of Different Locally Available Plastic Films Used as Gas Holder		Mr. Tentscher Ms. Priya Osthanda Mr. Sunand Nuanchankul, Office of the Prime Minister	
● Digestion of Rice Straw Mixed with Cow Manure in a 20 m Batch Digester		Mr. Tentscher Prof. Nielsen (AFE)	



Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
Energy Management in the ASEAN Region	ASEAN/USAID	Dr. Prida (ASEAN Coordinator)	
AIT-GTZ Gasification Project	GTZ	Dr. Reines	US\$ 111,680
Rational Use of Energy in Buildings	AFME	Mr. Traisnel	10,000
<b>EE</b> Integrated Socio-Ecosystem Model of Pru To Daeng, Narathiwat, Thailand	RID	Dr. Chongrak Dr. Ahn, RRDC	Baht 1,597,500
Environmental Impact Study for Bang Pa-kong Power Plant Extension, Thailand	EGAT, RRDC	Dr. Ahn Mrs. Samorn	1,966,000
Proposition of Suitable Water Treatment for Bangkok Fish Market	FMO	Mrs. Samorn, Mr. Sompol Dr. Vigneswaran	200,000
Sewage Purification through Aquatic Plants	GTZ	Dr. Orth	DM 233,750
Wastewater Treatment using Membrane Bioreactor: Its Application to Urban Areas in Southeast Asia	JICA	Dr. Yamamoto	Baht 220,000
<b>GTE</b> Development of Under-Reamed Piling Technique and Equipment for Foundations of Low-Rise Houses/ Structures in Low-Lying Marshy Areas Consisting of Organic Clay and Peat Deposits	UNDP through UNCHS	Both carried out by Prof. Balasubramaniam and Dr. Bergado	US\$ 30,000
Welded Wire Reinforced Earth Mechanically Stabilized Embankments with Cohesive Backfill on Soft Clay	USAID, Office of the Science Advisor, USA		150,000
Role of Chao Phraya Express Boat as Public Transportation in the Bangkok Metropolitan Area	IDRC	Dr. Yordphol Dr. Inamura	Baht 297,000
Investigation of Integrity of Concrete Piles Damaged by Soil Sliding at Lad Phrao Pump Station	CISA-Slot Joint Venture, Thailand	Dr. Noppadol Dr. Worsak (SEC)	73,335
Stability of Natural Deposits	JICA	Dr. Kuwano	320,000
Feasibility Studies on Transportation Projects in the Southeast Asian Region	JICA	Dr. Inamura	425,000
Traffic Operations and Management	JICA	Dr. Kuroda	356,984
Impact of Quaternary on Urban Development and Land Use of the Central Plain of Thailand	IDRC	Prof. Prinya Prof. Yong	1,900,260
Investigation of Mining or Excavation Induced Instability and the Development of a Methodology for Optimum Ground Control	All supported by AIT Research Initiation Grants	Dr. Indraratna	25,000
Diversion Rate of Expressways in Developing Countries		Dr. Kuroda	44,000
Design and Implementation of a Fully Automated Digital Data Acquisition System Combined with IBM-PC for Laboratory Use		Dr. Indraratna AIT Instrumentation Unit	67,500

Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
Study Tour to Japan by 7 AIT Students and 1 Faculty Member	Express Highway Research Foundation, Japan	Dr. Kuroda	Baht 640,000
<b>HSD</b> Urban Land Pooling/Readjustment Technique in Asian Countries	Both sponsored by the Metropolitan Research Trust and carried out by Mr. Archer		Baht 50,000
Metropolitan Land Management for Asian Cities			50,000
Impact of the Development of Phru To Daeng, Narathiwat, Thailand	Both sponsored by AIT Research Initiation Grants	Dr. Demaine Other AIT Faculty	1,500,000
Studying the Interdependence between Informal Sector Activities and Housing Settlements in Bangkok			25,000
Khorat Pilot Project on Information System and Data Bank for Provincial Planning in Thailand	Both supported by AIT Research Initiation Grants	All carried out by Prof. Weber	Baht 10,000
AIT Alumni Tracer Study '88			420,000
Small Farm Development Issues in Northeast Thailand: Toward Appraising Small Potential for Agricultural Development	All three are supported by AIT/CIDA/HSP		US\$ 1,000
Small Farm Development Issues in Northeast Thailand: Water Users' Attitudes Towards Utilization and Conservation			1,000
HSD Division Graduates' Study Performance, 1978-83			Baht 5,000
AFE, ET, HSD and WRE Divisions Graduates' Study Performance	Both supported by AIT/CIDA/BBDP		25,000
Building Productive Communities: A Study for Settlement Planning and Development After Land Reform			US\$ 500
Low Income Rental Housing in Bangkok	AIT Research Initiation Grant	Dr. Yap	Baht 44,000
Study for the Development of Amphor Nong Song and Amphoe Puai Noi, Khon Kaen Province; Amphor Burabu and Amphor Na Chueak, Mahasarakham Province; and Amphoe Na Pho, Buriram Province*	NESDB	Dr. Demaine, Prof. Weber Dr. Suvit, Other AIT Faculty Coordinated by RRDC	2,900,000
Software Development (SILP 2)	UN-HABITAT	Mr. Kammeier	20,000
Regional Analysis of an Emerging Metropolis: Cuttack-Bhubaneswar City in Eastern India, A Case Study	AIT Research Initiation Grant	Dr. Routray	Baht 44,000
People's Image of Rural Development in Selected Asian Countries	Both sponsored by CIDA-AIT/PP and carried out by Dr. Setty		US\$ 4,334
Developing Agro-Enterprises in Rice-Based Farming Systems Among Rural Women in Asia			5,910

	<b>Implementing Division/Center Research Title</b>	<b>Sponsor(s)</b>	<b>Principal Investigator(s)</b>	<b>Grant Obligation</b>
	Planning and Building Legislation and Administration, ASEAN Countries	IDRC	Mr. Kammeier	US\$ 77,610
	AIT/KU Leuven Low-Cost Housing Project	VLIR/ABOS/VVOB	Dr. Verschur Ms. Iterbeke, Mr. Jacobus	95,000
<b>IEM</b>	Managerial Policies and Techniques for Public Bus Transit Systems in the Asian Region	Flemish Inter-University Council	Dr. Oudheusden	Baht 4,340,000
	Optimal Design of Natural Gas Pipelines	JICA	Dr. Fujiwara	120,000
<b>SEC</b>	Statical Structural Analysis of Biogas Holders	GTZ	Dr. Worsak, Mr. Tentscher	US\$ 100,000
	Micro-Ace Software Development Project	SEC	Dr. Worsak, Mr. Somporn	Baht 300,000
	Finite Element Analysis of Rail Tank Wagon Structure	Thai Shell Exploration and Production	Dr. Worsak, Mr. Somporn	137,718
	Problems of Concrete Structures in ASEAN Countries and Establishment of Rational Design Method	JICA	Dr. Ueda	400,000
	Quantitative Classification of Tunnelling Conditions	Central Board of Irrigation Power, India	Dr. Chauhan	IR 84,000
	Properties of Concrete Using Z-10/A and Z-12/C Additives	General Engineering Limited, Thailand	Dr. Pichai Mr. Chalut	Baht 100,000
<b>WRE</b>	Improved Large Scale Water Resources Development Planning	GTZ	Dr. Bogardi	Baht 861,822
	Power Production Improvement for the Selabam Mini Hydropower Station Lao-PDR	TATA Consulting Engineers, India	Prof. Suphat, Mr. Prida Dr. Preecha	US\$ 65,418
<b>ALWD</b>	Improvement of Irrigation Efficiency and Irrigation Association in Southeast Asia	JICA	Dr. Goto	US\$ 19,000
<b>INRDM</b>	Comparative Thematic Mapping Analysis of the Vientiane Plain (Laos)	CNES/SI/MC	Dr. Apisit, Dr. Kaew Mr. Kozminski	US\$ 30,000
	Soils, Land Use, and Soil Conservation in Four Selected People's Irrigation Systems, Northern Thailand	RID	Dr. Apisit	Baht 120,000
<b>LRDC</b>	Strengthening Environmental Information Systems in Selected Developing Member Countries	ADB	Mr. Vespry	US\$ 350,000
<b>RCC</b>	Computerized System for Planning and Monitoring Development Projects (Sri Lanka)	MASL/UNDP (Sri Lanka)	Mr. Dias	US\$ 52,700
	Development of ASEAN Regional Data Base on Pollution from Ships	IMO/UNDP	Mr. Dias	14,500



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	Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
AFE	Evaluation, Improvement and Demonstration of a Manual Soybean Seeder	IDRC	Prof. Singh Dr. Gee-Clough	US\$ 146,000
	Heat Sterilization and Accelerated Drying of High Moisture Rice for Safe Storage	USAID,Thailand	Dr. Jindal	150,000
	Applied Nutrition for Rural Development	EC	Dr. Jindal, Dr. Tips (HSD)	66,299
	Improving Tractor Efficiency in Paddy Field Conditions	EEC/NIAE	Dr. Gee-Clough	58,590
	Grain and Forage Legumes for Rice-based Rainfed Farming Systems on Acid Sulphate Soils	All supported by AIT Research Initiation Grants	Dr. Gartner	726
	Harvesting and Handling of Tropical Fruits		Prof. Gupta	342
	Design and Improvement of Small Farm Irrigation Systems		Dr. Murty	971
	Preliminary Study of Rainfed Farming Systems in Ban Na District, Nakorn Nayok Province, Thailand		Dr. Peacock	971
	Development of an Integrated Fish Culture Involving Intensive and Extensive Culture Systems		Dr. Lin	971
	Response to Fertilizers and the Economics of Rice, Corn and Corn + Legumes - Mix in the Acid Sulphate Soil in the Bangkok Plain		Prof. Nielsen	971
	Analysis of Production Cost of Sugarcane		Ministry of Industry, RTG	Dr. Athapol Mr. Prida (RRDC)
	Application of Chemicals at the Farm Level in the Control of Aflatoxin in Stored Maize Cobs	Rural Investment Overseas Co.	Dr. Ilangantileke Dr. Athapol	4,846
	Hatchery Project	Institute of Agricultural Engineering, the Netherlands	Dr. Wee	5,300
CS	Microcomputer-Based Consultation System for Rural Doctors	UNU	Dr. Vilas Wuwongse	US\$ 37,000
EE	Establishing Design Recommendations for Health Protection Measures for Intermittent Water Supply Schemes	WHO	Dr. Vigneswaran Dr. Chongrak	Baht 94,000
	Economic, Institutional and Technical Implications of Alternative Urban Sanitation and Recycling Options, A Case Study of Chonburi, Thailand	GTZ	Dr. Orth, Dr. Chongrak Prof. Edwards (AFE) Mr. Kammeier (HSD)	DM 94,000
	Reduction of Chlorine Demand in Anaerobic Filter Effluent by Air-Stripping	IDRC	Dr. Chongrak Dr. Kriengsak	CAD 4,500
	Environmental Impact Assessment of a Pulp and Paper Mill Effluent, Bang Pa-In, Thailand, Phase 1	UNEP	Dr. Chongrak Mrs. Samorn,Mr. Sompol	Baht 300,000

Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
Application of Membrane Separation to Wastewater Treatment	JICA	Dr. Yamamoto	Baht 172,000
<b>ET</b> Preparation of a Report on the State of the Art for Biocoal Technology	Both supported by GTZ and carried out by Dr. Bhattacharya and Dr. Shrestha, using part of US\$116,644 grant for ongoing biocoal project		
Report on Biocoal Market Requirements and Opportunities			
Solar Water Heater Characterization and Testing Method	AFME	Mr. Bouix Mr. Supachart, Mr. Thada	US\$ 15,551
Solar Timber Kiln	UNCHS NBRO, Sri Lanka	Prof. Exell Mr. Sommai	30,000
INCASE: A Case Study in Integrated National Energy Planning, 2 Vols	UNDP	Dr. Codoni	40,000
German Solar Project (Dornier System Solar Collector Test Bed)	GTZ	Prof. Exell Mr. Supachart	51,356
Analysis of Energy Conservation Strategies for Transportation Systems in the Philippines	Carried out by Prof. Foell using part of US\$ 61,000 USAID grant		
Training in Pakistan on Photovoltaic Systems Engineering	Both supported by AIT-ESCAP US\$24,272 grant and carried out out by Dr. Lasnier		
Training on Photovoltaic for Telecommunications in China- Laos-China			
Pilot Plant for Teaching and Training: Energy in Industrial Processes	AFME-CNRS	Prof. Mora, Mr. Bouix Dr. Mohanty, Dr. Cubiollles	20,000
Energy Auditing in Industry in Thailand	AFME	Prof. Mora, Mr. Bouix, Dr. Prida Dr. Bhattacharya, Dr. Mohanty	16,000
Statical Optimization of Fixed-Dome Biogas Plants, A Computer Simulation Approach	GTZ	Mr. Tentscher Prof. Ringkamp	50,000
Evaluation of Fertilizer Trials in Fields with Digested Pig Manure and Fish Ponds with Digested Water Hyacinth	GTZ	Mr. Tentscher Prof. Edwards (AFE) Prof. Nielsen (AFE)	5,000
Energy Demand Analysis and Forecast, Thailand Phase I	EC	Dr. Sauter-Servaes Dr. Dang	253,000
Digestion of Pig Manure in Pilot Scale Plug-Flow Digesters Under Horizontal Flow Conditions with and without Fixed Bed Bamboo Mats as Packing Material	GTZ	Mr. Tentscher Dr. Somchai Chansawang (KU)	Part of US\$218,000 GTZ grant
<b>GTE</b> An Experimental and Theoretical Study of Foundation in Two-Layered Soils	Both supported by AIT Research Initiation Grants	Dr. Kuwano	Baht 25,000
Geotechnical Aspects of Soft Ground Tunnelling in Southeast Asian Urban Areas		Dr. Noppadol	25,000

Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
Survey Method for Transportation Planning in Developing Countries	JICA	Dr. Miyamoto	Baht 100,000
Study on the Prathum Thani New Port Project	City of Prathum Thani, NESDB	Dr. Inamura, Dr. Yordphol Mr. Prida (RRDC)	67,200
Ground Improvements by Vertical Drains and Pre-loading, Imari Bay, Reclamation Project, Kyushu	Taiyo Kogyo Co., Japan	All carried out by Dr. Bergado with Prof. Miura (Saga University) during his sabbatical leave in Japan.	600,000
Foundation Improvement for Saga City, Underground Sewerage Pipeline Project	Saga City, Japan		600,000
Reinforced Gravel Foundations for Culvert Construction on Ariake Clay, Kyushu	Both supported by the Ministry of Construction, Japan		200,000
Reinforced Asphalt Road Pavement in Takeo City			200,000
<b>HSD</b> Development of a Microcomputer Software Package for Regional Planning (SILP - Services Identification and Location Package Versions)	GTZ/ISS	Mr. Kammeier	US\$ 2,500
Thai-German Plant Protection Program Field Research	TG-PPP/MAC-DAE-RTG/GTZ	All carried out by Prof. Weber	6,000
Development of an Alternative Strategy for Land Settlement Planning in Asian Countries	GTZ		8,300
Women in Development: Bibliography on the Advancement of Women in Asian Countries	CIDA-AIT/PP		5,910
Evaluation of Development Projects Implemented by the Forum for Integrated Agricultural Management	FIAM		Baht 170,000
<b>IEM</b> Optimal Design of Water Distribution Network	JICA	Dr. Fujiwara	Baht 120,000
<b>SEC</b> Development of a New Code of Practice for the Design of Structures in the Southeast Asian Region	JICA	Dr. Hasegawa	Baht 425,000
Generation of Weighting Factors for Evaluating Management Performance in Construction	Both supported by AIT Research Initiation Grants	Dr. Chauhan	25,000
Geometric and Material Non-Linear Analysis of Asymmetric Thin-Walled Structures		Dr. Kitipornchai	25,000
<b>WRE</b> Hydraulic Model Study of Pak Mun Multi-purpose Development Project	EGAT	Mr. Prida Dr. Preecha	Baht 1,837,460
Ao Phai Thermal Power Plant - Thermal Discharge Model Tests	Burns & Roe Co., USA	Prof. Suphat Mr. Prida	US\$ 52,868
Computer and Management Consulting Services, Flood Control of Bangkok and Vicinity	Sverdrup & Parcel & Associates, Inc.	Prof. Suphat	Baht 502,500
Physical Oceanography and Data Management, East Asian Seas	NEB	Mr. Prida Dr. Preecha	US\$ 11,773



	Implementing Division/Center Research Title	Sponsor(s)	Principal Investigator(s)	Grant Obligation
	Program of Consultancy Services in Training and Installation of Equipment and Data Processing ASEAN-US Watershed Project	Forestry Dept., RTG	Mr. Prida Dr. Preecha	US\$ 4,905
	Integrated Socio-Ecosystem Model of Pru To Daeng, Narathiwat, Thailand	Team Consulting Engineers Co.,Ltd.	Mr. Prida Prof. Suphat	Baht 1,597,500
<b>ALWD</b>	Irrigation Management Improvement by Optimum Main System Operation	Both supported by AIT Research Initiation Grants	Mr. Loof Dr. Paudyal	Baht 25,000
	Design and Improvement in Small Farm Irrigation System		Dr. Murty	US\$ 971
<b>INRDM</b>	Geomorphic Units Appearing on Remote Sensing Imagery in Thailand	NRC	Dr. Apisit Dr. Kaew	Baht 225,000
	Land Use and Crop Substitution Study in North and Northeast Thailand	CNES	Mr. Dekeyne	178,000
	Effect of Deforestation and Agricultural Land Use on the Nutrient Level and Suspended Solids Load of Tropical Streams	EC	Mr. Dekeyne	514,000

\*Derived from suggestions made by His Majesty King Bhumibol Adulyadej of Thailand.

## Continuing Education Activities during 1988

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| 6 - 8 Jan / RCC (RCC)<br>Personal Computer Communications Workshop   | 21-24 Mar/ LC (Ayutthaya Teacher Training College)<br>Language-teaching Methodology for Language<br>Teacher-Trainers |
| 11 Jan - 15 Apr/ INRDM (AIFM/ADV)<br>Applied Remote Sensing  | 23-24 Mar/ CS (CS)<br>Information Security   |
| 11 Jan - 22 Apr/ RCC (RCC)<br>PCAD   | 18 Apr-27 May/ IEM/CEC (US-ASEAN/ADV/IEM)<br>Project Management  |
| 18 - 21 Jan/ CEC (UNICEF/EE/ENSIC)<br>Rural Water Supply, A Study Visit  | 18 Apr-27 May/ ADPC (ADPC/ADV)<br>Disaster Management Course 5   |
| 21 - 24 Jan/ IEM (State University New York - Binghamton)<br>Technology Transfer and the Developing Countries                        | 19-28 Apr/ HSD (UN/Government of Laos)<br>Urban Project Planning, Vientiane Urban Development<br>Project             |
| 29 Jan/ EE (EE)<br>Application of Microfiltration in Water and Wastewater<br>Treatment   | 25 Apr-13 May/ INRDM (ADB/ESA)<br>New Developments in Remote Sensing and Information<br>Systems Technology           |
| 2 Feb/ ET (May & Baker Co., Thailand)<br>Advances in Biotechnology   | 9 May-16 June/ EE (GTZ)<br>Industrial Water Pollution Control  |
| 8-28 Feb/ CEC (UNESCO/CS)<br>Science and Technology Information System and Policy<br>Formulation for Maldives                        | 9 May-29 July/ LRDC (ADV)<br>New Information Technology and Computerized Library<br>Service                          |
| 3-13 Feb/ADPC (ADPC/Ministry of Rehabilitation<br>and Reconstruction, Sri Lanka)<br>Disaster Management for Senior Officials         | 9 May-18 Aug/ INRDM (INRDM)<br>Natural Resources Information Management  |
| 15 Feb-15 Apr/ CEC/WRE/EE/HSD/AFE/ALWDP<br>(International Indonesian Bank for Rural Development)<br>Rural Infrastructure Development | 9 May-19 Aug/ RCC<br>PCAD  |
| 22-24 Feb/ WRE (IAHR)<br>Numerical Modelling of Sediment Transport in Rivers and<br>Estuaries  | 16-18 May/ INRDM (ADB/ESA)<br>Future of Remote Sensing and Information Systems<br>Technology in the Region           |
| 22-28 Feb/ ET (KMITT)<br>Regional Bioenergy Training   | 16-20 May/ GTE (SEAGS)<br>Principles and Techniques of Engineering Geology   |
| 6-18 Mar/ADPC (ADPC/Department of Social Welfare and<br>Development, Philippines)<br>Disaster Management for Senior Officials        | 16 May-8 July/ CEC/WRE/ALWDP (UNDP)<br>Microcomputer Application in Water Management                                 |
| 7-18 Mar/ HSD (ADV)<br>Microcomputer Applications to Human Settlements Planning<br>and Management                                    | 23 May-16 June/ INRDM (French Government)<br>Image Processing of SPOT Data, Vientiane                                |
| 7-18 Mar/ HSD (FAO)<br>Farm Household Survey Design and Interpretation of Farm<br>Household  | 30 May-1 July/ CEC (ADB)<br>Irrigation Project Rehabilitation and Management   |
| 7 Mar-29 Apr/ CEC/WRE (ADB/BWDB)<br>Small Scale Irrigation and Water Control Structures for<br>Bangladesh                            | 2-3 June/ INRDM (RBF)<br>Natural Resources Development and Management  |
|  | 5-10 June/ AFE (IDRC)<br>Finfish Nutrition   |

- 24 June/ ET (Fulbright, Thailand)  
Incorporating Conservation and Cogeneration Measures into Electricity System Generation Expansion Planning
- 7-9 July/ HSD (ISS/ISEC)  
Integrated Rural Development Planning: Lessons from Experience in Asia
- 18 July-26 Aug/ CEC (ADB/IEM/CS)  
Management of Training Center
- 19-22 July/ CEC (USAID, Nepal/IEM/CS)  
Improving Human Resources Effectiveness
- 25 July-6 Aug/ IEM/CEC (ADB/IEM)  
Advanced Management Program for Asia-Pacific Managers
- 8 Aug-28 Oct/ CEC, WRE, ALWDP (ADB/USAID)  
Rehabilitation of Large Scale Irrigation Projects
- 8-31 Aug/ INRDM (ADV)  
Use of Microcomputers for GIS
- 15 Aug/ CEC (IEM)  
Large Scale Systems (Optimization in Water Resources Development)
- 15-27 Aug/ INRDM (French Government)  
Geologic Applications of SPOT Data, Jakarta
- 16-17 Aug/ IEM/CEC (ADV)  
Computer Control Applications in Industry
- 16-19 Aug/ SEC (SEC)  
Microcomputers in Structural Engineering and Practice (M/SEAP 5)
- Mid-Aug/ LC (Ayutthaya Teacher Training College)  
Independent Learning
- 22 Aug-9 Sept/ CEC (ADV/CS)  
Information Systems Analysis and Design
- 23-26 Aug/ GTE (AIT/ Christian University of Indonesia)  
Ground Improvement Techniques
- 24-26 Aug/ RCC (\*)  
Personal Computer Communications Workshop
- 31 Aug-2 Sept/ RCC (\*)  
Personal Computer Communications Workshop
- 1-3 Sept/ EE (GTZ)  
Anaerobic Waste Treatment and Sanitation Technologies, Pattaya
- 1-3 Sept/ GTE (Roger Gill & Associates/ Thai Contractors Association/ ERTAT)  
Roads, Highways and Bridges for the 21st Century
- 5 Sept-14 Oct/ CEC/WRE/AFE/ALWDP (Mandala Agricultural Development Corp., Bangladesh/ADB)  
On-Farm Water Management
- 5 Sept-28 Oct/ CEC/WRE (Ministry of Public Works, Indonesia)  
Urban Drainage and Flood Control
- 5 Sept-25 Nov/ RCC (\*\*)  
PCAD
- 5 Sept-16 Dec/ INRDM (CDG/ ADV)  
Applied Remote Sensing
- 12 Sept-7 Oct/ CEC (US-ASEAN/ADB)  
Toxic and Hazardous Waste Management
- 15 Sept/ EE (EE)  
Environmental Impacts of Water Related Projects
- 19 Sept-11 Nov/ HSD (ISS)  
Rural-Regional Development Planning
- 19 Sept-28 Oct/ CEC (US-ASEAN/ADB/ AFE)  
Integrated Farming Systems Management
- 22 Sept/ LC (KMIT, Thonburi)  
How to Stop Being a Teacher
- 23 Sept/ ET (BP Thai Solar)  
Solar Cell
- 26 Sept-7 Oct/ CEC (UNDP/CS/RCC)  
Operating Systems
- 10-21 Oct/ EE (WHO)  
Occupational Hygiene and Environmental Science/Engineering
- 17-21 Oct/ HSD (Raedda Barnen)  
AIT/HSD - REDD BARNNA NGO Workshop on Establishing an NGO Service Unit at AIT
- 17 Oct-16 Nov/ IFIC (ASEAN-USAID)  
Ferrocement Technology
- 17 Oct-9 Dec/ CEC (WB/GTZ/US-ASEAN/ADV/ALWDP/EE/GTE/WRE/AFE/LRDC/SEC/ET)  
Rural Physical Infrastructure Development
- 17 Oct-25 Nov/ADPC (ADPC/ADV)  
Disaster Management Course 6
- 24 Oct-9 Dec/ CEC/WRE/ALWDP (UNDP/USAID/ Department of Irrigation, Nepal)  
Hill Irrigation Development and Management
- 24 Oct-9 Dec/ CEC/WRE/EE/AFE/ALWDP/GTE (URS, Int'l Transasia Tech.Support Team/ IBRD and TRANS V. Prog., Indonesia/GTZ/US-ASEAN)  
Rural Physical Infrastructure Development



28 Oct/ GTE (Balken Piling System, Sweden)  
Dynamic Testing of Piles and the Use of PDA

31 Oct-11 Nov/ADPC (ADPC/ADV)  
Improving Cyclone Warning Response

2 Nov/ ET (KMITT)  
Membrane Technology

2 Nov/ IEM/CEC (ADV)  
Logistical Management in Industries - An Integrated Approach

4 Nov/ ET (GTZ)  
Farmers' Utilization of Water Hyacinth for Production of Biogas and Fertilizer

7 Nov-17 Dec/ CEC/WRE/AFE/ALWDP/ CS/ SEC  
(US-ASEAN/USAID-India/USAID-Sri Lanka)  
Management of Rainfed Agriculture

9-11 Nov/ EE (IAWPRC/Chulalongkorn Univ./TEEA)  
Water Pollution Control

9-12 Nov/ ET (AWGNCR/USAID)  
Co-generation and Private Power

14-16 Nov/ EE (Technical University of Denmark)  
Technology Transfer on Modelling of Biological Wastewater Treatment Processes

14-25 Nov/ ET/EE (KMITT)  
Rational Use of Energy in Industry

21-25 Nov/ EE/CEC/ET (AFME/French Government)  
Pollution Abatement and Energy Recovery, as part of the Sixth Asian School on Energy

24 Nov/ ET (IIT, Madras)  
Long Term Performance Evaluation of Solar Thermal Systems

25 Nov/GTE (Kozai Club, Japan/PTT/EIT/MOT, Japan)  
Engineering for Coastal Development

25-26 Nov/ INRDM/RRSP (ADB)  
Regional Remote Sensing/ GIS Program - Status and Needs

28 Nov-2 Dec/ GTE (SEAGS)  
Geotechnical Aspects of Restoration and Maintenance of Infrastructure and Historical Monuments

5-23 Dec/ INRDM/FAO (FAO)  
GIS for Aquaculture

6-7 Dec/ IFIC (University of Roorkee)  
Latest Developments in Ferrocement Technology

6-8 Dec/ INRDM/FAO (FAO)  
Electronic Data Processing for Foresters

6-10 Dec/ AFE (Japanese Society of Terramechanics)  
Terrain Vehicle Systems

6-13 Dec/ CEC/WRE (GTZ)  
Conflict Analysis in Reservoir Management

6-16 Dec/ CS/CEC (FG/UNESCO)  
Asian School of Computer Science

7-20 Dec/ CEC (WHO/CS)  
Integrated Systems in Operational Hydrology

8-10 Dec/ IFIC (University of Roorkee)  
Ferrocement

14-16 Dec/ RCC (\*)  
Personal Computer Communications Workshop

14-16 Dec/ CEC (CS)  
Telecommunications: The Human Resource Dimension for the 21st Century

\* Participants supported mainly by private business organizations

\*\* Participants supported mainly by international and national sponsoring organizations/agencies

#### LEGEND:

Activities are detailed as follows:

1. Date
2. Concerned academic division or center at AIT
3. Topic of continuing education activity. These activities are conducted in the form of seminar, workshop, training program, conference)
4. Sponsoring agency (in parenthesis)

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Dean of Student Affairs  
 Student Union President

Prof. R. B. Exell  
 Mr. Anthony Shun Fung Chiu

Prof. Eggers (succeeding Prof. Gajendra Singh) and Dr. Hawkey (succeeding Mrs. Emilie Ketudat) were appointed in September 1988.

Chairmanships: Dr. Ilangantileke (succeeding Dr. David Gee-Clough) and Dr. Worsak (replacing Dr. Akio Hasegawa) were appointed in July 1988; Dr. Kioe-Sheng Yap (succeeding Mr. Raymon Archer) was appointed in December 1988.

Student Affairs: Prof. Exell, concurrent Dean of Student Affairs and faculty member of the ET Division, replaced Mrs. Hilary Wongkaew who left in February 1988; Mr. Shun Fung Chiu (succeeding Ms. Euay Singhakul) served as SU President from May to December 1988.

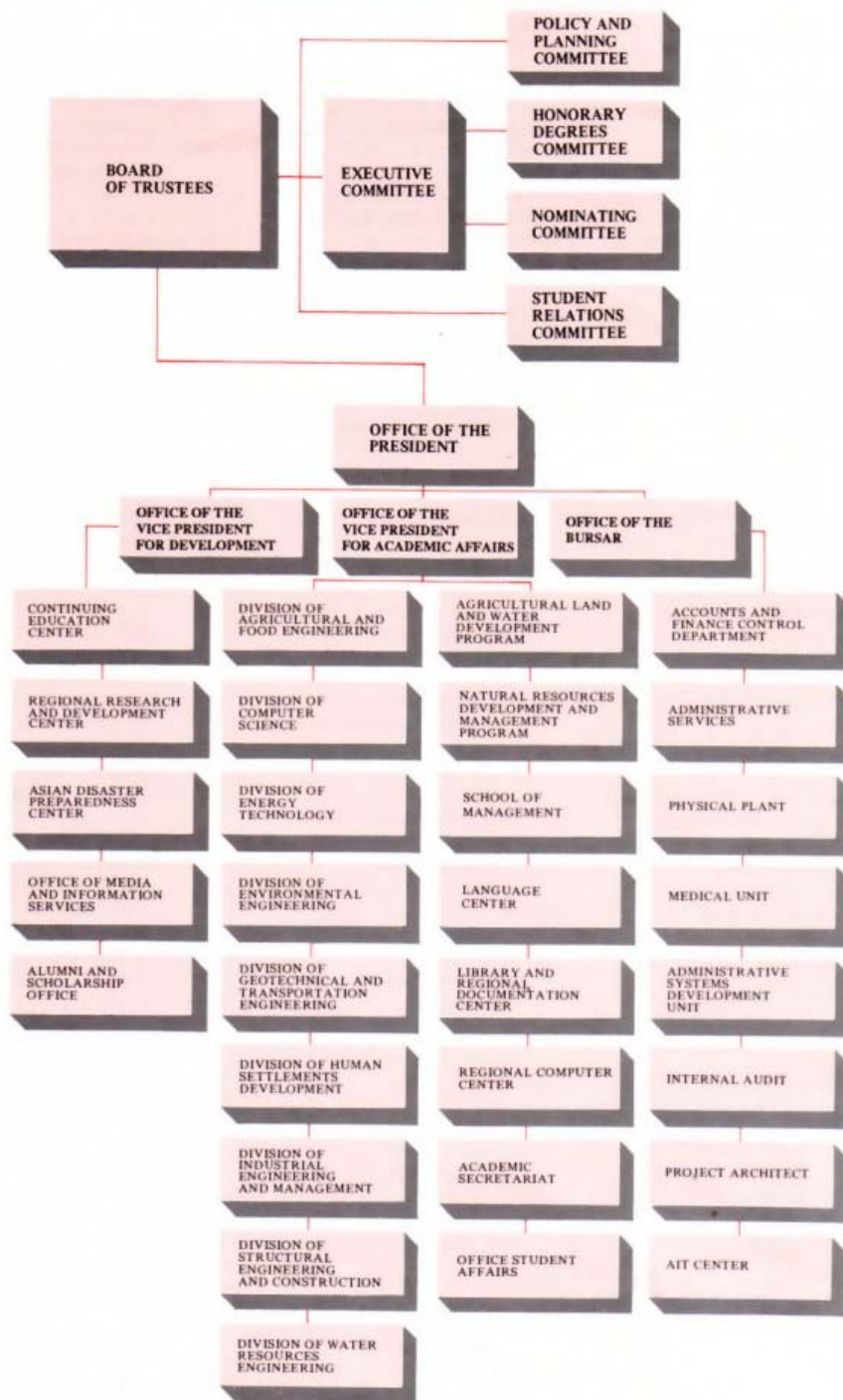
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## ABBREVIATIONS

ABOS	Belgian Development Cooperation	KURDI	Kasetsart University Research and Development Institute
ADV	Advertised Course	MAC-DAE	Ministry of Agriculture and Cooperatives, Department of Agricultural Extension, RTG
ADB	Asian Development Bank	MAE	Ministere des Affaires Etrangeres
AFME	French Agency for Energy Management	MASL	Mahaweli Authority of Sri Lanka
AIFM	ASEAN Institute of Forest Management	MC	Mekhong Committee
AWGNCR	ASEAN Working Group on Non-Conventional Energy Research	MOT	Ministry of Transport, Japan
BBDP	Broad Based Development Program	NBRO	National Building Research Organization, Sri Lanka
BP	British Petroleum	NEB	National Environment Board, Thailand
BWBD	Bangladesh Water Development Board	NRC	National Research Council, Thailand
CDG	Carl Duisberg Gesellschaft e. V. Germany	NESDB	National Economic and Social Development Board, Thailand
CIDA	Canadian International Development Agency	NIAE	National Institute of Agricultural Engineering, United Kingdom
CNES	Centre National D'Etudes Spatiales	NUFFIC	Netherlands Universities Foundation for International Cooperation
CNRS	Centre National pour La Research Scientifique	ODA	Overseas Development Administration, U.K.
DANIDA	Danish International Development Agency	PTT	Petroleum Authority of Thailand
DTEC	Department of Technical and Economic Cooperation, Thailand	PP	Partnership Project
EC	European Community	RBF	Rockefeller Brothers Fund
EGAT	Electricity Generating Authority of Thailand	RID	Royal Irrigation Department, Thailand
EIT	Engineering Institute of Thailand	RTG	Royal Thai Government
ERTAT	Expressway and Rapid Transit Authority of Thailand	SEAGS	Southeast Asian Geotechnical Society
ESA	European Space Agency	SEAMEO	Southeast Asian Ministers of Education Organization
ESCAP	Economic and Social Commission for Asia and the Pacific	SI	SPOT Image Company
FAO	Food and Agriculture Organization	TEEA	Thai Environmental Engineers' Association
FIAM	Forum for Integrated Agricultural Management	TRANS V. Prog	Transmigration V Project
FMO	Fish Marketing Organization, Thailand	UNCHS	United Nations Commission for Human Settlements
GTZ	German Agency for Technical Cooperation	UNDP	United Nations Development Program
HSP	Human Settlements Project in Thailand	UNDRO	United Nations Disaster Relief Organization
IAWPRC	International Association of Water Pollution and Research Control	UNEP	United Nations Environment Programme
IAHR	International Association for Hydraulic Research	UNESCO	United Nations Educational, Scientific and Cultural Organization
IBRD	International Bank for Reconstruction and Development	UNFPA	United Nations Fund for Population Activities
ICIMOD	International Centre for Integrated Mountain Development	UNHCR	United Nations High Commissioner for Refugees
IDRC	International Development and Research Center, Canada	UNICEF	United Nations Children's Fund
IIT	Indian Institute of Technology	UNU	United Nations University
IMO	International Maritime Organization	USAID	United States Agency for International Development
IRRI	International Rice Research Institute	VLIR	Flemish Inter-University Council
ISEC	Institute of Social and Economic Change, Bangalore	VVOB	Flemish Association for Educational Programs Abroad
ISS	Institute of Social Studies, Netherlands	WB	World Bank
ITC	International Institute for Aerospace Survey and Earth Science, the Netherlands	WHO	World Health Organization
JICA	Japan International Cooperation Agency		
KMIT	King Mongkut's Institute of Technology, Thailand		

### OFFICES IN THE INSTITUTE

#### Divisions and Programs

AFE	Agricultural and Food Engineering
CS	Computer Science
EE	Environmental Engineering
ET	Energy Technology
GTE	Geotechnical and Transportation Engineering
HSD	Human Settlements Development
IEM	Industrial Engineering and Management
SEC	Structural Engineering and Construction
WRE	Water Resources Engineering
SOM	School of Management
ALWDP	Agricultural Land and Water Development Program
INRDM	Interdisciplinary Natural Resources Development and Management

#### Centers

ADPC	Asian Disaster Preparedness Center
CEC	Continuing Education Center
RCC	Regional Computer Center
LRDC	Library and Regional Documentation Center
LC	Language Center
RRDC	Regional Research and Development Center