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P.O. Box 2754 .Bangkok .Thailand .Telephone 796415, 796416, 796418, 796419 .Cables AIT-BANGKOK 4/p

Office of the President **PD-110-933**

MEMORANDUM/REPORT

April 17, 1973

TO: Mr. Lee St. Lawrence, Counselor, U.S. Embassy, RED/Bangkok
FROM: H. E. Hoelscher, President, AIT, Bangkok *H. E. Hoelscher*
SUBJECT: Further Details on AIT Plans for A Computer System to Support Academic Degree and Regional Programs

This memorandum report is submitted in response to the suggestion from Mr. Harry Petrequin of your office that additional details are now required to support our request for continuing assistant to AIT from the United States Government.

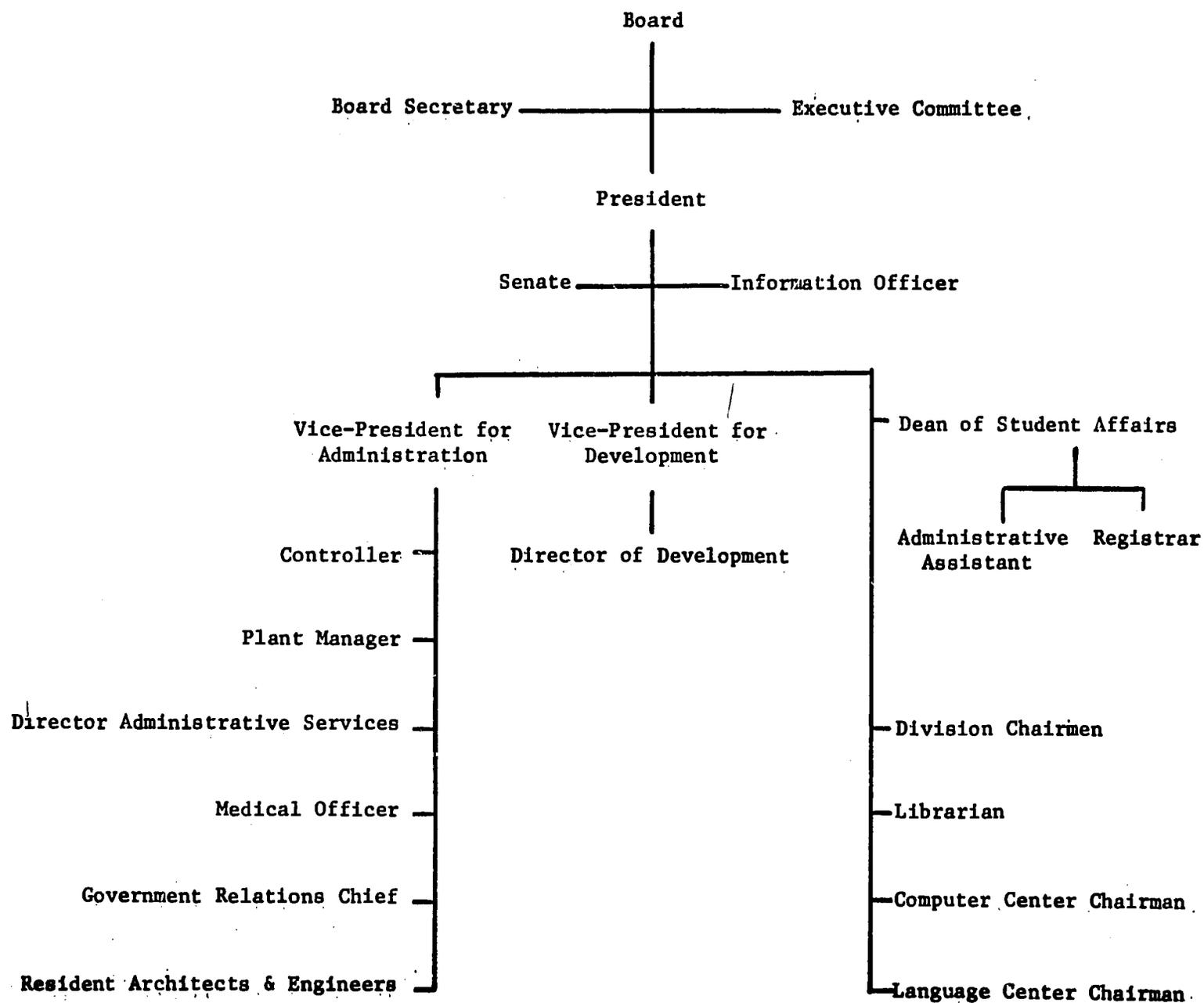
It is our hope that the United States will provide a major computer facility at AIT to support all academic and research programs and to provide the region with a much needed computer based information system in support of regional development. We further hope that continuing support from the United States will include funds with which to provide special US faculty to the areas of education offered by AIT. Such faculty will be expected to bring an awareness of the use of modern computers and computer-based information systems to all Asian faculty and students in those fields of study. Finally, we ask that funds be included to provide scholarships for outstanding Asian students to prepare themselves for development leadership in Asia through study in programs at AIT designed to emphasize the usefulness of modern techniques and technologies (including those in the field of computers and computer-based information systems) to the solution of development problems in this important part of our world.

The material of this report will be presented in five sections, namely:

- (1) General Information and Background on AIT
- (2) Computer Applications in Asian Developing Countries
- (3) The Present and Potential Role of AIT as a Regional Computer Center
- (4) The Need: A - For a Computer System
B - For Faculty Support
C - For Student Scholarships
- (5) Summary and Proposal

FIGURE I.

AIT GENERAL ORGANIZATIONAL CHART



(1) General Information and Background on AIT

Governance:

The Asian Institute of Technology^{AIT} is a unique, private, autonomous, independent institution chartered in Thailand but governed by an international Board of Trustees. A list of present Board Members is presented as Table I. The Table of organization of the Institute is reproduced as Figure 1. AIT enjoys a unique relationship with its host-country, The Kingdom of Thailand. That relationship is described in Appendix I.

Academic Programs:

AIT was designed to be a regional graduate school offering programs of study leading to the Master of Science, the Master of Engineering and the Doctor of Engineering Degrees. The Master's degree program requires 21 months or five terms for completion while the Doctorate requires an additional two years of study and research. The Diploma of AIT is offered for the successful completion of specially structured programs of shorter duration for applicants from governments, industries and universities throughout Asia who cannot be released from their positions for the full term required for a degree program.

AIT is academically structured to emphasize problem areas of importance to the development of Asia...not the traditional disciplines of science and Engineering. It was conceived and operates today as an institution in which Asian students from the best baccalaureate programs in Asia study with outstanding Asian and non-Asian faculty to understand and learn to cope with the major problems which their nations must face during the next decades. A list of present areas of program/problem emphasis is presented in Table II.

Students:

With the May, 1973 graduation, approximately 630 young men and women will have received degrees from AIT since its 1959 beginning. Of this number, approximately 95% are presently working in their home nations, the distribution among governments, industries and universities being in the ratio 40:40:20. AIT graduates are found in 18 nations of Asia and the present student body comes from more than 20 Asian countries. Present enrollment is approximately 300 but will increase during the next two years to twice this number. The new campus, to be discussed briefly below, permits an ultimate expansion of the student body to approximately 750 and this number is expected to be reached by the end of this decade. While the present ratio of masters to doctoral degree students is nearly 9:1, the percentage of doctoral students is expected to increase to become approximately 20% of the total during this decade.

Applications to AIT for admission in August of 1973 are presently in excess of 700. These represent the best from the best institutions in Asia and often indicate AIT to be their first choice over institutions in the United States and Europe. Scholarship limitations will prevent AIT from accepting more than 130 - 150 students from this group.

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page three

It is interesting to note that AIT graduates seem to experience no difficulty in obtaining jobs within their home country upon returning with their degree. This is equally true in the two countries that have, as yet, not formally recognized the AIT degree (India and Sri Lanka) as in the remainder. Some statistics on the distribution of graduates among the countries of Asia is enclosed as Table III.

Faculty:

The faculty of AIT comes from throughout the world. Table IV presents details on the faculty structure anticipated for this fall. It is worth noting that, due to the relatively high salary scale (by Asian Standards) for the International Faculty and Staff, AIT is able to attract and hold the very best of Asian professionals on the faculty. The high scale is itself necessitated by the fact that AIT can only have one scale for both Asian and non-Asian faculty and that, to attract non-Asian faculty, the scale must be reasonably competitive with that in their home country.

Campus:

On January 2, 1973, AIT entered a new phase of development. This was the first day of operations on a new campus located 42 kilometers north of Bangkok. Until that time, AIT occupied a crowded 2-acre site on the Chulalongkorn University Campus in Bangkok, a location that effectively prevented any expansion of the student body, faculty or programs. The new facilities include an administration building, two academic buildings providing more than 13,000 sq. meters for classrooms, library, laboratories and faculty offices, dormitories and dining center for 352 students plus a large physical plant maintenance facility. The campus was officially opened by Their Majesties, the King and Queen of Thailand on February 14, 1973. A brochure prepared to mark that event is enclosed together with a copy of a Newsletter carrying further details.

Financing:

The Institute has received financial support from governments, industries, foundations and individuals throughout the world. The United States was initially the major contributor and AIT owes its present existence to that early U.S. support. However, support from the U.S. has proportionally diminished throughout the years, is now approximately one fourth of the operating budget and is scheduled to reach zero in July of 1975. Other nations are now making major contributions to the institute via

faculty secondment
student scholarships
equipment and constructions
cash donations.

Faculty secondments are shown on Table IV referred to earlier in this report. Student scholarships are presently provided as shown on Table V.

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page four

Construction on campus continues. New dormitories to permit expansion of the student body, a second dining center, faculty housing and a new Conference Center are presently in progress. Some details on the financing for this Construction are as follows:

Contributions received or committed for the new campus:

<u>Donor</u>	<u>Amount</u>
Government of the United States of America	U.S. \$2,850,000
Government of Japan	2,680,500
Government of the United Kingdom	1,378,900
Government of Thailand	974,500*
Government of Australia	500,000
Government of New Zealand	340,000
Government of the Republic of China	200,000
Lee Foundation of Singapore	<u>162,750</u>
	Total U.S. \$9,086,650

*Plus 400 acres of land estimated at the value of U.S. \$7,000,000

In addition to the above, the U.K. Government has agreed in principle to provide another grant totaling approximately one million dollars for architectural and engineering design services for new construction and 1.3 million dollars for equipment, faculty and scholarships. The Thai Government has also accepted in principle a five-year plan of support totaling over two million dollars. Likewise, the U.S. Government will provide in the next two and one-half years close to two million dollars for equipment, faculty and operations.

A number of other proposals have recently been submitted for continuing development of AIT. These include:

1. Proposal submitted to Canada at U.S. \$4 million for construction, faculty and scholarship support over a 5 year period;
2. Proposal submitted to the Republic of China at U.S. \$400,000 for the Regional Experimental Research Center;
3. Proposal submitted to Japan at U.S. \$4 million for construction of a new Library/Communication Center;
4. Proposals submitted to New Zealand for U.S. \$340,000 for additional faculty housing.
5. Proposal submitted to CV Starr Foundation at U.S. \$450,000 for construction of Student Center;

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page five

6. Proposal submitted to Royal Thai Government at U.S. \$200,000 per year for 5 years.

Research at AIT:

Being an institution devoted primarily to post-baccalaureate degree programs, the students and faculty of AIT are also deeply involved in research. However, all such projects are undertaken only if each meets the aims and objectives of AIT to serve the nations of Asia and if each relates to the educational mission of the Institute. All AIT research projects are, therefore, based on problems of practical importance, relevant to the development of Asia and to the education of AIT students who are being prepared to participate in the development processes of their own countries. Such research projects involve both faculty and students; the participation of the latter is required as part of the student's masters or doctoral degree requirement. Table VI presents a list of research projects active at AIT as of the date of this report plus a list of Pending Proposals. A Research Summary has just been published. A copy is attached.

Future:

The future of the Institute is closely tied to the further development of (1) the new campus site, (2) the faculty, (3) the student body and (4) programs. However, AIT as a regional institution must direct its every action and every plan to provide maximum service to the nations of South and South-east Asia. The site must be developed to serve the faculty and student body in programs which are meaningful for the education of those students. It seems obvious that our students will become the leaders of the development processes in Asia during the next decade. They come as the best from the leading institutions in Asia to study under outstanding teacher/professionals on practical real-world problems. They become involved with their professors in the field, in the actual work of the problem area they choose to emphasize and in the real world details of that work. They return to leadership posts knowing what the problem structure is all about from first hand, personal experience. Hence they must succeed. It therefore remains for the administration and faculty of AIT to so choose and so structure the program areas of AIT that these young men and women will return with the kind of academic experience which will best fit them for their service to their countries.

The substance of the proposal for continuation of support from the United States to AIT is directed toward a principal United States speciality which must become available in Asia to speed the development processes in these countries. I refer to the application of computers to those problems.

(2) Computer Applications in Asian Developing Countries

For the developing countries to close the gap that separate them from the developed countries, they must take prompt measures to accelerate their economic and technological development. This can be achieved only by the

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page six

adoption of the best methods, tools and techniques of known and proved effectiveness. The computer is one among the tools that must be employed to accelerate such development. Because of its fast and accurate processing, storage, retrieval and analysis of data, it has an astonishing potential in planning, analysis and design. Use of modern computer-based techniques can accelerate the problem-solving and development processes of Asia.

With sufficient technical know-how, computers can be used to great advantages in all fields of engineering. They have been used successfully in highway planning and design, surveying, materials and quantity estimation as well as in the analysis of complex structures such as dams, tunnels and space frames. Computers have also been used extensively in simulations for water resources planning, industrial management, and electrical and transportation networks. They also are playing important roles in data processing and calculation of all correlations needed for analysis and planning of various projects, processing of data for social and economic study as well as serving as a primary mechanism in library automation and information retrieval.

Recognizing the need for computer applications in speeding up the development of the region, ECAFE conducted a preliminary survey on utilization of computers in the region. The results reveal that only Australia, Japan and New Zealand are using computers extensively.

This ECAFE report⁽¹⁾ reveals that the primary obstacle to computer applications in this region is the lack of well trained personnel, the shortage of those who really know the computer and know how to use it to their advantages. In addition to the shortage of personnel, the lack of computer programs for specific use and the lack of information on the availability of computer programs that can be used presents serious problems. These problems exist in all aspects of computer application in the region. Development of computer programs is a time consuming and expensive task and is frequently discouraging. Development of programs which are already written is a complete waste of time and money. Computer software development however, is essential and it can be achieved only through the use of well trained personnel who know not only their own professional disciplines, but also have sufficient knowledge in computer technology. All of these indicate the need for training personnel in computer technology as well as the need for establishing a regional center to collect and circulate information on software development.

(1) Anat Arbhahirama, "Final Report on Computer Application in Hydrology and Water Resources Planning", Division of Water Resources Development, ECAFE, March 1972.

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page seven

(3) The Present and Potential Role of AIT as a Regional Computer Center

The Asian Institute of Technology has a unique opportunity to help overcome the obstacles to an effective utilization of computers for development in Asia. AIT has been giving training in computer technology since its first installation of an IBM 1130 system in 1967. Almost all of the graduates from AIT are equipped with the knowledge of computer technology to the limit of our present equipment in addition to their advanced training in engineering. It is with this blending of fundamentals and tools that makes AIT graduates more valuable for the development of the region.

Another serious obstacle to regional development is in the field of information systems. The need for engineering and technical information storage and retrieval in Asia is already urgent and will become increasingly so as economic and industrial development is accelerated. Engineers and technical experts in Asia are often hampered by the inaccessibility of relevant, organized information. Although to some degree this is also true in the developed world, it more seriously affects progress in the developing countries where expertise and financial resources are in critically short supply.

In recognition of the problem of the "information gap", many of the developing countries in Asia have established national information or documentation centers. These efforts often fall short of the desired goal for the following reasons:

- i. Many of these centers do not assume an active role because they have neither the logistical support of a sizeable technical library and data base nor competent subject specialists capable of abstracting from the large body of available data that information which is useful and disseminating it to potential users;
- ii. In attempting the simultaneous solution of a multiplicity of developmental problems, most of the countries in Asia are unable to give high priority to the development of a strong, national information center which could effectively respond to developmental needs;
- iii. The cost of setting up a functional information center, with an adequate data base and with a sufficient number of competent information and subject experts who can make the information "work" effectively, is high - at least in the initial stages.

As a regional institution for advanced engineering education and research, the Asian Institute of Technology is deeply involved in the technical development of the Asian region and it is this involvement which has led AIT to an awareness of the urgent needs of Asian engineers for relevant information. To meet this need (AIT hopes to develop an outstanding technical library and information center within the Institute.) Steps have been already taken toward such a facility embracing the collection, organization and dissemination of useful technical information. The recently founded Asian Information Center

Memorandum/Report
Mr. Lee-St. Lawrence
April 17, 1973
Page eight

for Geotechnical Engineering, under the joint sponsorship of the AIT Division of Geotechnical Engineering and the Library with funds from IDRC of Canada is the first example of such an endeavour.

Advances in telecommunications, computer technology and reproduction techniques favour the development of a single center in Asia to permit the centralized assembly and storage of the data and its transfer to those needing that data for development projects. Such a Center must also be backed by subject experts who can guide the data selection process upon request to maximize the usefulness of the information received by the user. The critically short supply of such experts is a second argument for a single such Center for Asia.

Finally, an information system, for Asia, must be designed and operated with an appreciation of the needs and limitations of the users. At AIT a system is envisioned which would provide a service to those confronted with problems of the region relating to the Institute's areas of professional competence which include industrialization, agricultural planning, urbanization and rural development, communications, engineering construction and design, land, water and natural resource development, and environmental control. Information support for these fields would require land use and demographic data; inventories of communications and transportations; industrial and housing facilities; geological and natural resources data; hydrological and meteorological data; data on engineering materials, industrial and agricultural production and wastes; engineering technology; and relevant economic, political and sociological data of the region.

Looking into the scope of the regional information center, there is no doubt that a computerized library, using recent developments in both computer hardware and software is needed, to provide efficient services. AIT has already started the mechanization of its library⁽²⁾, on a limited scale because of the small capacity of the present IBM 1130 computer system. This mechanization is however, the first step toward a fully computerized Library and Information Center when a suitable computer system is available.

In addition to producing well trained personnel and providing information center services, AIT is also unique in providing high level expertise in research and development needed in the region. A study for the Mekong Committee⁽³⁾ is a good example of how resources in experts, laboratory and

(2) Hwa-Wei Lee, "Library Mechanization at the Asian Institute of Technology", Int. Libr. Rev. (1971) 3, pp. 257-270.

(3) Subin Pinkayan, Norbert L. Ackermann, Prida Thimakorn and Tawatchai Tingsanchali, "Effect of Dikes on Flood Flows of the Mekong River Near Vientien", Research Report No. 21, Asian Institute of Technology, Bangkok, Thailand, May 1972.

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page nine

computing facilities of the Institute can be put together to solve such a complex but worthwhile problem. This is only one among many sponsored research projects that the Institute has carried out in recent years. For such a project, it will cost an authority in charge of the work a fortune if they have to set up their own capabilities to solve the problem, while at AIT it is just a matter of making up a team of experts out of the faculty and staff of the Institute and using the facilities already available.

All this indicates that the Asian Institute of Technology is playing an important role in overcoming the obstacles to the development of the region. With the expansion of academic programs, library and computing facilities, the Institute can contribute much more to regional needs.

(4) The Need:

A - For a Computer System - To meet the growing demands upon AIT, demands for increased enrollment, for increased involvement in regional engineering and development projects and for an increased involvement with regional universities and development centers, a substantial expansion in computer capability is needed. The present computer (an IBM 1130) is overloaded and, in both size and capability, is totally inadequate for both present needs and developing demands on the system. ~~Specific reasons for the expanded requirement are:~~

- (1) to serve the increasing demand in computing at AIT academically and administratively;
- (2) to enlarge AIT research capabilities;
- (3) to increase productivity and quality in research;
- (4) to serve the computerized library and the regional information center;
- (5) to help training of personnel in computer technology in the region;
- (6) to provide services in research and development in the region;
- (7) to provide access to large computer for educational institutions in the region.

As an interim measure, AIT will soon install a CDC 3600 computer obtained from U.S. surplus with additional financial assistance from the U.S. government in the amount of approximately \$65,000. AIT will spend approximately \$60,000 of its own funds for installation and site preparation. A careful study has shown that this intermediate sized machine will meet the needs of AIT academic and research programs during the expansion of the next 2 - 3 years after which

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page ten

it will be used exclusively for AIT administrative purposes and/or the training of academic and industrial personnel from Asian in the use of computer based management information systems via short courses.

To serve the long range (2 decade) needs of AIT in teaching, research and the computerized regional information center program, a new computer system must have the following capabilities:

- (1) Performing high speed computation with high degree of accuracy suitable for scientific uses.
- (2) Manipulating large number of data and information in the core.
- (3) High speed input and output.
- (4) Storing and retrieving bulk data and information.
- (5) Operating with different computer languages.
- (6) Batch processing.
- (7) Multiprogramming and time sharing.
- (8) Priority and resource scheduling.
- (9) Time accounting.
- (10) Communication with remote terminals.
- (11) Future expansibility.

The configuration of the new computer system should be basically adequate for the growing needs of AIT, and capable of expansion into a major regional computer center as needed. The initial configuration should consist of the following features with good supporting software:

- (1) Storage Module; with 65-131K word core memory.
- (2) Central Processor Unit; with multiple I/O channels.
- (3) Operator Console Unit; with keyboard and typewriter.
- (4) On-line I/O devices consisting of:
 - a) 1200 lpm. line printer
 - b) 600/300 cpm. card read-punch
 - c) line plotter
 - d) tape drive module with minimum of 4 tape drive units.

- (5) Mass storage Module; disk or drum with minimum of 4 disk drive units or equivalent.
- (6) Data Communication Module; with 4-16 Channel linked with remote terminals.
- (7) Remote Terminals consisting of:
 - a) Visual Communication Terminal (VCT): the terminal includes a keyboard for transmitting data and cathode ray tube (CRT) for displaying the results or information received from the central processor. Permanent record may be obtained from some of these terminals.
10 units
 - b) Data Communication Terminal (DCT): the terminal includes a combination of line printer and card reader. The terminal is capable of transferring large quantities of data at high speed.
2 units
- (8) Off-line Supporting Equipments consisting of:
 - a) Line Printer 1 unit
 - b) Duplicator and Interpreter 1 unit
 - c) Key punch 12 units
 - d) Verifier 2 units
 - e) Card Sorter 1 unit
 - f) Calculator 12 units
- (9) System Supporting Software:

An effective utilization of a computer system depends greatly on the scope and versatility of the software. A complete set of software, ranging from high level processor and language compilers to basic mathematical functions, is needed. The major software items are listed in the following:

- a) The Central Processing Operating System; to utilize and control all the features of the new system including batch processing, multiprogramming, time sharing, priority scheduling, time accounting, utilization of mass storage and data communication.
- b) The Assembler.

- c) The Language Compilers; the basic compilers needed are FORTRAN, COBOL and ALGOL.
- d) Mathematical Sub-Programs; to cover all of the basic mathematical operations and manipulations.
- e) Statistical Sub-Programs; to cover all the fundamental statistical operations.
- f) Application Programs; for science and engineering, library, business office and management.

Note: One possible complete hardware configuration and price is attached as Appendix II.

B - For Faculty Support - AIT is not a "research institute" and, hence, it would be highly undesirable to have an expanded computer facility without area-expert faculty who can themselves become involved in regional development problems requiring its use and, via such involvements, bring students into these problems as part of their education. Hence, each of the academic Divisions or program areas identified on Table II require a continuing influx of both short-term (6-month to 1-year) and long-term (2-year to 4-year) faculty to develop the education programs of the Institute around such a facility as shown schematically in Figure 2. With computer-applications oriented faculty working on regional development problems, the development processes of Asia will be greatly accelerated. [The United States enjoys world leadership in this professional area, the use of computers for the more rapid solution of real-world problems, and that leadership can now have a major impact on development in Asia.]

C - For Student Scholarships - AIT is an expensive institution for Asian students (although it is remarkably low-cost by U.S. institutional standards). Hence, it is unreasonable to expect that large numbers of Asian students will be able to pay their own tuition at AIT in the near future. Thus, scholarships are requested to permit an increased number of students in all of our areas of study to benefit from this new facility. [Such scholarships can and will be reserved for students of extraordinary capability; they should be identified by some title to indicate their special character and their origin; they should be limited to those students who seek to develop a capability in the field of computer-aided solutions to Asian development problems.]

(5) Summary and Proposal

[As a regional institute of technology at the advanced levels, AIT has assembled a first rate faculty combining the best talents of both Asians and non-Asians who are deeply committed to and involved in the development of the region. The competency of the AIT faculty to make optimum use of new technologies is already proved and is an important factor underlying the request that

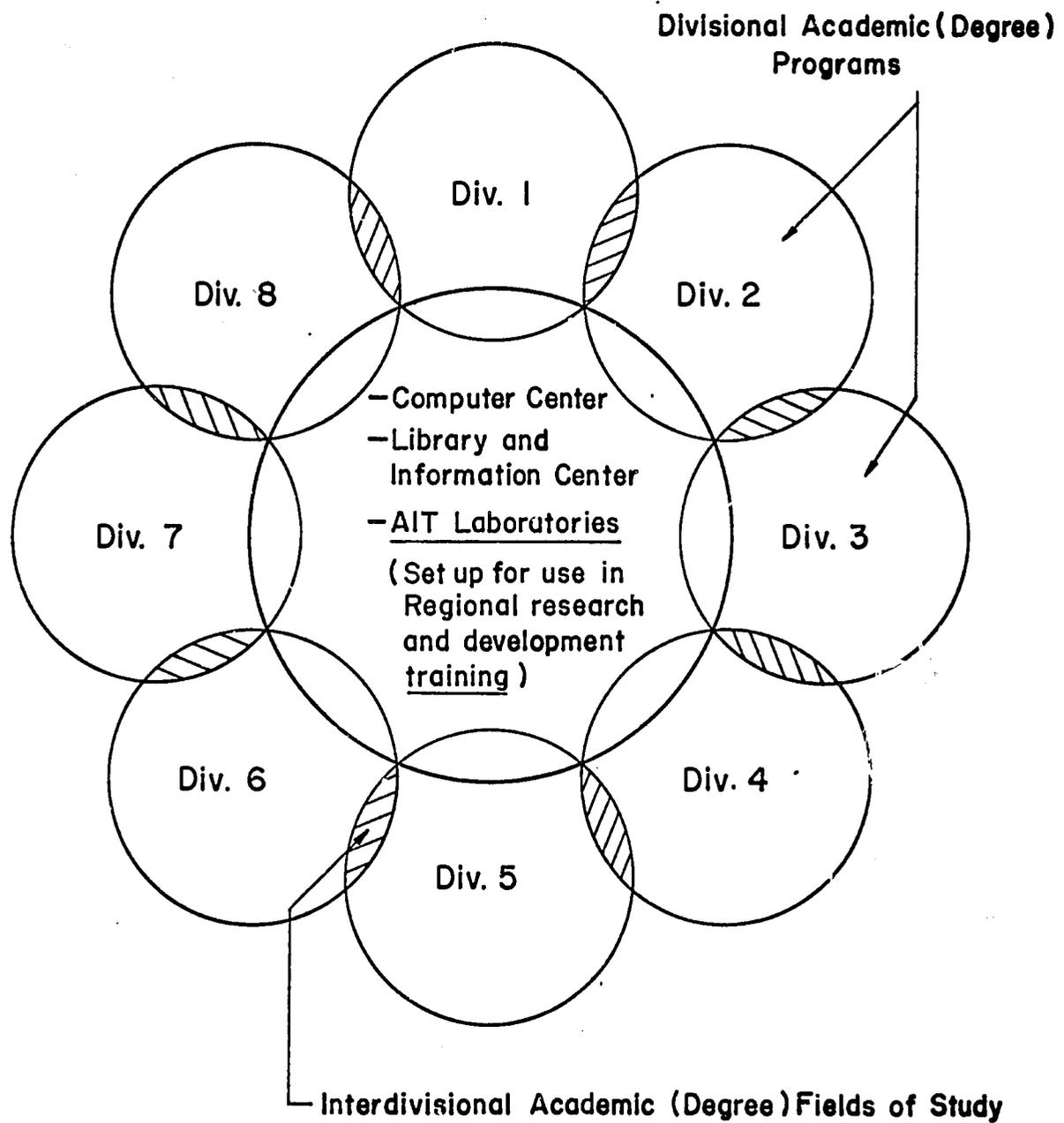


Fig. 2 AIT Educational Development Structures

Memorandum/Report
Mr. Lee St. Lawrence
April 17, 1973
Page thirteen

these competencies and abilities now be expanded. Further, it is economically more attractive to place such a facility in a regional institution to the benefit of all nations in that region than to duplicate such expensive facilities many times for smaller, less competent groups.

As a result of AIT's considerable involvement in research projects on problems specific to the Asian region, its faculty are singularly well placed to participate in such programs and the excellent support services of AIT enable us to believe that a service in external programs would be both academically and administratively sound.

AIT faculty travel extensively in the region and the Institute's Alumni Association is active, having Chapters in most of the region's countries. AIT is the home of many regional engineering activities and is well known for its involvement in regional engineering and technology. (The result of AIT's regional character and activities is that it has established good relations and close ties with many other institutions and organizations in Asia.) It is upon these relationships that the Center will build in initiating external programs and in responding to requests for special programs or short courses.

We thus believe that there exists a unique opportunity to develop the proposed facility at AIT to the benefit of development progress in the region. We therefore make the following proposal and hope for your interest in the project.

(1) A Computer Center housing a major, modern computer of the CDC Cyber 70/72 type or generation plus funds for the maintenance and operation of this facility until it can be self supporting....estimated to be not less than 5 years;

Estimated Cost: \$3,000,000

(2) Faculty in the subject areas offered at AIT and of importance to Asian development; Estimated need: 10 faculty per year for 5 years at \$35,000 per year each (including base salary plus peripherals);

Estimated Cost: \$1,750,000

(3) Scholarships to educate Asian Students in each subject area who can become familiar with modern information systems, data storage and retrieval techniques and who will return to their own countries prepared to make use of the most modern data available for their own development efforts; Estimated need is for 20 per year for 5 years:

Estimated Cost: \$1,020,000

HEH/ks

Encls.

cc: Mr. Harry J. Petrequin Jr., Deputy Director, RED/US Embassy, Bangkok
Dr. Jerry C. L. Chang
Dr. Tongchat Hengladaromp
Mr. David L. McClintock

TABLE I

MEMBERSHIP OF THE AIT BOARD

February 1973

- | | |
|--|--|
| 1. Prof. Ungku A. Aziz
Vice Chancellor
University of Malaya
Lembah Pantai
Kuala Lumpur, Malaysia | 8. H.E. The Hon. E.H. Halstead - Vice
Ambassador
New Zealand Embassy
Anglo-Thai Building
64 Silom Road
Bangkok, Thailand |
| 2. Dr. Kamhaeng Balangkura
Secretary-General
Office of the National Education
Commission
Sukothai Road, Dusit
Bangkok, Thailand | 9. Dr. H.E. Hoelscher
President
Asian Institute of Technology
P.O. Box 2754
Bangkok, Thailand |
| 3. Sir Robert Blackwood
8, Huntingfield Road
Middle Brighton
Victoria 3186
Australia | 10. Dr. John A. Hrones
Provost of Science & Technology
Case Western Reserve University
Cleveland, Ohio 44106
U.S.A. |
| 4. Dr. Boonrod Binson
Minister for State Universities
Ministry of State Universities
Royal Government of Thailand
Rajdamnern Avenue
Bangkok, Thailand | 11. Prof. Peter C.G. Isaac
Department of Civil Engineering
University of Newcastle-Upon-Tyne
Claremont Road
Newcastle-Upon-Tyne
U.K. |
| 5. H.E. Mr. T.K. Critchley
Ambassador
Australian Embassy
7th. Floor, Anglo-Thai Building
64 Silom Road
Bangkok, Thailand | 12. Prof. John Hugh Jones
Professor
Asian Institute of Technology
P.O. Box 2754
Bangkok, Thailand |
| 6. Dr. Johan C. Gerritsen
Director
Central Organization for Applied
Scientific Research in the Netherlands
Bureau for International Projects, TNO
21 Koningin Marialaan
P.O. Box 778
The Hague, Netherlands | 13. Prof. Kankuro Kaneshige
Professor Emeritus
University of Tokyo
5-46-25 Asagayakita
Suginami-Ku
Tokyo 166, Japan |
| 7. Dr. John Joseph Green
Director of Government Relations
Litton Systems (Canada) Ltd.
1790 Woodward Drive
Ottawa 5, Ontario
Canada | 14. Mr. R.M. Kendall
Assistant Managing Director
Market Development
Aero-Engine Division
Rolls-Royce Ltd.
Derby DE-2-BJ
United Kingdom |

15. Dr. Thanat Khoman
- Chairman, Executive Committee
(ex. Foreign Minister)*
Member of General Assembly
123 Petchburi Road
Bangkok
16. Brig. General Ir. Kuntoadji
President
Development Bank of Indonesia
Jakarta
Indonesia
17. Dr. Hahn-Been Lee
President
Soong Jun University
135 Sangdo Dong
Seoul, 150
Korea
18. Dr. Choh-Ming Li
Vice Chancellor
Chinese University of Hong Kong
Shatin, New Territories
Hong Kong
19. Mr. James A. Linen
Chairman
Executive Committee
TIME Inc.
TIME & LIFE Building
Rockefeller Center
New York, N.Y. 10020
U.S.A.
20. Mr. Kwee-Seong Lo
Managing Director
The Hongkong Soya Bean Products Co., Ltd.
52-54 Hoi Yuen Road
Kwun Tong, Kowloon
Hong Kong
21. Sir Denys Lawson, Bt.
56 Gresham Street
London E.C.2
United Kingdom
22. Mr. Oscar Mapua - Chairman
President
Mapua Institute of Technology
Manila, Philippines
23. Dr. M.A. Rashid
National Pay Commission
Government of the Peoples' Republic
of Bangladesh
156 Dhanmonde Residential Area
Road No. 13/3, Dacca
or 63 Lake Circus
Dacca, Bangladesh
24. Dr. Bui Tien Rung
Counsellor
The Embassy of the Republic of Vietnam
83/1 Wireless Road
Bangkok, Thailand
25. H.E. Mr. Yun-Suan Sun
Minister for Economic Affairs
Ministry of Economic Affairs
Taipei, Republic of China
26. Dr. Puey Ungphakorn
(ex. Governor, Bank of Thailand)*
41 Lavenham Road
London S.W. 18-5EZ
England

* Indicated () not to be used, shown just
for information.

TABLE II

Programs of Study at AIT

AIT presently offers Diploma and Degree Programs in the following Academic Divisions :

1. Division of Water Resources Engineering

Hydraulics, Ocean Engineering, the Development and Management of Water Resources.

2. Division of Geotechnical Engineering

Earth Resources Development and Management, Soil Science and Soil Engineering.

3. Division of Structural Engineering and Mechanics

Structural Materials for Asia, Low Cost Structural Materials and their Properties, Mechanics of such materials.

4. Division of Environmental Systems Engineering

Environmental Engineering (derived from classical "Sanitary Engineering"), Environmental Health and Environmental Management.

5. Division of Applied Systems Analysis

This Division offers programs of study in a limited number of seemingly different problem areas united by an underlying common thread of methodology. Students specialize in Industrial Systems Development and Management, Urban and Regional Development (Human Settlements) or Agricultural Systems Engineering.

These areas of specialization begin after a common preparation in the methods of systems analysis.

This Division also provides service courses in this methodology and in applied economic analysis to students in other Divisions.

In addition, Inter-Divisional Programs of Studies are offered in :

Transportation Engineering with specialization based in Materials (the Geotechnical Division) or in Transportation Systems.

Agricultural Engineering with specialization in Agricultural Systems Engineering or Irrigation problems.

TABLE III

AIT'S GRADUATES

(Distribution List)

The total number of AIT's graduates is at present 552. A further graduation will be held in early May 1973, after which it is expected that the total number of graduates will be 630 or slightly higher. Of these, all but a few will have qualified with the degree of Master. As yet, the numbers of Diploma and Doctor's degree graduates are small.

In May 1973, AIT's body of graduates will be representative of the following countries :

Afghanistan	Nepal
Bangladesh	Pakistan
Hong Kong	Philippines
India	Republic of China
Indonesia	Singapore
Iran	Thailand
Korea	Turkey
Macao	United Kingdom
Malaysia	Vietnam

The larger groups are from :

India 4%	Philippines 12%
Malaysia 5%	Republic of China 15%
Pakistan 12%	Thailand 42%

TABLE IV

1973-74 Faculty Distribution by Countries

(Based on Requests and/or Plans as of April 3, 1973)

<u>Secondments</u>		<u>International Faculty Staff (IFS)</u>	
USA	10	Thai	15
UK	13	India	3
Israel	2	Vietnam	1
Japan	6	Philippines	1
Canada	3 (5)	UK	1
Republic of China	1	Bangladesh	1
France	1	Laos	1
Denmark	1 (2)	Switzerland	1
Germany	1	USA	2

() = Available Positions

14 IFS positions to be filled by recruitment in progress. These will be appointed from among Asian applicants (largely non-Thai)

TABLE V

SCHOLARSHIPS AT AIT

(Scholarships at AIT cost U.S.\$8,500 for a 21-month Master's degree. This cost covers: Tuition, fees, board and room, books, basic medical care, one round-trip economy fare between the student's home and Bangkok, and a small sum for personal needs).

Scholarships are presently provided as follows:

<u>Governments</u>	<u>Number</u>
Australia	10
Belgium	6
British Columbia	10
Canada	25
Republic of China	17
Denmark	6
Federal Republic of Germany	7
Iran	1
Japan	6
Netherlands	11
New Zealand	4
Switzerland	5
Thailand (King's Scholarship)	4
United Kingdom	38
USA (USAID Indonesia)	2 (Plus 1 Diploma student who graduated in Dec.'72)
	USAID Korea
<u>International Organizations</u>	
Commonwealth Secretariat	5
Mekong Secretariat	4
SEATO	4
<u>Foundations/Commissions</u>	
Chase Manhattan International Foundation	1
Commission for the Advancement of Christian Higher Education in Asia	2

<u>Foundations/Commissions</u>	<u>Number</u>
De Witt Wallace Foundation	2
KEIDANREN (Council of Economic Organizations Japan)	12
Lee Foundation (Singapore)	8
<u>Business</u>	
IBM	2
ITT	4
Shell Oil International	2
<u>Private</u>	
George Marden (Hong Kong)	1
<u>Other Organizations</u>	
Royal Thai Airforce	<u>1</u>
Total:	201

Scholarship support in the past has also been provided by:

ACADEMIC YEAR 1971-72

<u>Government</u>	<u>Number</u>
Australia	10
British Columbia	4
Canada	25
Republic of China	14
Denmark	3
Iran	2
Japan	6
Netherlands	8
New Zealand	4
SEATO	1
Thailand	4

<u>Government</u>	<u>Number</u>
United Kingdom	24
USA	1
<u>Foundations</u>	
KEIDANREN	12
Lee Foundation	10
Starr	1
<u>Industries</u>	
General Telephone & Electronics	1
IBM	2
George Marden	1
Shell Oil International	<u>2</u>
Total:	135

ACADEMIC YEAR 1970-71

<u>Governments</u>	<u>Number</u>
Australia	5
Canada	15
Republic of China	9
Hong Kong	1
Japan	3
Netherlands	4
New Zealand	2
SEATO	1
Thailand	2
United Kingdom	14
United States	2

<u>Foundations</u>	<u>Number</u>
KEIDANREN	6
Lee	15
Starr	1
<u>Industries</u>	
General Telephone & Electronics Int'l	1
IBM	2
Lever Brothers Thailand, Ltd.	1
Shell Thailand, Ltd.	1
Shell International	<u>1</u>
Total:	86

ACADEMIC YEAR 1969-70

<u>Countries</u>	<u>Number</u>
Netherlands	2
United Kingdom	2
United States of America	4
SEATO	1
<u>Foundations</u>	
The Ford Foundation	1
Lee Foundation	12
<u>Business</u>	
Lever Brothers Thailand, Ltd.	1
Shell Company of Thailand, Ltd.	<u>1</u>
Total:	24

Scholarships are for 21 months for the Master's Degree so the student granted the Shell Company of Thailand scholarship in academic year 1969-70 was also a scholarship holder in 1970-71.

TABLE VI

ACTIVE RESEARCH PROJECTS

Environmental

1. Potable Water Project (SED, Frankel)	\$ 7,990.-
2. Series Filtration Project (ARPA, Frankel)	\$ 8,425.-
3. Series Filtration Project (Mekong Committee, Frankel)	\$ 27,930.-
4. Stream Standards Project (ARPA, Pescod)	\$ 6,490.-
5. Cholburi Project (ESSO, McGarry)	\$ 7,050.-
6. Water from Sewage (ARPA, McGarry)	\$ 9,665.-
7. Pilot Plant Study (CDM, Pescod)	\$ 9,712.-
8. Quae Yai Surveys (EGAT, McGarry)	\$ 18,682.-

Geotechnical

1. ECI Testing Program (ECI, Nelson)	\$ 337.-
2. Wat Po Project (PMWD, Nelson)	\$ 1,851.-
3. Rama IV Tunnel (CDM, Nelson)	\$ 5,048.-
4. New Airport Survey (Northrup, Moh)	\$ 77,400.-

Library/Geotechnical

1. Information Center (IDRC, H. Lee)	\$ 53,630.-
--------------------------------------	-------------

Structures

1. Slum Survey (NHA, Tongchat)	\$ 6,298.-
--------------------------------	------------

Water Science

1. Irrigation Project (NEA, Subin)	\$ 7,692.-
2. Ports Study (Harbor Dept., Ackermann)	\$ 246,750.-

PENDING PROPOSALS

Environmental

- | | |
|--|--------------|
| 1. ESSO Project (Pescod) | \$ 411,000.- |
| 2. New Airport Survey (Northrup, Pescod) | \$ 29,425.- |

Geotechnical

- | | |
|------------------------------------|--------------|
| 1. Subsidence Proposal (PMWD, Moh) | \$ 240,288.- |
|------------------------------------|--------------|

Structures

- | | |
|--|-------------|
| 1. Thick Pavements (ARPA, Pisidhi) | \$ 11,314.- |
| 2. Low Cost Housing (CMMC, Pama) | \$ 4,339.- |
| 3. Force at a Point (NSF, S. Lee) | \$ 26,074.- |
| 4. Wood-Concrete Beams (ARPA, Pisidhi) | \$ 9,180.- |

Systems

- | | |
|-------------------------------------|--------------|
| 1. Taiwan Planning (CIECD, Drew) | \$ 35,000.- |
| 2. Management System (MWWA, Pakorn) | \$ 117,410.- |
| 3. Low Cost Housing (ILO, Axilrod) | \$ 20,000.- |

Water Science

- | | |
|---|-------------|
| 1. Sattahip Harbor (RTN, Ackermann) | \$ 25,690.- |
| 2. New Airport Survey (Northrup, Ackermann) | \$ 66,000.- |

APPENDIX I

Unique Organization of AIT

AIT is a private non-profit post-graduate institute of technology. In the execution of its objectives, it is directly responsible to no government or state. Its Charter (copy attached) establishes AIT's purposes, powers, and organizational structure. This Charter was ratified by the Royal Thai Government but this could have done equally well in any other country in the region served by AIT. All powers of the institute are vested in its self-perpetuating Board of Trustees and, in this respect, AIT is organized much the same as any private college in the USA.

While AIT is not directly responsible to any government neither may it depend on a single government or organization for support. AIT has considerable latitude for development but always must operate with constraint that only these programs which can be financed can be undertaken.

TITLE Administrative Organization - Charter, Bye-Laws, Objectives, Authority

I. Purpose

- A. To delineate the specific documents, enactments and responsibilities upon which the administrative structure of AIT is based.

II. Scope

- A. All authority and power vested in AIT is derived from its Charter. The Charter grants AIT its right to exist under Thai Law and specifies its purposes, powers, rights and general organization.
- B. The Bye-Laws of the Board of Trustees, which has final authority over all the activities of AIT, specify how this authority will be exercised and further delineates the organization of AIT.
- C. The Objectives of the Institute further delineate the activities to be conducted at AIT.

III. Charter of the Asian Institute of Technology

ARTICLE I

Name and Location

The name of the Institute shall be the "Asian Institute of Technology" (hereinafter called the Institute).

The main offices of the Institute shall be located in Bangkok, Thailand.

ARTICLE II

Purposes

The purposes of the Institute shall be the conduct on a non-profit basis of an institute of technology, including colleges, schools and research organizations affiliated therewith, within or outside Thailand, specializing in graduate education; the promotion, advancement, evaluation and dissemination of learning by instruction and by publications, study and research in engineering, science and allied fields; the awarding of certificates, diplomas and degrees; and engagement and participation in projects of instruction, study and research on a regional basis.

ASIAN INSTITUTE OF TECHNOLOGY POLICY & PROCEDURE STATEMENT	ISSUED BY President	REFERENCE No. AD-2
	DATE ISSUED 11 Nov 68	SECTION One
	DATE REVISED 4 Feb 70	PAGE 2

TITLE Administrative Organization - Charter, Bye-Laws, Objectives, Authority

ARTICLE III

Status and Powers of the Institute

The Institute shall possess full juridical personality and shall have the powers herein enumerated, subject to the laws of Thailand or the country concerned.

- (i) to acquire and dispose of immovable and movable property, where-soever situated, whether in Thailand or in any country, whether or not income-producing, and any interest in such property, whether by purchase, gift, devise, bequest, investment, loan or otherwise, whether in trust or outright, and to own, hold, manage, lease, pledge, mortgage, transfer, convey, invest and reinvest the same, subject, however to any applicable trusts, terms or restrictions thereon;
- (ii) to act, without compensation, as executor, administrator, administrator with the will annexed, trustee under will, deed or otherwise, or in any other fiduciary capacity of any estate or trust in which it may have interest of any kind whatsoever;
- (iii) to contract, to qualify to do business, and to execute and file all necessary papers in connection therewith, in Thailand or in any country;
- (iv) to institute legal proceedings in Thailand or in any country;
- (v) to borrow money for the purposes of the Institute, to issue evidences of indebtedness therefor, and to secure the same by mortgages or otherwise; and to lend money and property and assets for the purposes of the Institute, with or without security;
- (vi) to appoint and employ such faculty, staff, officers, managers, agents and employees without restriction as to nationality as the purposes of the Institute may require;
- (vii) to provide for the selection of its students and for the government and well-being of its students, faculty and staff while in attendance at the Institute or any affiliate thereof or elsewhere in pursuance of the Institute's purposes;
- (viii) to develop its own curricula, set its own academic standards, and award its own certificates, diplomas, and degrees; and to engage and participate in projects of instruction, study and research;
- (ix) to make Bye-laws, Rules and Regulations not inconsistent with the provisions of this Charter and the laws of Thailand, for the management of its property and assets and the regulation of its affairs; and

TITLE Administrative Organization - Charter, Bye-Laws, Objectives, Authority

- (x) to have and exercise any powers necessary or incident to the exercise of the powers above enumerated.

ARTICLE IV

Activities of the Institute

The activities of the Institute shall be conducted in Thailand and such other places outside Thailand as may be appropriate for the furtherance of its purposes.

ARTICLE V

Organization

The Institute shall have an international Board of Trustees, an Executive Committee, a President, and such other officers, faculty and staff as may be considered necessary by the Board of Trustees.

ARTICLE VI

Board of Trustees

All powers of the Institute shall be vested in the Board of Trustees (hereinafter called the Board) consisting of not less than nine (9) and not more than sixty (60) members as shall be fixed from time to time in the manner specified in the Bye-Laws provided, however, that it shall be international in character and composition to the highest degree practicable and that it shall always include the President of the Institute.

Except as stated in this Charter, the Bye-Laws shall specify the qualifications, terms, voting powers and responsibilities of members of the Board, the manner of election thereto and the filling of vacancies on the Board as well as its general management.

The time and place of the Board meetings as well as a quorum for any meeting of the Board shall be determined by the Bye-Laws.

TITLE Administrative Organization - Charter, Bye-Laws, Objectives, Authority

ARTICLE VII

Executive Committee

The Board shall appoint an Executive Committee (hereinafter called the Committee) which shall exercise those powers of the Board delegated to it by the Board as specified in the Bye-Laws.

ARTICLE VIII

President, Officers, Faculty and Staff

The Board shall elect and appoint a President of the Institute and such other officers, faculty and staff as may be considered necessary by the Board, and shall provide for the government and removal of such officers, faculty and staff.

The President shall be the chief executive of the Institute and shall conduct, under the direction of the Board or the Committee as the case may be, the general affairs of the Institute.

ARTICLE IX

Exemptions from Immigration Restrictions and Taxation

The Institute shall exercise utmost diligence in obtaining from the Government of the appropriate host country facilities or exemptions from restrictions in the matter of immigration laws and regulations for incoming students, members of the Board, members of the Committee, officers, faculty members or staff members of the Institute, and exemption from any form of restrictions, direct taxation and custom duties for the Institute, its assets, property, income and its operations and transaction authorized by this Charter and in pursuance of its normal functions.

ARTICLE X

Amendments

This Charter may be amended only by decision of a two-thirds majority of the members of the Board present and voting at a meeting provided there is a quorum.

Amendments shall enter into force only after such amendments have been duly approved by the Government or Governments of the country or countries wherein the offices of the Institute are located.

ASIAN INSTITUTE OF TECHNOLOGY POLICY & PROCEDURE STATEMENT	ISSUED BY President	REFERENCE No. AD-2
	DATE ISSUED 11 Nov 68	SECTION One
	DATE REVISED 4 Feb 70	PAGE 5
TITLE Administrative Organization - Charter, Bye-Laws, Objectives, Authority		

ARTICLE XI

Transitory Provisions

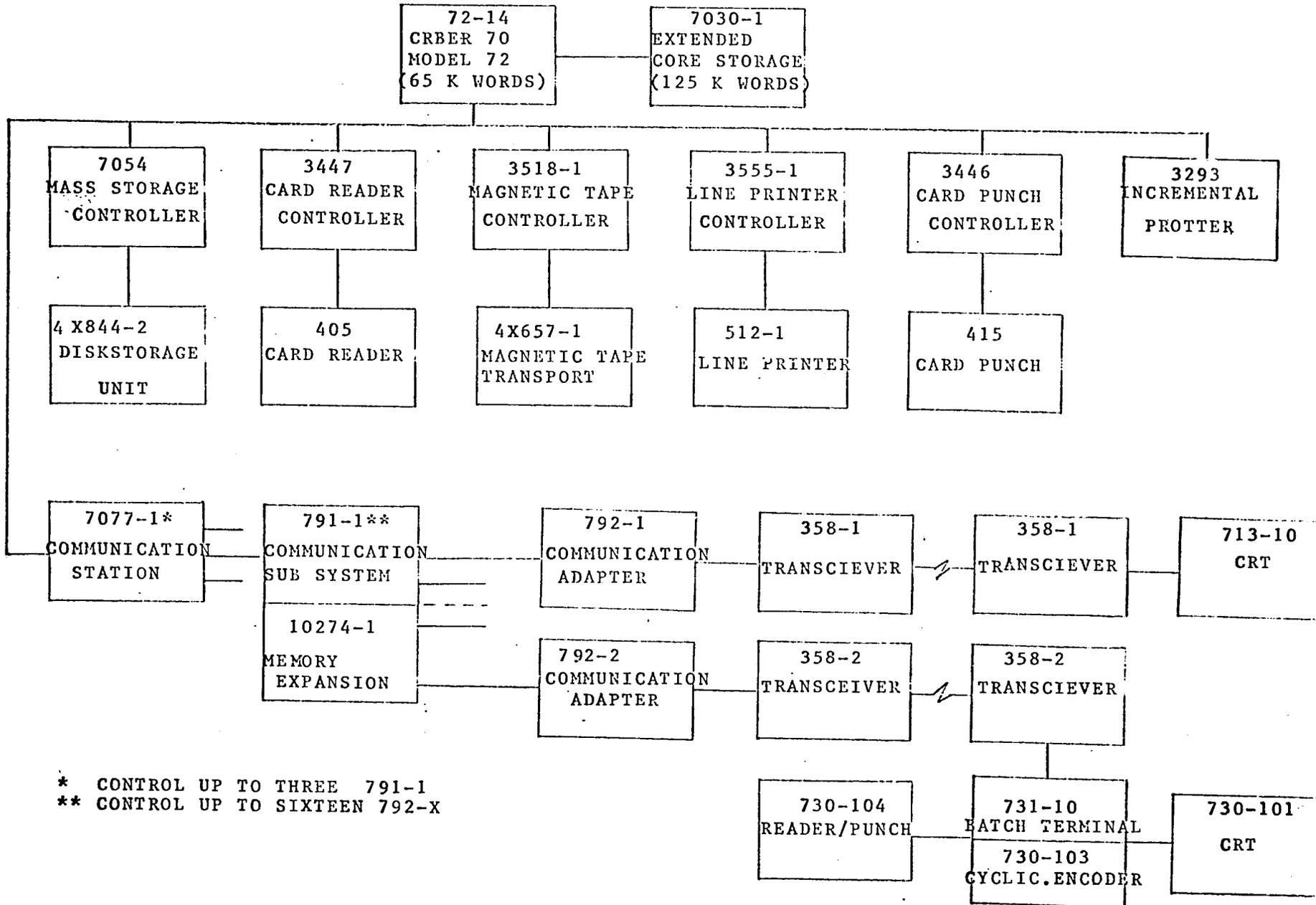
Immediately following upon the adoption of this Charter, initial appointments to the Board of Trustees, which would be for indefinite terms, shall be made on the basis of up to three trustees by each of the eight SEATO member countries. For the first meeting of the Board, a quorum will consist of those trustees attending provided that at least five member countries are represented.

The Board shall, at the first meeting, appoint a President of the Institute who shall automatically become a member of the Board.

DISTRIBUTION	
<input checked="" type="checkbox"/>	Administration
<input checked="" type="checkbox"/>	Faculty
<input type="checkbox"/>	Staff
<input type="checkbox"/>	Students
<input type="checkbox"/>	Expatriates

APPENDIX II - CDC CYBER 70 MODEL 72 SYSTEM

CDC CYBER 70 MODEL 72 SYSTEM



* CONTROL UP TO THREE 791-1
 ** CONTROL UP TO SIXTEEN 792-X

CDC CYBER 70 MODEL 72

PRODUCT DESCRIPTIONS

A. CENTRAL COMPUTER

72-14 CYBER-70 Model 72. Central Processor-Sixty Bit Word Size, one basic central processor, 10 Peripheral processors each with 4,096. 12-Bit words of independent Magnetic Core Storage, twelve 12-Bit Data Channels, floating point hardware, character compare and move instructions, 8 Operand, 8 Addressing and 8 Increment Registers, Central Processor interrupt through exchange sump logic includes coupler for extended core storage (ECS). Two adapters for 3000 Peripheral Data Channels, system console, 64-Bit interlock register. 65K words of Central Memory.

7030-1 CYBER-70 Extended Core Storage. Magnetic Core Storage with 3 Microsecond first word approximate access time. Includes controller enabling direct memory access by one or two CYBER-70 series central computers in any combination, for 125,952 60-Bit words with a maximum transfer rate of 2.5 million words/second. Includes the distributive data path with one connector to ECS and one 480-Bit buffer register for connection to a standard CYBER-70 Data Channel. Additional buffer registers and channel connectors may be added for a maximum of 4 registers.

7054 Mass Storage Controller. Controls up to 8 Disk Storage drives, connects to one standard 6000 I/O channel, capacity of 844-2 is 118 M 6-Bit characters in 644 characters per sector and 24 sectors per track. Minimum configuration will have two disk storage units. Two mass storage controllers are required for dual access operation.

844-2 Disk Storage Unit. Maximum capacity of 869 million bits when used in an unsectored format on 404 tracks, useable capacity depends on sectoring scheme used, 10 to 55 MS positioning time - 30 MS average, 6.8 million bits/second transfer rate, 3600 RPM. Has voice coil actuator, uses pre-written serve tracks. Requires one 872 Disk Pack with 19 data and one serve surface - not included.

6681 Data Channel Converter. Permits 3000 series Peripheral equipment to be attached to 6000 series channel.

CDC CYBER 70 MODEL 72 (Cont.)

3447 Card Reader Controller. Single channel connection, controls one card reader. Full card buffer, BCD code conversion, checking.

405 Card Reader. Reads 1200 cards/minute for 80 column cards, reads 1600 cards/minute for 51 column cards, 4000 card hopper capacity, 4000 card stacker capacity, 240 card secondary stacking capacity for limited sorting or rejecting.

3518-1 Magnetic Tape Controller. Single channel connection, controls up to 8 model 657 tape units, 200, 556, and 800 Bits/inch NRZI recording.

657-1 Magnetic Tape Transport. Seven tracks, 7.5K, 20.8K and 30K 6-Bit characters/second, 200, 556 and 800 Bits/inch, NRZI recording, reads and writes 37.5 inches/second. Forward and reverse read.

3555-1 Line Printer Controller. Single channel connection, controls one printer, full line buffer, train image storing, checking.

512-1 Line Printer. Train printer, prints 1200 lines/minute using 48 character train, skips 70 inches/second at 6 lines/inch or 60 inches/second at 8 lines/inch, 136 columns, does not include inter-changeable 595 series train cartridge.

595-1 Train Cartridge. 63 printing character plus space.

3446 Card Punch Controller. Single channel connection, control one card punch, full card buffer, checking.

415 Card Punch. Punches 250 cards/minutes, 80 column card, programable offset stacking, 1200 card hopper capacity, 1500 card stacker capacity, read check after punch.

3293 Incremental Plotter. 300 steps/second, .01 inch/step, 11 inch plot width, 120 foot roll.

CDC CYBER 70 MODEL 72 (Cont.)

B. MULTIPLEXOR SUBSYSTEM

7077-1 Communications Station. Controls up to three 791-1 communication controllers. Provides 8K words of buffer core memory with a cycle time of 1.1 microseconds. Requires one dedicated PPU and one shared data channel.

791-1 Communication Subsystem. Interface to a 7077 1 communications station or a 7611-10 service station. Provides a communications interface for up to sixteen 792 communication adapters. Includes 4096 16-Bit words of core memory with 200 nanosecond cycle time and a cycle encoder unit.

10274-1 Memory Expansion. Provide 4,096 16-Bit words of core memory, 200 nanosecond cycle time. Expand core memory in the 791-1.

C. LOW SPEED BATCH TERMINAL

792-2 Communication Adapter. A full or half duplex synchronous adapter with EIA RS 232-C interface compatible with the bell 201 and 203 data sets. May be altered to provide CCITT compatibility. Will operate at 2400, 4800, or 9600 BPS.

358-2 Transceiver. Synchronous, operation, 1200, 2400, 4800 and 9600 bits per second, half or full-duplex mode distance up to one mile, private line, voice mode no. available.

731-10 Low Speed Batch Terminal. Basic LSBT has 8K 8-Bit bytes of 16 bit 1.1 microsecond memory, one 300 CPM card reader, one 300 LPM 136 column printer, terminal control/status console, communications interface, and operator keyboard. Hollerith or Binary coded cards may be used. Full 64 characters set is pointed. Synchronous communications interface accommodates external modems designed to RS 232-C or CCITT V 24 specifications at speeds ranging from 2000 to 4800 BPS.

730-101 CRT Display. Non-edit 80 characters per line by 16 lines CRT display head with ANSI 96 character set. Head only-keyboard is included in basic terminal.

CDC CYBER 70 MODEL 72 (Cont.)

730-103 Cyclic Encoder. Hardware encoder used with cyclic redundancy characters. The checking polynomial is $X^{16} + X^{15} + X^2 + 1$.

730-104 Reader/Punch. Combination card reader/card punch. Non-simultaneous 330 CPM and 66 CPM punch. When installed, the stand alone reader included in 731-10 is removed and returned to CDC.

D. CRT TERMINAL

792-1 Communication Adapter. A full or half non-synchronous adapter with EIA RS 232-C interface compatible with the Bell 103 and 202 data set. May be altered to provide CCITT compatibility. Will operate from 75 to 1800 BPS.

358-1 Transceiver (2 for each terminal). A Synchronous operation, up to 9600 bits per second, half or full-duplex mode, distance up to one mile, private line, voice mode not available.

713-10 CRT Display Terminal. Includes 8 lines of 80 characters displayed on a 10-inch wide by 8-inch high viewing area of a 15-inch CRT screen, electronic keyboard with standard teletype layout including additional control plus 10 key numeric cluster, 96 ASCII alphanumeric and symbols plus 32 ANSI control codes. RS 232-C interface designed for a synchronous data transmission at 75, 110, 150, and 300 BPS. Features include cursor control-up, down, right, left, home, start, stop, inverse video (black on white), roll and page format, roll or page format, non-destructive blinking cursor, 5 x 9 dot matrix using standard 525 line TV raster, 60 hz refresh rate, MOS semi-conductor memory, dual-level key board, character size (nominal) .25 inch high, .125 inch wide, provision for hard copy. Switch selection - full or half duplex, odd, even, or no parity, key board lockout, remote-local (test), roll-page format.

CDC CYBER 70 MODEL 72

(Suggested Configuration)

<u>Product No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Per Unit Price</u>		<u>Extended Price</u>	
			<u>Purchase</u>	<u>Monthly Maint.</u>	<u>Purchase</u>	<u>Monthly Maint.</u>
A. <u>CENTRAL COMPUTER</u>						
72-14	CYBER 70 Model 72-14	1	1,025,000	4,051	1,025,000	4,051
7030-1	Extended core storage	1	196,200	1,288	196,200	1,288
7054-1	Mass Storage Controller	1	90,000	290	90,000	290
844-2	Disk Storage Unit	4	28,000	100	112,000	400
6681	Data Channel Converter	2 *	14,840	44	29,680	88
3447	Card Reader Controller	1	12,720	60	12,720	60
405	Card Reader	1	24,910	71	24,910	71
3518-1	Magnetic Tape Controller	1	32,860	152	32,860	152
657-1	Magnetic Tape Transport	4	17,890	76	71,560	304
3555-1	Line Printer Controller	1	28,620	49	28,620	49
512-1	Line Printer	1	47,700	243	47,700	243
595-1	Train Cartridge	1	3,180	-	3,180	-
3446	Card Punch Controller	1	24,380	71	24,380	71
415	Card Punch	1	20,140	65	20,140	65
3293	Incremental Plotter	1	10,070	92	10,070	92
	Sub-Total				<u>1,729,020</u>	<u>7,224</u>

* Other two 6681's are already included in 72-14

CDC CYBER 70 MODEL 72

(Suggested Configuration)

<u>Product No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Per Unit Price</u>		<u>Extended Price</u>	
			<u>Purchase</u>	<u>Monthly Maint.</u>	<u>Purchase</u>	<u>Monthly Maint.</u>
<u>C. MULTIPLEXOR SUBSYSTEM</u>						
7077-1	Communication Station	1	42,500	120	42,500	120
791-1	Communication Subsystem	1	38,000	100	38,000	100
10274-1	Memory Expansion	1	17,000	50	17,000	50
	Sub-Total				<u>97,500</u>	<u>270</u>
<u>. LOW SPEED BATCH TERMINAL (2 Terminals)</u>						
792-2	Communication Adapter	2	400	2	800	4
358-2	Transceiver	4	1,855	22	7,420	88
731-10	Low Speed Batch Terminal	2	30,300	244	60,600	488
730-101	CRT Display	2	1,400	10	2,800	20
730-103	Cyclic Encoder	2	120	-	240	-
730-104*	Reader/Punch	2	13,000	81	26,000	162
	Sub-Total				<u>97,860</u>	<u>762</u>
<u>D. CRT TERMINAL (10 Terminals)</u>						
792-1	Communication Adapter	10	350	2	3,500	20
358-1	Transceiver	20	1,010	17	10,010	170
713-10**	CRT Display Terminal	10	1,995	15	19,950	150
	Sub-Total				<u>33,460</u>	<u>340</u>
	Total				<u>1,957,840</u>	<u>8,596</u>

* Option (a card-reader will be included in 731-10 if 730-104 is absent)

** Can be replaced by Teletype Model 33. or 35.

STANDARD SOFTWARE

<u>Product No.</u>	<u>Description</u>	<u>Initial Fee</u>	<u>Monthly Royalty</u>
F 303-01	SCOPE 3.4 Package Including SCOPE 3.4, COMPASS 3, SAAML, FORM 1	-	\$ 250
F 303-04	FORTRAN EXTENDED 4	-	250
F 303-05	COBOL 4	-	250
F 303-06	SORT/MERGE 4	-	50
F 303-09	INTERCOM 4	-	200
F 303-10	PERT/TIME	-	-
F 303-16	ALGOL-603	-	250
F 303-21	FORTRAN 2	-	-
F 303-08	QUERY/UPDATE	-	100
F 303-11	SIMSCRIPT 2	-	-
F 303-14	APT 2	-	-
F 303-15	BASIC 2	-	-
F 303-29	SIMSCRIPT 3	500	350
		<u>500</u>	<u>\$ 1,700</u> *

* One time charge = \$ 500 + 1,700 x 30
= \$ 51,500



Department of State

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TELEGRAM
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PAGE 01 STATE 065991

51
ORIGIN AID-65

INFO OCT-01 E-04 IGA-02 EA-06 L-04 INR-07 /089 R

66610
DRAFTED BY:GRUPPE EA/RD
APPROVED BY:MEINECKE EA
JOHNSON:EA/TECH BREECHER EA/DP RABIN EA/RD
6L ACTION EAB INFO OA ENGR GC IS ACONT ACC PRR AAPC SRD CIT CIA
COM TRSY 65P

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R 011742Z MAY 70
FM SECSTATE WASHDC
TO AMEMBASSY BANGKOK

UNCLAS STATE 065991

AIDAC

SUBJ: AIT (RED) 498-11-660-198-114

REF: TOAID A-688

1. DURING AIT PROP REVIEW DISCUSSIONS, IT AGREED AID SHOULD PROCEED WITH PROPOSED CONTRIBUTION OF UP TO DOLS 2.75 MILLION TOWARD FIRST STAGE CONSTRUCTION. PROP SUBMITTED BY RED CONTAINS RECOMMENDATION THAT US FUND AN ADDITIONAL DOLS 5 MILLION TOWARDS STAGE TWO FACILITIES. AID/W POSITION IS THAT OUR DOLS 2.75 MILLION WILL ENABLE AIT UNDERTAKE CONSTRUCTION OF NEW FACILITIES AND WE NOT PREPARED CONSIDER REQUEST FOR ADDITIONAL FUNDS AT THIS TIME.

2. ALSO WISH DEFER DECISION ON WHETHER OR NOT WE WOULD APPROVE TERMINATION CSU CONTRACT SERVICES UNTIL HAVE HAD OPPORTUNITY REVIEW WITH BENDER HIS PLANS HAVE AIT ASSUME ALL ACTIVITIES HERETOFORE CARRIED OUT BY CSU.

3. WE NOTE THAT TABLE PAGE 9 REPAIR OMITTS ACADEMIC YEAR 73-74 AND CONSEQUENTLY TERMINATES IN ACADEMIC YEAR 75-76. IT CLEAR FROM INCOME TABLE PRESENTED PAGE 39 AND PARA C.I. C PAGE 50 THAT RED CONTEMPLATING OPERATIONAL SUPPORT THROUGH ACADEMIC YEAR 74-75 ONLY WHICH IS LIMIT ON U.S. SEVEN YEAR COMMITMENT TO OPERATIONAL

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29



Department of State

TELEGRAM

UNCLASSIFIED

PAGE 02 STATE 065991

FUNDING. VIEW PARA 2 ABOVE, WE ASSUME THAT IF CSU CONTRACT TERMINATED, U.S. BUDGET COVERING CSU OVERHEAD MAY BE ELIMINATED AND ANNUAL LEVELS REDUCED TO APPROXIMATELY THOSE SHOWN PAGE 39 INSTEAD OF THOSE SHOWN PAGE 9.

4. REQUEST YOU NEGOTIATE AGREEMENT WITH AIT COVERING OBLIGATION DOLS 1,635,000 AS FIRST INSTALLMENT U.S. TOTAL CONTRIBUTION OF UP TO DOLS 2.75 MILLION TOWARDS STAGE ONE PROGRAM. ALLOTMENT AND YOUR AUTHORITY SIGN SUCH AGREEMENT SUBJECT SEPTEL.
ROGERS

TELETYPE UNIT

TO: _____

FROM: _____

INFO: _____

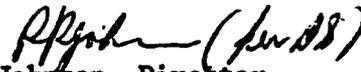
PROJECT NUMBER: _____

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4980114
FD-AAI-953

AID 1980-1X (8-68)	DEPARTMENT OF STATE AGENCY FOR INTERNATIONAL DEVELOPMENT	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Issuance	PAGE 1 OF 1 PAGES		
PIO/T	PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES	1. Cooperating Country East Asia Regional		2. PIO/T No. 498-114-3-10021	
		3. Project/Activity No. and Title 15-660-114 ASIAN INSTITUTE OF TECHNOLOGY			
EA/RD: NMarsh (draft)	4. Appropriation Symbol 72-1111004		5. a. Allotment Symbol & Charge 154-52-490-00-69-11		
	6. Obligation Status ACTION REQUEST <input type="checkbox"/> Administrative <input type="checkbox"/> Reserve <input type="checkbox"/> Obligation <input type="checkbox"/> Sub-Obligation		5. b. Funds Allotted to: <input type="checkbox"/> AID/W <input checked="" type="checkbox"/> Mission		
EA/TECH: MWilliams (draft)	8. No. of Technicians As Required		9. Services to Start (Mo., Day, Yr.) Between: 4/1/71 And:		
EA/PROC: ABoyd (draft)	10. Duration (Months) a. Of Services: 12 b. Of Financing: 12				
EA/TECH: DStarr (draft)	11. a. Type of Action <input checked="" type="checkbox"/> AID Contract <input type="checkbox"/> Cooperating Country Contract <input type="checkbox"/> Participating Agency Service Agreement <input type="checkbox"/> Other				
	11. b. Authorized Agent AID/W				
	Financing	A. Previous Total	B. Increase	C. Decrease	D. Total to Date
	12. AID Financing a. Dollars	784,000	245,000		1,029,000
	b. U.S.-Owned Local Currency				
	13. Cooperating Country Contributions a. Counterpart				
	b. Other				
14. Mission References Bangkok 6888 Funds obligated by Letters of Agreement dated 5/17/71	15. Objective for which the Technical Services are to be used (Describe) Under Letter of Agreement dated May 19, 1971, executed between the US Government and the AIT, the USG agreed to provide funding for three month extension of the Colorado State University contract to cover the period December 31, 1971, to March 31, 1972. During the period covered by this PIO/T the contractor will continue to provide technical and advisory service in accordance with the budget reviewed and approved by RED/Bangkok in November 1970.				
	16. Mission Clearances	Date	Mission Clearances	Date	
	17. Date of Original Issuance May 28, 1971		18. Date of this Issuance May 28, 1971		
19. For the Cooperating Country The terms and conditions set forth herein are hereby agreed to:			20. For the Agency for International Development		
SIGNATURE			SIGNATURE		
DATE			DATE		
TITLE			TITLE		
			 Robert R. Johnson, Director Office of Technical Services, EA		

AGENCY FOR INTERNATIONAL DEVELOPMENT (A.I.D.)

A.I.D.
Reference Center
Room 1656 NS

PROJECT AUTHORIZATION

1. PROJECT NUMBER 498-11-660-114	3. COUNTRY Regional	4. AUTHORIZATION NUMBER 0053 4980114 (10)
2. PROJECT TITLE Asian Institute of Technology (including SEATO Graduate School of Engineering)		5. AUTHORIZATION DATE 4/29/70 1p
		6. PROP DATED April 3, 1970

7. LIFE OF PROJECT

a. Number of Years of Funding: 16
Starting FY 19 58; Terminal FY 19 74

b. Estimated Duration of Physical Work
After Last Year of Funding (in Months): 12

FUNDING BY FISCAL YEAR (in U.S. \$ or \$ equivalent)	DOLLARS		P.L. 480 CCC + FREIGHT	LOCAL CURRENCY Exchange Rate: \$1 =			
	GRANT	LOAN		U.S. OWNED		HOST COUNTRY	
				GRANT	LOAN	JOINTLY PROGRAMMED	OTHER
Prior through Actual FY 1969	6,536						
Operational FY 70	2,740						
Budget FY '71	2,105						
B + 1 FY 72	887						
B + 2 FY 73	737						
B + 3 FY 74	576						
All Subsequent FY's							
TOTAL	13,581						

9. DESCRIBE SPECIAL FUNDING CONDITIONS OR RECOMMENDATIONS FOR IMPLEMENTATION, AND LIST KINDS AND QUANTITIES OF ANY P.L. 480 COMMODITIES

Annual budgets covering the US share of operational costs and increments to the US contribution for capital construction will require the approval of the AA/EA, or his designee.

10. CONDITIONS OF APPROVAL OF PROJECT

Subject to annual review for OYB purposes, and for consistence with overall SEATO project for matching of funds as agreed or planned, and for continued consistency with testimony given to the Congress.

(Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in the PROP, subject to the conditions cited in Block 10 above, and the availability of funds. Detailed planning with cooperating country and drafting of implementation documents is authorized.

This authorization is contingent upon timely completion of the self-help and other conditions listed in the PROP or attached thereto.

This authorization will be reviewed at such time as the objectives, scope and nature of the project and/or the magnitude and scheduling of any inputs or outputs deviate so significantly from the project as originally authorized as to warrant submission of a new or revised PROP.

A.I.D. APPROVAL	CLEARANCES	DATE
SIGNATURE AA EA Roderic O'Connor	EA/DP Breecher <i>OB</i>	4/29/70
	EA/TECH Johnson	4/29/70
	EA/PD Rabin	4/29/70
	A/CONT.	
DATE 4/29/70		