



**Governing Council  
of the  
United Nations  
Development Programme**

Distr.  
GENERAL

DP/STD/PROJECTS/REC/3  
6 May 1985

ORIGINAL: ENGLISH

Thirty-second session  
June 1985, New York  
Item 8(e) of the provisional agenda

OTHER FUNDS AND PROGRAMMES

UNITED NATIONS FINANCING SYSTEM FOR SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

Project recommendation of the Administrator\*

Strengthening the Computer Education and  
Computing Capability at the Asian  
Institute of Technology (AIT)  
(RAS/85/T01/A/71/31)

I. BACKGROUND

1. Computers and computing methods have reached a level of usage in the developed societies which profoundly influences all aspects of society. Not only science, research and engineering are heavily influenced, but over the years also administration, management and business, touching more closely upon everyday life. Today, usage of computers is connected even with activities close to culture and local languages, such as textprocessing, information systems, libraries, etc. In fact, the processing of written language is probably the most extensive application of computing in modern society.

\* Submitted in accordance with the provisions of the Annex to General Assembly resolution 34/218, IX.C, paragraph 37, concerning procedures for the approval of projects to be supported by the Financing System and exceeding \$2 million in total cost.

2. To transfer the technology of computing methods will therefore be vital in enabling the developing countries to evolve their societies independently. In research and engineering, the computer programmes (software) developed in highly industrial environments must be modified and adapted to the needs and problems encountered in developing countries. The management of projects aimed at improving the many and varied areas of life must be based on a computer programming technology which reflects the particular societies involved. The handling of written language must be based on methods which allow the presentation of local symbolic forms which can be influenced by local language in both content and grammar.

3. To facilitate a transfer of computing technology it is essential to provide education and training in all aspects of software and programming methods, and not to limit assistance only to providing computers and already developed software. Although computers and software (particularly the basic tools of programming) are clearly necessary, a knowledge of the methods which will permit independent development, adaptation and modification is at least as important.

4. The aim of the project presented here is to create the facilities and resources for a programme of education and training in computing methods in selected fields of science, engineering and management. It is firmly believed that by doing this at a post-graduate level in a regional institution where a maximum multiplication effect can be achieved, the necessary transfer of the technology can take place more effectively.

5. Also, and equally important, are the qualities and features of the transferred technology. A frequently used and often successful vehicle for introducing computing in educational institutions has been the donation of large computers (mainframes). However, the rapid development of other more flexible methods of computing are challenging the more rigid, centralized environment of mainframe computing. In particular, the use of smaller machines (micro, mini and supermini computers) has found widespread use in an environment of decentralized computing. The ability to fit the computing solutions closer to the needs of smaller units, without the larger organizational and economic burden of mainframes, is particularly well suited to a wider application of computers. As to the crucial importance of software, the availability of computer programmes which are well suited to the problems served by a smaller computer installation and modified to be more suitable for local needs, is one of the major benefits of adapting a decentralized computing strategy.

6. It is recognized that the Asian Institute of Technology (AIT) has obtained a unique position in Asia by providing post-graduate education, continuing education and training programmes which are open to candidates from all nations in the region. The academic programmes at the Institute are closely related to the needs of Asia. They include the study of problems which are common to the region, as well as the study of the engineering and scientific methods upon which the solutions to these problems depend. Students are drawn from many countries across the Asian and Pacific region, with 72 percent coming from outside Thailand, which is the host country of the Institute. A major benefit of the Institute to the region is the fact that 93 percent of the graduates continue to work in Asia, many in their home countries.

7. By locating part of the programme in the AIT Division of Computer Applications, close connection to the general education in computer methods is ensured. The Division is providing advanced education and training for the efficient management of computers. By providing software technology transfer to other engineering and management divisions of the Institute, a substantially wider range of problems can be handled. This will ensure that a broad base of methods and software are available for the programme.

## II. THE PROJECT

8. In this context, the general development objective of this project is the upgrading of computer education and computing capability at AIT by strengthening the professional standards of the faculty and staff. This will enable the Institute to play an increasing role of importance in the transfer of computer technology to the developing countries of the Asia and Pacific region. This includes the development and teaching of modern computer courses, the conduct of research activities related to the software technology needs of the region, the strengthening of AIT's capability in the use of small systems for engineering and business applications, and the gradual establishment of an Information Technology Centre to provide computing services to the region.

9. The immediate objectives of the project can be summarized as follows:

(a) To develop the endogenous capacity of AIT to design and teach modern computer courses and selected software application courses in priority areas, such as computer graphics, computer communications, distributed data bases, fourth generation tools, information systems, interactive knowledge-based systems, man-machine interface, operating systems and system architecture;

(b) To enhance the capability of the seconded faculty and the regional staff to teach and conduct research in the suggested fields through the installation of computer equipment, necessary system software, as well as teaching tools;

(c) To train the regional faculty and staff in the efficient use of the equipment and in the teaching of current applications of computers in developed countries;

(d) To create a Project Software Library Service at the AIT Division of Computer Applications as a first step towards the gradual establishment of an Information Technology Centre to serve the regions.

10. The overall output expected from the project is a higher level of training and competence in computing methods in the region, based on alternative and smaller scale computing equipment. This includes:

(a) An increase by 20 percent of the number of post-graduate students with Master Degrees and Doctorates in computer software technology and computer applications;

(b) Three installed supermini computers with approximately 40 terminals and with access from 6 to 7 divisions at AIT, together with software suited to teaching, research and development in fields such as human settlement development, industrial management, structural engineering, traffic and transportation, water resources, water and waste;

(c) Three regional faculty members specialized in fields such as man-machine dialogues, knowledge-based systems and operational research;

(d) Four research staff trained in systems architecture, software design, computer operations and networks;

(e) Two hundred senior software experts from private enterprise and Government organizations trained in modern computer applications;

(f) Six selected one-term courses in special application areas;

(g) An established activity of information and software dissemination throughout the region.

11. The project will be executed by the Office for Project Execution of UNDP, with the assistance of a Technical Steering Committee.

### III. FINANCIAL DATA

12. The expenditure components of the proposed UNFSSTD assistance are as follows:

	<u>\$</u>
Project personnel	270 000
Subcontracts	2 310 000
Fellowships and in-service training	100 000
Equipment	255 000
Miscellaneous	560 000
Support costs	388 000
	<hr/>
Total estimated cost	3 883 000
	<hr/> <hr/>

13. An interested potential donor has been identified for the financing of the project through a trust fund to UNFSSTD, to be established for this purpose. This trust fund would be administered according to the provisions concerning trust funds conditioned upon procurement from the donor country established by Governing Council decisions 82/5, 83/32 and 84/35. The approval process in the potential donor country has not yet been finalized.

### IV. RECOMMENDATION

14. In the light of the above, the Administrator recommends that the Governing Council approve the project for Strengthening the Computer Education and Computing Capability at the Asian Institute of Technology, subject to the availability of funds, at a total estimated expenditure of \$3,883,000.

-----

