Technology and Development Program

The primary mission of the Technology and Development Program (TDP) is to provide a focus at MIT for research and education related to the role of technology in the socio-economic development of newly industrialized nations. TDP works with other academic departments and research centers throughout MIT to:

- Promote an awareness of the relationship between science, technology, and development on the part of faculty and students at MIT

- Provide a focal point for the technology and development activities of faculty, students, and visiting scholars interested in the field of technology and development

- Assist the faculty, students, and staff of collaborating institutions in other countries to develop research and academic interests consistent with their national needs

- Serve as a contact for interested organizations outside MIT (government, academic, and private sector) to access the Institute's resources and its knowledge of developing countries—particularly of their socioeconomic and technological problems

TDP carries out these objectives through research, academic programs, and contacts with international and national organizations that have an interest in broad areas of technology and development. In order to fully utilize available resources, TDP is structured to interact with other academic departments and research centers throughout MIT.

Current Research Programs

The two major ongoing programs of TDP are in Thailand and Malaysia.

Thailand

TDP in Thailand collaborates in research and education with two major Thai institutions: the National Science Technology and Development Agency of Thailand and the King Mongkut University of Technology at Thonburi. The two collaborations are funded under an agreement with Suskapatana Foundation. Both programs started in 1996 and are currently active.

Malaysia

TDP continues to assist the Malaysia University of Science and Technology (MUST) in establishing itself as a leading graduate university in Malaysia. TDP's efforts in capacity building are focused on four broad areas: (1) MUST's development of graduate degree programs in selected areas; (2) MUST's establishment of a research agenda; (3) MUST's formation of partnerships with the private sector; and (4) MUST's development of an appropriate institutional organization, including but not limited to administration and finance.

MIT's activities in this collaboration are supported by Motorola, acting through its Global Telecom Solutions Sector and its Global Software Group ($7 million over five years) and the Motorola Foundation ($18 million over five years).

To date, a temporary campus has been established and is located at GL33, Ground Floor, Block C, Dataran Usahawan Kelena, 17 Jalan 7/26, Kelana Jaya, 47301 Petaling Jaya, Selangor, Malaysia. The MUST website is at http://www.must.edu.my.

Academic Programs

During 2004 MIT assisted MUST in adding two master of science programs to the five existing programs established in 2002 and 2003. As a result, MUST now offers master of science degrees in transportation and logistics, information technology, biotechnology, construction engineering and management, materials science and engineering, energy and environment, and systems engineering management. MUST faculty have been hired in each of these areas, and they are being assisted by MIT faculty in course development and mentoring.

Research

In addition to its educational component, the MIT-MUST collaboration involves research in scientific and technological areas where the two institutions already have expertise, as well as collaborations with faculty members of other universities and research staff of R&D institutions. In 2004 joint research continued in the following areas:

- web services for new business applications in telecommunications

- regional strategies/intelligent transportation systems

- intelligent information integration

- support of MITSIMLab in application in Malaysia

- application of modern biotechnology for aquaculture feed production

- carrier networks: integrated service planning

- developing a transportation telematics and telemedicine architecture to reduce highway deaths in Malaysia

- increased therapeutic protein production in mammalian cell culture

- assessing project evaluation techniques used for major transportation projects in Asia

- bioprocess improvement through transcriptional analysis of cellular response

- wavelets and neural computing– complementary tools for the interpretation of sensor data

- global accords, best practices, and information technology for sustainability

In addition, researchers at MIT have submitted proposals for projects in precision agriculture with an emphasis on oil palm, post-harvest strategies for the tropical fruit export market, a regional transportation policy strategy, and a common ticketing system for the Klang Valley.

Industry Outreach

Major objectives of MIT's participation in MUST are to promote cooperation between industry, academia, and government; to inform industry of technological development; and to transfer technology whenever possible. A number of short courses relating to MIT/MUST's proposed academic program and research activities have been initiated by MIT and offered at MUST.

Institutional Building

MIT is providing assistance to MUST with regard to the organization, management, and administration of the university infrastructure, including all aspects of university administration, especially those relating to the management of financial, human, and physical resources, and academic program development.

Future Research Initiatives

The Technology and Development Program has continued its discussions with appropriate institutions in Colombia, Egypt, and Rawanda.

In Colombia, TDP and Mariano Ospina Foundation have jointly prepared a proposal to establish an institute for research and education on large-scale infrastructure systems in Bogota. In addition TDP continues its dialogue on initiating research activities in both Colombia and Egypt.

Current Educational Initiatives

The TDP-sponsored Middle East Program at MIT has completed its 14th year. Under the direction of Professor Nazli Choucri, associate director of TDP, the program involves faculty in political science, economics, history, urban studies and planning, management, civil and environmental engineering, and science, technology and society, as well as those in the Aga Khan Program in Islamic Architecture. The program enables students with an interest in the Middle East to develop expertise in the area in addition to their own academic field of specialization by examining the processes of socioeconomic change, political change, technological development, institutional development, capital flows, and business and investment patterns in the region.

Outside MIT, TDP's educational activities are focused on its collaboration with the Malaysia University of Science and Technology. MUST will be admitting an additional 100 students in September 2004. The program has also supported more than 45 graduate students at MIT.

Organization

TDP's director is Professor Fred Moavenzadeh of the Department of Civil and Environmental Engineering. Professor Nazli Choucri of the Department of Political Science is the associate director, and Patricia Vargas is the assistant director. Dr. Nathaniel Osgood, a research associate, spearheads TDP's information technology interactions with MUST.

Fred Moavenzadeh
Director
James Mason Crafts Professor of Engineering Systems and Civil and Environmental Engineering

More information about the Technology and Development Program can be found online at http://web.mit.edu/mit-tdp/www/.