

Technology and Development Program

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

- Promote awareness of the relationship between science and technology and development among 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 relating to 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 are in Thailand and Malaysia.

Thailand

In Thailand, TDP collaborates in research and education with two major Thai institutions: the Collaborative Program of Science and Technology with the National Science and Technology Development Agency of Thailand, and the Collaborative Program of Science and Technology with King Mongkut's University of Technology at Thonburi. These two programs are funded under an agreement with Suskapatana Foundation, and both started in 1996.

Malaysia

TDP continued to assist the Malaysia University of Science and Technology (MUST) in establishing itself as a graduate university in Malaysia. MIT's activities in this collaboration with MUST have been supported by Motorola, Inc., acting through its Global Telecom Solutions Sector and its Global Software Group. The MUST campus is located in Selangor, Malaysia.

Academic

During FY2006, MIT continued assistance to MUST with its seven master of science programs. 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 and management. MUST faculty have been hired in each of these academic program areas and have been assisted by MIT faculty in course development and mentoring. The first MUST graduates, from the biotechnology, information technology, and transportation and logistics programs, received their MSc degrees on December 14, 2005.

Research

In addition to its educational component, TDP's collaboration with MUST has involved research that initially focused on scientific and technological areas in which expertise already resided both at MIT and MUST, and/or in collaboration with qualified faculty members of other universities or with research staff at research and development institutions. MIT and MUST have now concluded their joint research projects, which included work on:

- 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

Additional research has been focused on the projects Wavelets and Neural Computing—Complementary Tools for the Interpretation of Sensor Data and Global Accords, Best Practices, and IT for Sustainability.

Future research projects include the following:

- Implementation of Design Structure Matrix (DSM) Model to Improve Design Process in Malaysian Manufacturing Industries
- Network Model Development for the Multi-Modal Transport System in Kuala Lumpur
- Bioprocess Understanding Through Transcriptional Profiling of Escherichia

- Estimating Energy Savings and Air Quality Improvements with Sensor-Based Demand-Controlled Ventilation for Enclosed Parking Lots

At MIT, the TDP program in Malaysia has supported over 60 faculty members from throughout the Institute and over 50 graduate students at MIT. TDP will continue to work cooperatively with MUST in Malaysia and will continue to foster its relationships and discussions with appropriate institutions in South America and the Middle East.

Current Education Initiatives

The TDP-sponsored Middle East Program at MIT has completed its 17th year. The program, under the direction of Professor Nazli Choucri, TDP associate director, involves faculty from the Departments of Political Science, Economics, Urban Studies and Planning, and Civil and Environmental Engineering, and from the Sloan School of Management, the Program in Science, Technology, and Society, the History Section, and the Aga Khan Program for 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 fields of specialization, and it examines the regional processes of socioeconomic change, technological development, political change, institutional development, capital flow, and business and investment patterns.

Organization

The director of TDP is Professor Fred Moavenzadeh of the Department of Civil and Environmental Engineering. Professor Nazli Choucri of the Department of Political Science is the program's associate director; Patricia Vargas is the assistant director.

Fred Moavenzadeh

Director

James Mason Crafts Professor of Engineering

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