

MEMORANDUM OF AGREEMENT

ON

ENVIRONMENTAL TECHNOLOGY TRANSFER AND DEVELOPMENT

BETWEEN

THE MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT, THAILAND

AND

THE STATE OF NEW JERSEY, UNITED STATES OF AMERICA

AGREEMENT dated May 29, 1997 between THE STATE OF NEW JERSEY OF THE UNITED STATES OF AMERICA (hereinafter called the NJUSA) and THE MMSTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT OF THE GOVERNMENT OF THE KINGDOM OF THAILAND (hereinafter called the MOSTE)

WHEREAS the NJUSA and the MOSTE agree to establish a Joint Center for Environmental Technology Transfer and Development (CETTAD) in Thailand with satellite operations headquartered in New Jersey;

Now THEREFORE the parties hereto agree as follows:

# **ARTICLE I**

## **Scope and Objectives**

The main objective of this agreement is the establishment of the CETTAD for collaboration in the area of environmental and energy technologies. The CETTAD will provide training, education, technology transfer, joint research and development, demonstration of advanced environmental and energy technologies, and system engineering support required by expanding environmental and energy programs in both Thailand and New Jersey. The CETTAD will encourage joint marketing and business opportunities between Thai and New Jersey and other United States industry in the ASEAN and Indochina regions as well as New Jersey and the United States through their participation in the Center.

For the purposes of this agreement, the term 'Executing Agencies' means as follows

- (i) The Executing Agency on behalf of the NJ-USA is New Jersey Institute of Technology (NJIT).
- (ii) The Executing Agency on behalf of the MOSTE is The Pollution Control Department (PCD).

# **ARTICLE II**

## **Framework of Collaboration**

Within the framework of common interest, the Minister of Science, Technology and Environment of the Kingdom of Thailand and the Governor of New Jersey have agreed to jointly establish CETTAD in Thailand with satellite operations headquartered in New Jersey at NJIT.

CETTAD will function as the mechanism for collaboration between Industry, University, and Government experts (I.U.G) representing Thailand and New Jersey together with appropriate representatives from other parts of the United States. The Center's member organizations constitute the International Advisory Board (IAB), which provides guidance and management direction, oversight, identification of expertise, and the forum for the development of partnerships. In this regard, the IAB will consider environmental and energy problems, as well as alternative technical solutions, which include such areas as training, education, and the demonstration and/or application of advanced technologies. The specific areas of support and the technologies and techniques to be studied, developed, demonstrated and applied shall be thoroughly reviewed and approved by the IAB. The CETTAD's administration and financial mechanisms shall be decided by the IAB based on mutual agreement.

To support the IAB, each of the parties will establish a National I.U.G.- Advisory Committee for their own routine management and operation of the CETTAD (Figure 1).

## **ARTICLE III**

### **Center Organization**

The management structure of the Center is designed to promote closer contacts and mutually beneficial collaboration, and is shown in Figure 1. The management structure of the Center consists of two parallel activities representing New Jersey and United States interests under the leadership of NJIT and the Thai interest under the PCD's leadership. Activities will be coordinated through NJIT and PCD appointments at the Center Director and Division Director levels. In addition, special advisors representing NJIT and Thailand will be provided to assist the

Center Directors in identifying industrial sponsors and other funding sources. The activities of the Center are organized in three divisions that will be under the leadership of dual division directors, one appointed by NJIT and the other by the PCD.

These divisions consist of the Engineering Division; Technology Transfer and R&D Division; and the Laboratory and Field Monitoring Division. These divisions will be responsible to the Center Directors for the evaluation of specific problems within their areas of responsibility, development of strategies to address these problems including the demonstration and/or application of new technologies or techniques, assistance in implementation and assistance in the development of Thai and United States partnerships where necessary.

The Engineering Division will be responsible for the issues of Community Wastes, Renewable Energy, Waste Minimization and Prevention, Air and Water Shed Pollution Control and Management, Emergency Response, Site Remediation Technology and Field Remediation practices. Each of these area activities will be supported by project specific Advisory Committees consisting of either members of the IAB or their representatives from Thailand and New Jersey together with other parts of the United States who have the expertise and desire to develop joint marketing and business opportunities in these technical areas. Other experts from government and private sectors will be included on an as needed basis.

The Technology Transfer and R&D Division will be concerned with: the development of training programs (train the trainer) for government, industry and universities in Thailand and in New Jersey or other parts of the United States that require trained personnel to implement, maintain

and operate the advanced technologies to be commercialized; the development of educational programs at the vocational and university levels to create an educational infrastructure that can prepare professionals in Thailand and New Jersey and other parts of the United States for careers in government agencies, and industry faced with problems and needs in the environmental and energy sectors; and the coordination of joint research and development initiatives between Thai and New Jersey universities together with appropriate universities in other parts of the United States to address the problems and needs identified by the Engineering and Field monitoring Divisions. The Advisors to the Engineering Division will also be available to this Division when their participation is required in addressing priority needs.

The Laboratory and Field Monitoring Division will assist governmental agencies, industry and academia in Thailand and in New Jersey: in establishing laboratory and field analysis capabilities including methodologies, procedures, and facilities (i.e. equipment, supplies, and trained personnel) to carry out analytical functions to support government agencies charged with implementation and enforcement of regulation; in supporting industrial activities that seek to control pollution and optimize pollution prevention and waste minimization processes in order to achieve increased productivity and profitability; and in assisting Thai and New Jersey universities in equipping their laboratories and developing strengths in laboratory and field analysis required to support research and development activities in the environmental and energy areas. The Advisors to the Engineering Division will also be available to this Division when their participation is required to address priority needs.

The directors of these divisions will be supported and assisted by IAB members or their representatives who as members of project specific Advisory Committees will have expertise in these areas and desire to develop joint marketing and business opportunities in services, equipment and supplies required for problem assessment, development of alternative strategies,

and implementation of the solution to the environmental or energy problem that is selected by officials in either country having appropriate jurisdiction.

Center participants on the IAB will represent the member organizations sponsoring and participating in the Center activities. From the United States, the IAB will be represented by NJIT and other universities, New Jersey and Federal Agencies, New Jersey Industry, and United States Industry. Representatives from Thailand will include the PCD and other government agencies along with sponsoring Thai industry and participating academic institutions. Other nations or states may join the Center as agreed to by the IAB. The IAB voting members will meet twice a year to agree on the Center's research, development, demonstration, testing and evaluation programs and consider management and policy matters brought to its attention by fellow members or the Center Directors. Each sponsoring organization will appoint someone to the IAB who can provide their organization's expertise, experience and interest in the center.

The IAB will be guided by the following procedures:

- (i) Consultations will be held twice yearly, alternately in New Jersey and Thailand.
- (ii) Special IAB meetings will be held at the request of the majority of the members.
- (iii) The meeting dates, time and place will be determined at least two months in advance.
- (iv) Meeting agendas will be developed by agreement between the Center Directors in consultation with IAB members.
- (v) Unless otherwise agreed to, each participant's organization will be responsible for their IAB member's travel and lodging expenses. The meeting host will be responsible for providing meeting space and support facilities, as well as the costs for arrangements associated with the meeting.

## **ARTICLE IV**

### **Areas of Collaboration**

Collaboration under this agreement is intended to address the following subjects:

- (i) Formation of the CETTAD;
- (ii) Education and training activities in the United States and Thailand;
- (iii) Characterization activities;
- (iv) Consultation and guidance in the application of advanced environmental and energy technologies;
- (v) Exchange of advanced technologies and technical services;
- (vi) Demonstrations and evaluation of advanced environmental and energy technologies;
- (vii) System engineering services;
- (viii) Monitoring activities;
- (ix) Such other areas of cooperation as may be agreed to.

Collaboration under this agreement is intended to include the following activities:

- (i) Exchange of information and data on scientific and technical activities, developments, practices, methods and results;
- (ii) Exchange of scientists, engineers and other specialties for agreed periods of time in order to participate in the Center's activities;
- (iii) Organization and participation in seminars and other meetings;
- (iv) Exchange and provision of samples, materials, instruments and components for experiments, testing, demonstration and evaluation,

- (v) Execution of joint studies, research and development/technology transfer activities, projects, experiments or demonstrations, including joint design, construction, and operational activities; and
- (vi) Other forms of collaboration as may be mutually agreed upon.

## **ARTICLE V**

### **Intellectual Property Rights**

In the case of advanced technologies, intellectual property rights will be respected and protected by all Center participants and their governments according to their respective internal laws and regulations. Internationally recognized standards adopted by the United States and Thailand will be followed. Specifically, the Trade Related Aspects of Intellectual Property Rights Agreement ("TRIPS Agreement") developed as part of the GATT Uruguay Round Agreement (and any successor or supplemental intellectual property rights agreements) to which both the United States and the Kingdom of Thailand are signatories, shall apply to intellectual property developed, evaluated, or used in the execution of the terms of this Memorandum of Agreement. Also intellectual property rights associated with the advanced environmental and energy technologies introduced by United States government and state laboratories, other United States entities, and United States industry into Thailand will be properly recognized and protected by the Thai Government and other interested parties according to Thai laws and regulations. Similarly, any intellectual property rights associated with advanced environmental and energy technologies introduced from Thailand into United States government and state laboratories, other United States entities, and United States industry will be properly recognized and protected according to United States laws and regulations.

## **ARTICLE VI**

### **Financial Responsibilities**

The administrative, operating and project costs of the CETTAD will be supported by matching funds from Thailand and sources in New Jersey and other parts of the United States. These funds will be obtained from Thai and New Jersey and United States government agencies, industry, foundations, industrial trade associations and non-government agencies. PCD will secure these funds from Thai sources while NJIT will provide matching funds from state and federal agencies, foundations, New Jersey and United States industries, and other sources. The State of New Jersey and its agencies will provide in-kind services as its contribution.

All funds generated by both parties as described in the last paragraph of this Article will be pooled and dedicated to covering the administrative, operating and project costs based on mutual benefit.

Direct labor costs, fringe and overhead costs incurred by state or national government personnel from either nation who are part of the administrative structure of CETTAD are considered to be matching if their respective organizations absorb these costs for their Center participation. However, expenses incurred either by these Thais or Americans for transportation, lodging and meals will be covered by CETTAD for activities related to the center, based upon approval of their respective Center Director.

Projects that are expected to incur high costs (greater than \$75,000 annually), such as site characterization and technology demonstration will be discussed with principal parties prior to presentation at the IAB meeting to determine if these project costs can be covered with additional funds provided by the principal parties. However, Center support or involvement in such projects requires IAB approval.

Travel, lodging and meal costs incurred by the IAB members and their representatives attending the semiannual meetings or other Center sponsored activities or involved in engineering services, training and education activities must be provided by their respective organizations unless specific funds can be obtained from other funding sources. It is envisioned that the opportunity for Industrial IAB members from both nations to interact with their counterparts in each country via engineering services, training and education activities will benefit both nations' industries in implementing cooperative Thai/United States marketing and business opportunities in the ASEAN and Indochina regions.

Administrative office equipment, training and educational expenses related to facility use, materials, activities and fees will be covered by the host country. Additional funds to offset the living expenses for students will be solicited by both center directors from non-governmental organizations and foundations that are involved in funding such activities.

Initial funding for the first year effort under this agreement will be borne by both parties at the same amount with the total of US\$ 800,000 or 20,000,000 Bahts, represented by cash and inkind services, and they will maintain the minimum financial contribution at this level for at least five years provided that funds are available to both parties and the envisioned mutual benefits to be provided by the Center to the Thai and United States members are being achieved

## **ARTICLE VII**

### **Other Provisions**

The agreement may be modified and extended by mutual agreement and may at any time be terminated by either party upon 90 days written notice to the other party. Officials named below as those responsible for implementation of the agreement, or to their successors shall be designated to receive and to send any such notices. In the event of termination of the agreement, arrangements will be made for completion of activities already underway pursuant thereto.

The Officials responsible for the implementation of this agreement shall be

(i) for the MOSTE, the Director General, PCD or any officer or officers as are duly authorized by him/her in writing; and

(ii) for the NJUSA, the President of New Jersey Institute of Technology, or any officer or officers as are duly authorized by him/her in writing.

IN WITNESS WHEREOF the parties hereto have caused this agreement to be signed in their respective names as of the day and year first above written.

MINISTRY OF SCIENCE,  
TECHNOLOGY AND ENVIRONMENT  
OF THE KINGDOM OF THAILAND

THE STATE OF NEW JERSEY  
THE UNITED STATES OF AMERICA

By: \_\_\_\_\_

(H.E. Nitya Pibulsonggram)

Ambassador

Royal Thai Embassy, Washington, D.C.

The Kingdom of Thailand

By: \_\_\_\_\_

(Robert C. Shin Jr.)

Commissioner

Department of Environmental Protection

The State of New Jersey

**Figure 1: ENVISIONED JOINT CENTER FOR ENVIRONMENTAL TECHNOLOGY TRANSFER AND DEVELOPMENT (CETTAD)**

