

# PFP Industrial Property Rights



Project Site Bangkok

## 1. Background of the Project

At the Asia Pacific Economic Cooperation (APEC) Conference in 1994, the Government of Japan proposed the Partners for Progress (PFP) plan for economic cooperation. The PFP aims at a more effective promotion of economic and technical cooperation based upon mutual assistance and independence, and thus, it was officially adopted in the APEC high-level meetings and accordingly in the Cabinet Member Conference of the APEC held in Osaka in 1995. At the APEC High Level Meetings held in Manila in February 1996, the Government of Japan proposed training plans for human resources development in the three areas of Industrial Property Rights, Competition Policy, and Standards and Conformity Assessment, as a PFP project to contribute to liberalization and facilitation of trade and investment.

In response to this, joint cooperation with Thailand and Malaysia was proposed, and accordingly JICA's Third-country Training Programs for "Industrial Property Rights and Competition Policy" were planned to be held in Thailand.

## 2. Project Overview

### (1) Period of Cooperation

FY1996-FY2000

### (2) Style of Cooperation

Third-country Training Program

### (3) Partner Country's Implementing Organization

Ministry of Commerce, Department of Intellectual Property (DIP)

### (4) Narrative Summary

#### 1) Overall Goal

Participants play a key role in their home countries in the improvement of patent application business and formality examination, and computerization and efficiency in their work, thereby contributing to the liberalization and facilitation of trade and investment in APEC Member countries.

#### 2) Project Purpose

Participants' capacities of the patent application business and formality examination are enhanced.

### 3) Outputs

- Participants in the training programs gain general knowledge and practice regarding the latest international trends of industrial property rights, economic value, property-related treaties and other related treaties.
- Participants gain the knowledge to establish an administrative processing system after their return home.
- Mutual understanding on industrial property rights is deepened and networks among APEC Member countries are established.

### 4) Inputs

#### Japanese Side

Short-term experts	39 (performance by 1999)
Training expense	approx. 18 million baht (approx. 53 million yen) (performance by 1998)

#### Thai Side

Lecturers and administrative staff	15
Training/accommodation facilities and equipment	
Training expense	

## 3. Members of Evaluation Team

### Team Leader:

Iwao TATSUMI, Senior Advisor to the Managing Director, Partnership Promotion Department, JICA

### Co-operation Policy:

Keiichi YOKOTA, Assistant Director, Technical Co-operation Division, Economic Co-operation Bureau, Ministry of Foreign Affairs

### Standard/Conformity Assessment:

Kazuma YOKOTA, Assistant Chief of General Coordination Section, Technical Co-operation Division, International Trade and Industry

### Cooperation Planning:

Kazuya OUSUKA, Southeast Asia Division, Regional Department I, JICA

## 4. Period of Evaluation

16 December 1999-23 December 1999

## 5. Results of Evaluation

### (1) Efficiency

Inputs were adequate in timing, quality and quantity. The DIP, which was the implementing agency for this training course, was involved with other technical cooperation projects such as the Project-type Technical Cooperation "Industrial Property Rights Information Center" (1 July 1995-30 June 2000) and the Dispatch of Individual Experts as "Industrial Property Rights Advisor" (March 23, 1998-June 30, 2000), and the coordination with these projects was effective.

The course subjects were revised each year incorporating the opinions of participants, and the training was conducted and managed efficiently.

### (2) Effectiveness

The course had a total of 181 participants (including 59 Thai) by 1998. The occupancy rate of the planned number of participants was 79 percent on average. According to the questionnaires completed by participants in the training program, most responded that they were getting more and more interested in higher education in the area of industrial property rights. In the report by the short-term experts dispatched as the training lecturer, it was said that the eagerness and understanding among the participants were enhanced; thus, the training purpose was highly achieved.

### (3) Impact

Many of the participants who returned home continue with their duties of industrial property rights, and attempt to diffuse the knowledge and information that they acquired through seminars and study groups. As a result of participation in the training, many participants responded that they were given further duties and more responsibility.

Also in Thailand, training materials are kept in the DIP library, and a system is established whereby interested people can access them.

### (4) Relevance

The training purpose matches the ultimate goal of APEC activity "All members in APEC achieve liberalized and open trade and investment in the regions by 2020" (Bogor Declaration), so the project had relevancy.

Although the training was launched for the purpose of observing the international regulations in relation to industrial property rights, the fourth training (1999) was held just before the deadline of execution of the WTO/TRIPS agreement<sup>1)</sup>. Therefore, it was considered that the purpose of developing the legal systems in the member countries was mostly achieved. In the fourth training course, classes for examination and enforcement in relation to the system establishment of industrial property rights law were newly added. Thus, it was evaluated that the training met needs and properly corresponded to the changes that surround industrial property rights in the participants' countries and the region.

### (5) Sustainability

DIP held in-country seminars on its own and has a



Interview for counterparts of DIP

strong capacity to implement training, and also the number of Thai lecturers was steadily increased over time. Thus, it was perceived that the Thai side was capable of conducting the Third-country Training Program on its own. However, considering the present condition of policies and system of intellectual property rights in Thailand, the training program will not necessarily match the international trend of intellectual property rights policy and the plan of "World Patent" which the government of Japan proposes, therefore, the Government of Japan should further assist with curriculum development by considering the improvement of the contents and future direction.

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

In implementing the Third-country Training Program in a rapidly changing area such as industrial property rights, the duration of cooperation should be three rather than five years, and the duration extended as required later.

Generally speaking, in the framework of JICA's Third-country Training Program, the developing countries that received technical transfer from Japan will retransfer to other developing countries. On the other hand, in the framework of PFP training which places emphasis on mutual support and independency in the APEC countries and region, it was thought desirable that member countries understand the idea of sharing, and that training be conducted with the participation of participants and lecturers from throughout the APEC countries and region.

### (2) Recommendations

As the project purpose of the training was highly achieved, it was agreed with the Thai side that the Third-country Training Program "Industrial Property Rights" in the framework of PFP will be completed in 2000 as initially planned.

<sup>1)</sup> Agreement on Trade Related Aspects of Intellectual property rights

# Sustainable Highland Agriculture Development



Project Site Chiang Mai

## 1. Background of Project

In Thailand, broad areas in the highland confronted severe degradation due to excessive deforestation and slash-and-burn farming, which was an obstacle to long-term agricultural development. Therefore, the Highland Agriculture Development Training Center was established in 1992 supported by Grant Aid from Japan, in Chiang Mai University, aiming to establish a system for environmental conservation, and sustainable highland agriculture and farming, and to expand skills.

The Government of Thailand requested the Government of Japan to implement the Third-country Training Program on "Sustainable Highland Agriculture Development", as a part of Japan-Thailand Partnership Program<sup>1)</sup>, utilizing the function of the center, targeting three Indochinese countries and other neighboring countries.

## 2. Project Overview

### (1) Period of Cooperation

FY1996-FY2000

### (2) Type of Cooperation

Third-country Training Program

### (3) Partner Country's Implementing Organizations

The Faculty of Agriculture, Chiang Mai University  
Department of Technical and Economic Cooperation (DTEC)

### (4) Narrative Summary

- 1) Overall Goal  
Sustainable highland agricultural development is promoted in Asian countries.
- 2) Project Purpose

Trainees obtain knowledge and skills for sustainable highland agriculture development.

### 3) Outputs

- a) Trainees attain general knowledge of sustainable agricultural farming
- b) Trainees deepen knowledge of sustainable agricultural development in the highland.
- c) Trainees attain knowledge and skills of resources management, farm production and stock raising.
- d) Trainees attain knowledge and skills to transfer the above knowledge to other people.

### 4) Inputs

#### Japanese Side

Training expenses 19 million yen

#### Thai Side

Instructors and management staff  
approx. 200

Training facilities and equipment  
Training experts 2.42million baht  
(7 million yen)

### (5) Participant Countries

Bhutan, Cambodia, China, Laos, Myanmar, Nepal, Viet Nam

## 3. Members of Evaluation Team

JICA Thailand Office  
(Commissioned to School of Agricultural Extension and Cooperatives, Sukhothai Thammathirat Open University)

## 4. Period of Evaluation

13 January 2000-31 March 2000

## 5. Results of Evaluation

### (1) Efficiency

Instructors, teaching methods, curriculum, facilities and equipment, provided by both Japan and Thailand for the project, were utilized effectively. Trainees successfully attained knowledge and skills. Therefore, it was judged the training program was implemented efficiently.

### (2) Effectiveness

For four years from 1996 to 1999, a total of 72 members participated in the training courses<sup>2)</sup>.

Out of 35 respondents to the questionnaire, 15 members (43%) answered that they attained more than 60 percent of the knowledge and skills they expected and another 15 members answered that they attained more than 80 percent. Moreover, according to the research on the results of the training, conducted by the Chiang Mai University, most of the respondents indicated they could deepen their understanding of sustainable highland development, and attained skills to analyze and transfer the knowledge to others. Thus, the purpose of the project was fully achieved.

### (3) Impact

According to the results of the questionnaire, most of the trainees applied their knowledge and skills on highland agricultural development in their actual work. Impacts of the training were therefore identified.

### (4) Relevance

When this evaluation was conducted, many other organizations in each country hoped to dispatch participants to the training program. Judging from the needs of those organizations, the project should be considered highly relevant.

### (5) Sustainability

The training courses were managed by Chiang Mai University, without the support of Japanese instructors. The university had the capability and skills to implement the training program. Therefore, the training program was judged to be sustainable. However, since the Asian economic crisis in 1997, Chiang Mai University has suffered from a shortage of funds making it difficult for them to implement the training without financial support from Japan.



Field study

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

Participating countries were required to recommend candidates on an annual basis for Thai Government. However, problems occurred such as delays in the selection procedures and a failure to appoint candidates for some reason. Therefore, more attention must be given to the recommendation process and selection process in order that appropriate participants are selected from among the candidates.

### (2) Recommendations

Although the management capability of Chiang Mai University was judged high, the total expenses for the training program still depended on Japan to a large extent. Although it was recommended to continue this training program to respond to needs, the financial capacity of the Thai implementing organizations should be established.

It was also recommended to consider the Dispatch of Experts for better management of the training in case the Thai side required it.

<sup>1)</sup> Japan-Thailand Partnership Program was established in August 1994. The program aimed to collaborate for the development of other countries, especially Indochinese countries, by enhancing the partnership between Japan and Thailand and transferring the skills developed in Thailand.

<sup>2)</sup> A total of 87 members participated in the training course over 5 years.

# Irrigation System Management for Sustainable Development



Project Site Bangkok

## 1. Background of Project

Thailand was developed on the basis of agriculture, mainly rice growing. However, the expansion of agricultural land in response to population growth had reached the limit. Therefore, it was important to increase agricultural productivity by effective use of water resources with existing irrigation systems. The Government of Japan had supported the Royal Irrigation Department (RID) by Grant Aid to construct the Irrigation Engineering Center (IEC) in 1985. At the same time, Japan had implemented Project-type Technical Cooperation, "Irrigation Engineering Center Project (Phase 1 and 2)", from 1985 to 1997, aiming to establish water management skills programs in institutes related to water resources, irrigation and drainage. Moreover, the Government of Thailand requested the Government of Japan to implement the Third-country Training Program, "Irrigation System Management for Sustainable Development", as a part of the Japan-Thailand Partnership Program<sup>1)</sup>, in order to expand the outputs of the technical cooperation to other developing countries, especially those in Asia.

## 2. Project Overview

### (1) Period of Cooperation

FY1996-FY2000

### (2) Type of Cooperation

Third-country Training Program

### (3) Partner Country's Implementing Organization

Royal Irrigation Department (RID), Ministry of Agriculture and Cooperatives

### (4) Narrative Summary

#### 1) Overall Goal

Irrigation system management for sustainable

development is improved in Asian countries.

#### 2) Project Purpose

Trainees obtain knowledge and skills of water management.

#### 3) Outputs

- Trainees attain knowledge of theories and policies regarding irrigation management.
- Trainees attain skills regarding planning of water utilization based on the amount of water resources and estimation of demand for water.
- Trainees attain skills for water management at respective levels (rivers, irrigation canals, and experimental fields).
- Trainees attain computer skills for efficient water management.

#### 4) Inputs

##### Japanese Side

Short-term experts	16
Training expenses	20 million yen

##### Singaporean Side

Instructors and management staff	approx. 100
Training facilities, equipment and educational materials	
Training expenses	2,04 million baht (6 million yen)

#### (5) Participant Countries

Bangladesh, Bhutan, Cambodia, China, Indonesia, Laos, Malaysia, Philippines, Sri Lanka, Viet Nam, Thailand, Maldives, Nepal, India, Myanmar, Pakistan, Malawi

## 3. Members of Evaluation Team

JICA Thailand Office

(Commissioned to School of Agricultural Extension and Cooperatives, Sukhothai Thammathirat Open



University)

#### 4. Period of Evaluation

13 January 2000-31 March 2000

#### 5. Results of Evaluation

##### (1) Efficiency

The duration of training should have been longer to cover the topics more effectively. Meanwhile, equipment, facilities, human and financial resources provided by Japan and Thailand were utilized effectively, as a whole. Trainees could attain knowledge and skills successfully. Thus, it was judged the training program was highly efficient.

##### (2) Effectiveness

For four years until 1999, 94 members participated in the training as a total. Out of 26 respondents to the questionnaire, 73 percent indicated that they could attain more than 60 percent of the skills and knowledge they expected to be transferred. The evaluation research, conducted by RID, also showed trainees were almost satisfied with the training. The purpose of the training program was achieved successfully.

##### (3) Impact

According to the results of the questionnaire, many trainees could obtain knowledge and skills directly related to their actual work, and applied them in their daily work. The impact of the project was considered to be high.

##### (4) Relevance

When this evaluation was conducted, many other organizations in each country hoped to dispatch participants to the training program. Judging from the needs of those organizations, the project was thought to be highly relevant.

##### (5) Sustainability

Since RID has the ability and skills to implement the training programs, the project was thought to be sustainable.

#### 6. Lessons Learned and Recommendations

##### (1) Lessons Learned

Trainees came from a variety of academic backgrounds and professions. It was recommended to give a simple examination to check the knowledge and skills of trainees before the training starts, so that the training courses could be designed based on needs and



Trainees receiving a lecture on water management of irrigation channels



Closing ceremony of training course

expectations of trainees. Furthermore, giving another examination after the training would show how much trainees gained from the training, and the results could be fed back into the project.

##### (2) Recommendations

RID had sufficient ability and skills to manage the training, as the implementing organization. In addition, the organization had a network of instructors to draw on both within and outside of RID. However, due to the lack of budget, Thailand continued to request financial support from Japan to implement the training program.

While Thailand should continue with their effort to manage the training independently, Japan should continue its support for this training program because the needs were still high. It was also recommended to improve the content of the training courses, applying the results of the Project-type Technical Cooperation "The Modernization of Water Management System Project", which has been implemented since 1999 and will end in 2004.

<sup>1)</sup> Refer to page 276 for "Japan-Thailand Partnership Program".

# Wireless Training Center



Project Site Bangkok

## 1. Background of Project

With the rapid economic growth in Thailand, it became necessary to expand and efficiently utilize telecommunications and to introduce new technologies. To achieve this, the establishment of a modern administration system for communications and training of radio technicians and operators were regarded to be urgent necessities. In order to modernize the outdated telecommunications system, the Thai Government established the Wireless Training Center (WTC) aiming to develop human resources in both the government and private sectors in the field of wireless communications, and then requested technical cooperation from Japan to improve the Center's ability to implement training.

## 2. Project Overview

### (1) Period of Cooperation

1 October 1996-30 September 1999

### (2) Type of Cooperation

Expert Team Dispatch Program

### (3) Partner Country's Implementing Organization

Post and Telegraph Department (PTD)

### (4) Narrative Summary

- 1) Overall Goal  
The radio communications sector in Thailand is developed.
- 2) Project Purpose  
Human resources in the field of radio communications are developed in the Wireless Training Center (WTC)
- 3) Outputs
  - a) WTC is equipped with training equipment.

- b) A training system is established.
- c) The technical level and teaching capabilities of counterparts are improved.
- d) The national qualification examination system for radio communications is improved.

### 4) Inputs

#### Japanese Side

Long-term experts	2
Short-term experts	15
Trainees received	6
Equipment	26 million yen

#### Thai Side

Counterparts	12
Facilities	
Local cost	2 million yen

## 3. Members of Evaluation Team

JICA Thailand Office  
(Commissioned to IC Net Thailand Co., Ltd.)

## 4. Period of Evaluation

12 March 2000-31 March 2000

## 5. Results of Evaluation

### (1) Efficiency

The operation, management and coordination of the project were duly carried out. The contribution made by the Japanese experts was high, and the technology was successfully transferred to the counterparts. In particular, the long-term experts gave wide support on project management in addition to technical guidance, which played a significant role in the success of the project.

Most of the equipment was provided in line with original plans, with the exception of a few delays, and fully utilized in the training courses.

## (2) Effectiveness

Counterparts obtained the skills and knowledge related to modern radio communications through the technology transferred by this project. Further, the counterparts disseminated the skills and knowledge to a great many more people through the training courses at WTC. During the course of the project, five training courses were planned and implemented at WTC; 14,172 people participated in those courses over three years; and 12,512 trainees (88%) passed the qualification examinations.

## (3) Impact

The project brought about a high-level of cooperation among governmental agencies and the private sector, for example, by inviting outside lecturers, and by implementing the training course "Radio-communications for ships" in collaboration with the Harbor Department.

## (4) Relevance

According to the New Radio Frequency Act that was enacted in 2000, the role of PTD was subject to be changed from one of to establish and improve the technology and system concerning radio communications to the Secretariat Office of the National Commission of Radio Frequency. This meant that the training related to radio communications technology might be transferred from PTD to the private sector, or PTD might be privatized. As long as the administrative arrangement of PTD is uncertain, it is difficult to evaluate the relevance of the project.

## (5) Sustainability

After the completion of the project, the number of PTD training courses and participants had greatly diminished. This was because PTD could not assign staff exclusively for the training due to the government's policy of a freeze on personnel and the reduction of the PTD budget due to the retrenchment policy sparked by the economic crisis. In addition, structural reforms were also underway, as stated above. The sustainability of this project, therefore, was not evaluated as high.



Post and Telegraph Department

## 6. Lessons Learned and Recommendations

### (1) Recommendations

In the future, it was considered necessary for PTD to implement its training programs in collaboration with various organizations, administrative organizations such as the Harbor Department, private enterprises and educational institutes. Such cooperation would support PTD in terms of budget, human resources, technology and training curriculums and maximize the efficiency of its training programs.



# The Development of Mechatronics Engineering Course in Pathumwan Technical College



Project Sites Bangkok

## 1. Background of Project

In Thailand, human-resources development is urgently needed to keep the advances in technology accompanying the country's rapid industrialization. Therefore, the Government of Thailand requested the Government of Japan to provide educational equipment in the Pathumwan Technical College (PTC), formerly a central technical college, under a Grant Aid program in 1990. In addition, Project-type Technical Cooperation, aimed at upgrading teacher capacity as well as training engineers to give them skills relevant to the needs of the industrial sector, was also proposed to the Japanese Government.

The Project was implemented under a five-year technical cooperation scheme, which began in April 1993. After congress passed a law to upgrade the educational standard of PTC in January 1997, the cooperation was extended for two years aiming at further enhancement of the research capabilities of the teaching staff as well as management performance and liaison with the industrial sector.

## 2. Project Overview

### (1) Period of Cooperation

- 1 April 1993-31 March 1998
- 1 April 1998-31 March 2000 (extension)

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organizations

Ministry of Education,  
Pathumwan Institute of Technology (PIT)  
(former Pathumwan Technical Collage)

### (4) Narrative Summary

- 1) Overall Goal  
Industrialization is promoted in Thailand.

### 2) Project Purpose

Qualified engineers with practical skills in mechatronics at the bachelor degree level are provided for Thai industries.

### 3) Outputs

- a) Research capability of the teaching staff is upgraded to the bachelor and master degree levels.
- b) Teaching methods, curriculum, and syllabus are improved.
- c) The school management system is strengthened and the college is upgraded to the university level.
- d) Liaison between the Thai industrial sector and PIT is strengthened.

### 4) Inputs

#### Japanese Side

Long-term experts	17
Short-term experts	55
Trainees received	21
Equipment	approx. 207 million yen
Local cost	approx. 7.4 million baht (approx. 22 million yen)

#### Thai Side

Counterparts	19
Land and facilities	
Local cost	approx. 3.9 million baht (approx. 12 million yen)

## 3. Members of Evaluation Team

### Team Leader:

Masaru HATTORI, President, Nagaoka University of Technology

### Mechanical Engineering/Higher Education Planning:

Hiroyuki MATSUMOTO, President, Tokyo National Collage of Technology

### Control Engineering/ Higher Education Planning:

Kazuo TSUTSUMI, Vice-President, Toyohashi University of Technology

**Educational Evaluation:**

Hiroyuki INOUE, Official, Educational and Cultural Exchange Office, Science and International Affairs Bureau, Ministry of Education, Science, Sports and Culture

**Project Evaluation:**

Takaharu IKEDA, IC Net, Limited

## 4. Period of Evaluation

16 December 1999-23 December 1999

## 5. Results of Evaluation

### (1) Efficiency

Equipment provided by the project was effectively used. At the initial period of the project, communication was difficult because of the inadequate English capability of both experts and counterparts. However, consistent and detailed technical training was conducted following the efforts of both parties. Discussions between experts and counterparts were held as needs arose. The same experts were dispatched to the training program in Japan and Thailand and a one-on-one training method was used. Even though the experts were in Japan, they continued to communicate with counterparts and supervise the research activities via email.

### (2) Effectiveness

Although there still remained room for further improvement of teaching materials and teaching methods, in general, the upgrade of the curriculum was satisfactory. The terminal evaluation of 1997 listed the number of the additional courses that were required for engineers to become qualified, which all became available after PIT's upgrade to a university in 1999. Furthermore, the partnership with the Thai industrial sector was strengthened through the seminars and joint research projects.

All of the first class of fourteen and second class of twenty-six graduates of PIT who were taught under the curriculum developed through the project either found a job or entered into higher education. It was evaluated that the project had prepared the foundation to achieve the project purpose of sending highly qualified engineers with relevant skills to the Thai industrial sector.

### (3) Impact

The level of technical knowledge of students at PIT was upgraded through the project. As a result, in 1998 and 1999, PIT won both first and second prizes at the National Robot Competition. This achievement was regarded as a part of the project impact.

### (4) Relevance

The promotion of industrialization as stated in the overall goal had been a continuous priority of the Thai Government. It was expected that the needs for mechatronics engineers would further expand in the future. While there was only one mechatronics department in Thailand at the beginning of the cooperation (at PTC), eight technical colleges came to run mechatronics courses by the end of the project. This demonstrated the growing need for development of the field of mechatronics.

The project plan and activities were reconsidered when the extension was decided. This resulted in the successful training of mechatronics graduates to become practical engineers, and most were able to secure employment even during the period of the economic crises in Thailand. Based on these facts, the project was considered highly relevant.

### (5) Sustainability

Pathumwan Technical College was officially upgraded and renamed Pathumwan Institute of Technology based on the validation of the "Act of the Pathumwan Institute of Technology" in 1998. Further strengthening of the organizational foundation of PIT by the Thai side was expected. The partnership between the industrial sector and the institute began favorably. In addition, the Department of Vocational Education, Ministry of Education clearly declared that they would continue supporting PIT. Therefore, the government's cooperation was expected to be sustainable.

## 6. Lessons Learned and Recommendations

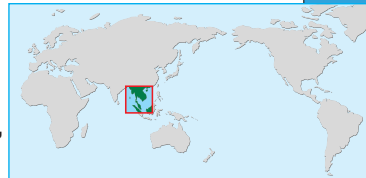
### (1) Lessons Learned

In projects aimed at producing engineers relevant to the needs of the industrial sector, the employment rate of graduates was considered an important factor in evaluating the outcome and degree of achievement of the project purpose. It was evaluated that the high employment rate was not only due to the improved skills of the teaching staff and the training curriculum, but also the result of efforts to establish partnerships with private enterprises. The positive results provide important lessons for planning future cooperation in the same area.

### (2) Recommendations

Although PIT was officially upgraded to university level in December 1998, the management system was not completely established. PIT as well as the Ministry of Education were planning organizational reform within a few years; therefore, the possibility of further cooperation would be discussed considering the progress of the reform.

# The National Waterworks Technology Training Institute Project (Phase II)



**Project Sites**

Bangkok, Chiang Mai, Khon Kaen, Songkhla

## 1. Background of Project

In 1984, the Government of Thailand requested the Government of Japan to establish the National Waterworks Technology Training Institute (NWTTI) with the aims of improvement of waterworks technology and personnel development. In response to this request, the Japanese Government established the Central Training Center (CTC) in Bangkok and two Regional Training Centers (RTC) in Chiang Mai and Khon Kaen under the Grant Aid Program. In addition, a Project-type Technical Cooperation Program named the "The National Waterworks Technology Training Institute Project" was carried out between 1985 and 1991. However, the existing water-treatment system was inadequate considering the rapid increase in the use of tap water resulting from economic growth, and river pollution caused by the public and by industry. In particular, the Southern areas in Thailand needed assistance because the previous project's limited "reach" and the unusual geographical and social conditions characterizing these areas. Against this background, the Government of Thailand requested Phase II of Project-type Technical Cooperation from Japan.

## 2. Project Overview

### (1) Period of Cooperation

1 September 1994-31 August 1999

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organizations

Metropolitan Waterworks Authority (MWA)  
 Provincial Waterworks Authority (PWA)  
 National Waterworks Technology Training Institute (NWTTI)

### (4) Narrative Summary

- 1) Overall Goal  
 Technical and managerial staff have the

qualifications to apply advanced and appropriate technology to Thai waterworks.

### 2) Project Purpose

The capabilities of the NWTTI in the areas of training and education, research and development, and information exchange are strengthened.

### 3) Outputs

- a) Personnel of CTC and RTCs are capable of conducting training courses on more advanced waterworks technology in which they deal with the newly emerging issues in Thai waterworks.
- b) Personnel of Songkhla RTC are capable of conducting training courses on the technology appropriate for dealing with the characteristics in the southern part of Thailand.
- c) Personnel of CTC and RTCs are capable of carrying out research and development through which the specific problems of Thai waterworks can be solved.
- d) Personnel of CTC and RTCs are capable of exchanging waterworks information with foreign and domestic waterworks training institutes, and disseminating waterworks information in Thailand.
- e) The necessary machinery and equipment for waterworks and technical trainings are secured.

### 4) Inputs

#### Japanese Side

Long-term experts	13
Short-term experts	47
Trainees received	22
Equipment	approx. 400 million yen
Local cost	approx. 5.7 million baht (approx. 17 million yen)

#### Thai Side

Counterparts	
Land and facilities	approx. 46 million baht (approx. 135 million yen) (construction of the Songkhla Training Center)

Local cost

### 3. Members of Evaluation Team

#### Team Leader/ Water Supply Planning:

Yasuhiko KOBAYASHI, Executive Managing Director, Japan Environmental Sanitation Center

#### Water Purification/ Quality Control:

Yasumoto MAGARA, Professor, Department of Environmental Engineering, Hokkaido University

#### Water Resource Management:

Kenei ISHII, Director, Management and Planning Division, Bureau of Waterworks, Tokyo Metropolitan Government

#### Evaluation Planning:

Yusuke MURAKAMI, First Technical Cooperation Division, Social Development Cooperation Department, JICA

#### Evaluation Study:

Ryujiro SASAO, IC Net Limited

### 4. Period of Evaluation

12 May 1999-21 May 1999

### 5. Results of Evaluation

#### (1) Efficiency

Inputs were generally provided as scheduled. However, the Asian economic crisis caused some problems, such as fewer counterparts allocated and delays in the provision of equipment and the construction of the Songkhla RTC. However, the problems were flexibly and appropriately resolved. For example, alternative facilities such as hotels and universities were used for training courses instead of Songkhla RTC, and alternative lecturers were used in lieu of the counterparts. These efforts enabled the project to proceed as planned.

#### (2) Effectiveness

The project purpose was nearly accomplished in each area and the Thai side acquired a sufficient level of skill to conduct training independently. The period of some training courses (water purification, water management and water-leakage prevention) were shortened to two weeks from the initial plan of three weeks due to the limited allocation term of the counterparts. The total number of days spent on training was 516, significantly less than the 670 initially planned. However, a total of 59 training sessions were actually carried out, one session less than the goal of 60 training sessions. The number of trainees was 1,050, more than the expected number of 955. As such, the actual performance level was satisfactory.

### (3) Impact

A new partnership was established between MWA and PWA through the training activities of NWTTI. NWTTI also contributed to the development of waterworks personnel of other countries by conducting Third-country Training Program on water supply technology between 1992 and 2001, and also by receiving site visits and trainees from neighboring countries.

### (4) Relevance

In Thailand, the promotion of waterworks was a priority in the Eighth National Socio-Economic Development Plan of 1997-2001. There was also a great need for national personnel in the five technical areas of water resource management, water purification and advanced water treatment, water management and control, non-revenue water-loss management, and improvement of services. As such, this cooperation appropriately matched the needs of Thailand and thus its relevance was evaluated as high.

### (5) Sustainability

NWTTI was established as a joint organization of MWA and PWA when the previous Waterworks Technology Training Project (Phase I) was implemented. Therefore, its unstable bureaucratic position was an issue. However, in fact, NWTTI had been sustainable not only institutionally but also financially with the continuous and large-scale support from MWA and PWA. Therefore, it was considered that NWTTI was ready to continue training independently. Furthermore, it was evaluated that most counterparts who received trainings in Japan acquired the skills to conduct quality training independently. Although some issues remained, particularly regarding management of equipment, the sustainability of NWTTI was deemed to be high.

### 6. Lessons Learned and Recommendations

#### (1) Lessons Learned

It was learned that consideration must be given to the working conditions for counterparts who were not available full-time for the project. For example, the number of working days for busy counterparts might be limited to two or three times a week when there were no trainings and research activities in order for them to be able to manage both ordinary work and the special work for the project.

#### (2) Recommendations

It was concluded that it was appropriate to terminate the cooperation on 31 August 1999 following the plan, since the project was expected to accomplish its goals in each activity area by the end of the cooperation period.



# The Industrial Property Information Center



Project Site Bangkok

## 1. Background of Project

The Government of Thailand laid down the policy for enhancement of industrial property protection in the Seventh Five-Year National Economic and Social Development Plan that commenced in October 1991. In order to execute the policy, the Thai Government requested Project-type Technical Cooperation from the Japanese Government to establish an Industrial Property Information Center (IPIC) in the Department of Intellectual Property (DIP). The center was expected to have a computerized information system that would 1) improve the capacity of the DIP to examine applications of industrial property, and 2) disseminate industrial property information in Thailand.

## 2. Project Overview

### (1) Period of Cooperation

1 July 1995-30 June 2000

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organization

Department of Intellectual Property (DIP)

### (4) Narrative Summary

- 1) Overall Goal  
Industrial property administration by DIP is modernized.
- 2) Project Purpose  
Abilities of DIP regarding the utilization of industrial property information are enhanced.
- 3) Outputs
  - a) Project operation unit is enhanced.
  - b) Necessary machinery and equipment are provided and well maintained.
  - c) Counterparts are trained to be able to construct,

operate and maintain the Industrial Property Information System.

- d) Counterparts are trained to be able to conduct "prior art searches"<sup>1)</sup> using the Industrial Property Information System.
- e) Counterparts are trained to be able to disseminate industrial property information using the Industrial Property Information System.

### 4) Inputs

#### Japanese Side

Long-term experts	9
Short-term experts	22
Trainees received	12
Equipment	approx. 310 million yen
Local cost	1.7 million baht (approx. 5 million yen)

#### Thai Side

Counterparts	13
Buildings and facilities	
Local cost	64 million baht (approx. 188 million yen)

## 3. Members of Evaluation Team

### Team Leader:

Minori SANO, Special Technical Advisor to the President, JICA

### Technical Cooperation Planning:

Yoshiaki MIBU, Deputy Director, International Affairs Division, Japan Patent Office

### Evaluation of Industrial Property Information System:

Shizuo SHIBATA, Information Technology Department, Japan Patent Information Organization

### Evaluation Management:

Satoshi MURAKAMI, Second Technical Cooperation Division, Mining & Industrial Development Cooperation Department, JICA

**Evaluation Analysis:**

Shigeru TAKESHITA, Regional Planning International Co., Ltd.

**4. Period of Evaluation**

10 January 2000-27 January 2000

**5. Results of Evaluation****(1) Efficiency**

During the implementation period, the project encountered some unexpected changes of external conditions such as the economic crisis and rapid widespread use of the Internet, which inevitably forced the original plan of the project to be changed. However, the project was flexibly implemented according to the external changes by, for example, introducing Internet network technology into the project. The inputs as a whole were appropriate in quantity, quality and timing.

**(2) Effectiveness**

Technologies relating to construction, operation and maintenance of the Industrial Property Information System were adequately transferred, and the counterparts properly maintained the equipment and the system. The counterparts also conducted the "prior art searches" appropriately by using the Industrial Property Information System that was developed through the project. Technology transfer from the counterparts to the other staff of the Patent Office was further promoted. In addition, the DIP actively carried out information dissemination activities through the Internet homepage, the Intellectual Property Library and seminars. Considering the above, the project purpose was considered to be achieved.

**(3) Impact**

The shift of network infrastructure from Leased Line to Internet brought the establishment of the Industrial Property Information System open to the public. Furthermore, the DIP introduced the technology transferred through the project in the ASEAN-Japan joint seminars; thus, the information was shared with the participating countries.

**(4) Relevance**

With the recent increase of the number of patent applications in Thailand, the need for information services relating to industrial property such as patent applications, research and development and inventions was growing. The project met the need, and therefore the relevance of the project was judged to be high.



Department of Intellectual Property

**(5) Sustainability**

Regarding the transferred technology such as prior art search, the staff of the DIP enhanced their competency to the level that they were able to continue learning on their own after the completion of the project. Because the DIP promoted cooperation with external user organizations such as the Intellectual Property Association, it was predicted that the DIP would be able to improve its services and meet the needs of industrial property information users. Furthermore, because the importance of industrial property was becoming widely understood in Thailand, the budget for the DIP continued to increase slightly, even though the overall budget of the government was decreasing after the economic crisis. Financial sustainability was therefore evaluated as secure.

**6. Lessons Learned and Recommendations****(1) Lessons Learned**

When a project involves the latest technology such as this one, it is important to establish a flexible implementation system in order to respond to rapid changes in technology.

**(2) Recommendations**

Because the project purpose was predicted to be achieved by the end of the cooperation period, it was recommended to terminate the project by June 2000 as originally planned. In order to properly operate and maintain the Industrial Property Information System established through the project, further enhancement of the management capability of the DIP is expected.

<sup>1)</sup> Research to find if technological inventions have already been granted patents

# The Training Center for Sewage Works Project



Project Sites Bangkok

## 1. Background of Project

The pollution of water resources in the Bangkok metropolitan area due to rapid economic development is a serious problem in Thailand. The prompt establishment of a sewage system helped ease the problem since household wastewater is the major polluting source. However, there was a shortage of engineers and management staff for the increasing number of sewage-disposal plants.

Under these circumstances, the Government of Thailand established the Training Center for Sewage Works (TCSW) in the technical training center of the Public Works Department, and requested the Japanese Government to assist with the establishment of the operation system of the Center under Project-type Technical Cooperation.

## 2. Project Overview

### (1) Period of Cooperation

1 August 1995-31 July 2000

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organizations

Public Works Department (PWD)  
 Department of Drainage and Sewerage (DDS)  
 Bangkok Metropolitan Administration

### (4) Narrative Summary

#### 1) Overall Goal

Appropriate sewage works technology is established and sewage works are properly planned, designed, constructed, operated and maintained.

#### 2) Project Purpose

Functions and activities of TCSW are established.

### 3) Outputs

- a) Management system of TCSW is established.
- b) Training for the engineers and managers are conducted.
- c) Database (with a library function) is developed.
- d) Research and development (R&D) activities are initiated.

### 4) Inputs

#### Japanese Side

Long-term experts	10
Short-term experts	50
Trainees received	21
Equipment	approx. 190 million yen
Local cost	approx. 60 million yen

#### Thai Side

Counterparts	23
Land and facilities	
Purchase of equipment	approx. 2.7 million baht (approx. 8 million yen)
Local cost	

## 3. Members of Evaluation Team

### Team Leader:

Shunsoku KYOSAI, Deputy Director General, Public Works Research Institute, Ministry of Construction

### Civil Engineering:

Hideto KURIHARA, Director for Sewage Project Coordination, Sewerage Planning Division, City Bureau, Ministry of Construction

### Water Quality Analysis:

Hiroyuki FUJIMOTO, Director, Okayama Regional Office, Japan Sewage Works Agency

### Mechanical Engineering:

Nobuyoshi YAMANAKA, Director, Planning Division,

Engineering Research Development Section, Tokyo Metropolitan Government

**Evaluation Planning:**

Yasuhiro KAWAZOE, First Social Cooperation Division, Social Development Cooperation Department, JICA

**Evaluation Study:**

Kiwamu ANRAKU, Asahi & Co.

## 4. Period of Evaluation

23 November 1999-3 December 1999

## 5. Results of Evaluation

### (1) Efficiency

Inputs in the form of textbooks, training instruments and training centers and facilities were appropriate and this contributed to achieving the planned outcomes. Twenty-one out of twenty-three counterparts held double positions, therefore additional counterparts would be assigned in order to promote technology transfer.

### (2) Effectiveness

TCSW as an organization became well established during the period of the project. Out of the planned eleven courses, eight training courses (twenty-six classes overall) on "project planning and design" and "construction surveillance" were held and 763 trainees participated. By the end of the project, the remaining three courses were scheduled to be conducted and a total of 1,001 trainees were expected to attend.

Activities related to database formulation and preparation for research and development were also successful. Based on these achievements, the operational system and the activities of TCSW were almost fully established, and the project purpose was expected to be accomplished by the end of the project.

### (3) Impact

The project contributed to improving the skill level and number of engineers. In fact, the sewage works were upgraded by the efforts of the newly-trained engineers and managers.

As a result of the activities of TCSW, the importance of sewage works was widely recognized in the general population. Consequently, the collection of sewerage fees was scheduled to begin in the Bangkok Metropolitan area in order to secure the necessary budget for enhancing the sewage works. Furthermore, PWD in collaboration with

MOSTE (Ministry of Science, Technology and Environment) was planning to conduct research and development activities for the improvement of the sewerage technology standard.

### (4) Relevance

The necessity for sewage works had been increasing in Bangkok to prevent water pollution and flooding, therefore the overall goal of the project was deemed to be relevant. In addition, the project also contributed to meeting the need for an increased number of technical staff for sewage works that was caused by the recent decentralization policy.

### (5) Sustainability

The related organizations, such as PWD, Ministry of Interior, DDS and MOSTE, agreed to cooperate for the sustainability of the project; therefore, the institutional sustainability was expected to be high. In terms of financial sustainability, the training budget of the technical training center located in TCSW was increasing and the budget of the PWD to support TCSW's trainings was also growing. The capability of the trainers of TCSW, and availability of training facilities and equipment were adequate; therefore, the project was evaluated to be technically sustainable.

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

In Thailand, the Ministry of Science, Technology and Environment controlled the budget and policy-making, while PWD was in charge of technical aspects of the sewerage work. Although this project focused mainly on the technical side, and there were no particular problems caused by not involving MOSTE as an implementing agency, it was felt that MOSTE should have been included in the original plan of cooperation. Therefore, in future projects of this sort the demarcation of the relevant agencies should be considered.

### (2) Recommendations

It was recommended that the project be terminated as initially planned after the five-year cooperation period since the project purpose was achieved. However, it was also recommended that technical standards be established and engineers responsible for management of sewage facilities be further developed in order to manage sewerage projects more effectively and efficiently.



# The Automotive Fuel Research Project for Environmental Improvement



Project Site Ayutthaya

## 1. Background of Project

The automobile market in Thailand expanded rapidly in the late 1980's following the rapid economic development of the country. A quarter of the total number of automobiles are concentrated in Bangkok, and the air pollution caused by exhaust emissions from vehicles was escalating, causing adverse effects on the health of residents. It was, therefore, necessary to take measures to reduce air pollution such as improving automotive fuel.

Since the issue was considered both serious and urgent, the Government of Japan dispatched environment protection technology surveyors to Thailand to conduct a field survey in June 1994 under the "offer-based Project-type Technical Cooperation scheme for environmental pollution protection"<sup>1)</sup>. Following this short-term assistance, in October, the Thai Government requested Project-type Technical Cooperation from the Japanese Government.

## 2. Project Overview

### (1) Period of Cooperation

1 March 1996-29 February 2000

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organization

Ministry of Industry  
 Research and Technology Institute (R&T Institute),  
 Petroleum Authority of Thailand (PTT)

### (4) Narrative Summary

- 1) Super Goal  
 Environment-friendly and technologically feasible automotive gasoline will be introduced into the Thai market in order to reduce air pollution.
- 2) Overall Goal  
 The Government of Thailand formulates specifications of the environment-friendly automotive gasoline on the basis of technical advice and proposals by the R&T Institute of the PTT.
- 3) Project Purpose

R&T Institute of the PTT has the ability to give technical advice and offer proposals on the properties and compositions of environment-friendly and technologically feasible automotive gasoline.

### 4) Outputs

- a) The Management and operation system of the project will be established.
- b) Various Measurement and analysis equipment for automotive gasoline and lubricant oil are installed.
- c) Preventive maintenance system for machinery and equipment will be established and effectively utilized.
- d) Various technologies concerning measurement, analysis, evaluation and designing of product properties are acquired by the Thai counterpart
- e) Various Data on analysis, evaluation and formulation concerning automotive gasoline are accumulated and effectively utilized.

### 5) Inputs

#### Japanese Side

Long-term experts	8
Short-term experts	18
Trainees received	11
Equipment	370 million yen
Local cost	12 million yen

#### Thai Side

Counterparts	18
Land and facilities	
Local cost	6 million baht (approx. 176 million yen)

## 3. Members of Evaluation Team

### Team Leader:

Shigemaro AOKI, Development Specialist, JICA

### Technical Cooperation Planning:

Atsuko SARUHASHI, Assistant Director, Refining Division, Petroleum Department, Agency of Natural Resources and Energy, Ministry of International Trade and Industry (MITI)

### Fuel and Exhaust Evaluation & Analysis:

Kiyohiro TACHIKI, Researcher, International Cooperation Department, Petroleum Energy Center (PEC)

**Evaluation Management:**

Takaoki HARADA, Second Technical Cooperation Division, Mining and Industrial Development Cooperation Department, JICA

**Evaluation Analysis:**

Shigeru KOBAYASHI, System Science Consultants Co., Ltd.

## 4. Period of Evaluation

14 June 1999-1 July 1999

## 5. Results of Evaluation

### (1) Efficiency

Although the construction of the R&T Institute by the Thai side was delayed about one year and a half, most of the activities were carried out successfully through the adjustment of the research plan, such as increasing the number of engine tests from every two weeks to every week. The provided equipment was well utilized and maintained, and it was, consequently, considered that most of the inputs were efficiently converted into outputs. However, because some equipment such as chassis dynamometers required high-level maintenance technology, and there was no agency to provide such maintenance services in Thailand, engineers were invited from Japan each time maintenance was required. This imposed a heavy financial burden on the Thai side.

### (2) Effectiveness

The counterparts mastered the skills and knowledge necessary for research and analysis. The skill level of the counterparts reached the international level and some of their research was contributed to the Canadian Society of Automotive Engineers. In May 1999, the R&T Institute joined the "Study on Changes in Specifications for Gasoline and Diesel Fuels for Thailand," which was conducted by the National Energy Policy Office (NEPO), with the role of providing technical information and data for formulating specifications of environment-friendly gasoline. It could be concluded that the project purpose was achieved through these contributions made by the R&T Institute.

### (3) Impact

With the improvement of research capability, the R&T Institute started receiving proposals to conduct research on a consignment basis and to contribute to joint research projects from governmental organizations and private companies. It was clear that the Institute would continue to play an important role in the oil and automotive industries in Thailand.

Although the PTT was not in the position of making policy proposals directly to the government, it was expected to contribute to the national measures for air pollution reduction indirectly through the R&T Institute's participation in the above stated "Study on Changes in

Specifications for Gasoline and Diesel Fuels for Thailand Research".

### (4) Relevance

As stated in the Eighth National Economic and Social Development Plan (1997-2001), reduction of air pollution was one of the most important objectives in Thailand. Under the Thai Energy Development Plan, NEPO called for the improvement of specifications of gasoline and high-speed diesel in order to reduce air pollution. In view of these, it was concluded that the direction of the project was relevant.

### (5) Sustainability

After the project was terminated, the maintenance cost for facilities and equipment and personnel expenses for the R&T Institute would be prepared by the PTT. Regarding the research budget, the R&T Institute would obtain it from governmental organizations and the private sector through its research on a consignment basis. Counterparts had sufficient competency to collect and analyze data, and to maintain equipment without outside support. Thus, the sustainability of the project could be considered to be high.

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

When a partner country's implementing organization is a public corporation, in order to effectively reflect outcomes of the project in the national policies, the following must be clarified; 1) the authority of the corporation, 2) procedures of policy making and enforcement of national measures, and 3) roles of related agencies and organizations.

When it is necessary to provide equipment which requires high-level maintenance technology, the equipment must be selected with due consideration of the availability of service and maintenance in the country and the after-sales support system of the supplier.

### (2) Recommendations

Because the project purpose was expected to be achieved, it was recommended to terminate the project by February 2000 as originally planned.

<sup>1)</sup> Offer-based Project-type Technical Cooperation scheme for environmental pollution protection: One of the technical cooperation schemes started in 1993 aiming at global environmental preservation in developing countries. When it is difficult for a developing country to address an urgent industrial pollution problem by itself, Japan offers immediate Project-type Technical Cooperation with due consideration of the situation of the country.

# The Industrial Water Technology Institute



Project Site Bangkok

## 1. Background of Project

In Thailand, with rapid industrial development, the demand for industrial water was increasing. At the same time, serious environmental problems such as ground subsidence due to over extraction of groundwater and water pollution caused by industrial effluents became urgent issues particularly in and around the capital city of Bangkok.

The Government of Thailand, then, intended to establish a comprehensive water use system and disseminate the plan to Thai industries. In order to realize environment-friendly industries and the effective use of limited water resources, the comprehensive water use system had to incorporate 1) the procurement of industrial water, 2) the treatment and recycling of industrial effluents, and 3) the effective use of industrial water. For these purposes, the Thai Government planned to establish the Industrial Water Technology Institute (IWTI) and requested technical cooperation from the Government of Japan.

Responding to the request, the Japanese Government studied the situation and considered that a step-by-step cooperation plan was preferable. The project then started from a two-year preparatory phase, and it was expected to step up the next phase based on the results of the project. This evaluation covers the preparatory phase project.

## 2. Project Overview

### (1) Period of Cooperation

1 June 1998-31 May 2000

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organization

Department of Industrial Works, Ministry of Industry

### (4) Narrative Summary

#### 1) Overall Goal

The IWTI is able to provide Thai industries with technical guidance on industrial water supply, rational use of water and wastewater treatment and re-use.

#### 2) Project Purpose

The IWTI systematically fosters engineers who have basic skills and knowledge relating to industrial water.

#### 3) Outputs

- a) The project is institutionalized and operated efficiently within the IWTI.
- b) Equipment for training on basic measurements and analyses is properly installed and maintained.
- c) The IWTI counterparts acquire skills and knowledge relating to industrial water.
- d) The IWTI counterparts understand the situation of industrial water use in factories.
- e) The IWTI formulates middle and long-term operation plans.

#### 4) Inputs

##### Japanese Side

Long-term experts	3
Short-term experts	8
Trainees received	4
Equipment	approx. 13 million yen
Local cost	approx. 5.28 million yen

##### Thai Side

Counterparts	10
Land and facilities	
Local cost	approx. 8.61 million baht (approx. 25 million yen)

## 3. Members of Evaluation Team

### Team Leader:

Yoshifusa SHIKAMA, Director, Second Technical

Cooperation Division, Mining and Industrial Development Cooperation Department, JICA

**Technical Cooperation Planning:**

Akio KOBAYASHI, Deputy Director, Industrial Facilities Division, Environmental Protection and Industrial Location Bureau, Ministry of International Trade and Industry (MITI)

**Technical Transfer Planning:**

Totaro GOTO, Managing Director, Water Re-use Promotion Center Managing

**Evaluation Planning:**

Yukari SAITO, Second Technical Cooperation Division, Mining and Industrial Development Cooperation Department, JICA

**Evaluation Analysis:**

Naoya AZEGAMI, IC Net Limited

## 4. Period of Evaluation

5 January 2000-15 January 2000

## 5. Results of Evaluation

### (1) Efficiency

The timing of procurement and installation of equipment was appropriate, and it was effectively utilized for the technology transfer. The number of Japanese experts and their assignment period was adequate, and ten counterparts were assigned according to the plan. With these inputs, most of the expected outputs of the project were produced. The collaboration with other projects and related organizations further facilitated the efficiency of the project.

### (2) Effectiveness

The project produced outputs as follows; 1) appropriate utilization and maintenance of equipment for trainings in factories, 2) understanding of the situation of industrial water usage through the training in five factories, and 3) the approval from the Department of Industrial Works, Ministry of Industry for the IWTI's middle and long-term operation plans (November 1999). The counterparts mastered the basic skills and knowledge and accumulated practical experience through the lectures, training in factories and seminars conducted by the project, and hence the project purpose was considered achieved by the end of the cooperation period.

### (3) Impact

The project had only limited impact on the issues of industrial water in Thailand due to it being just the preparatory phase. However, through the seminars and training conducted by the project, Thai industries and related organizations came to recognize the potential of the IWTI.

### (4) Relevance

Since over extraction of groundwater and inappropriate treatment of wastewater negatively affected the environment in Thailand, urgent improvement of the situation was required. In addition, factories were in need of efficient use of water due to price increases and the limited quantity of groundwater. Because of these circumstances, the overall goal was regarded to be relevant. Furthermore, because the project was the first step to make the IWTI a public body that provides services relating to the efficient use of water resources for Thai industries, the project concentrated and limited its activities on the basic technologies needed for providing those services. Therefore, the project plan was evaluated as highly relevant.

### (5) Sustainability

Although the institute was still new, it established cooperative relationships with other organizations through the activities of the project. Counterparts gained experience and know-how of management of the research institute to some extent. However, in order to extend the services in the future, further efforts would be required to strengthen the institutional capability of the IWTI. Financial support from the DIW could be expected, but there was still little prospect of earning income from providing technical services. Relating to technical sustainability, the counterparts mastered the basic skills and knowledge concerning industrial water. Further external assistance would enable them to learn more advanced technologies, and provide technical services applying the same.

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

Implementing a preparatory phase project, and monitoring and evaluating it thoroughly, and feeding back the results to the planning of the next phase project, makes it possible to design an appropriate cooperation plan.

### (2) Recommendations

The project purpose was likely to be achieved by the end of the cooperation period. The middle and long-term operation plan of the IWTI was formulated and the staff was allocated for it; the conditions, thus, were well prepared for the next phase. Hence, it was recommended to start the discussion on the second phase of the project.

## 7. Follow-up Situation

Based on the recommendation stated above, the five-year second phase of the project began in June 2000.



# The Project for Strengthening of Food Sanitation Activities



Project Site Bangkok

## 1. Background of Project

The food industry in Thailand is expanding dramatically in response to increasing market demands and advances in food processing technologies. However, food manufacturers, especially small and medium sized enterprises, often lack knowledge on how to ensure safety and quality and have quality control management personnel in their factories. Consumers, too, have limited knowledge of food safety. With this background, the Government of Thailand requested Japan to provide Project-type Technical Cooperation with the aim of improving public health through improved food sanitation and quality control.

The duration of the project, started in April 1994, was five years. As a result of the terminal evaluation conducted in July 1998, it was judged that project achievements reached the expected level. In response to the needs of the Thai authorities for further improvement of the level of technology in this field through the establishment and strengthening of Good Laboratory Practice (GLP) (international standard for food sanitation) and for future dissemination of the techniques in this field to neighboring countries, the cooperation period was extended for another year.

This study was conducted to evaluate the cooperation during the extended one year.

## 2. Project Overview

### (1) Period of Cooperation

1 April 1999-31 March 2000 (Extended period)

### (2) Type of Cooperation

Project-type Technical Cooperation

### (3) Partner Country's Implementing Organizations

Department of Medical Sciences (DMSc) and the Office of Food and Drug Administration (FDA), Ministry of Public Health

## (4) Narrative Summary

### 1) Overall Goal

Health protection programs related to food sanitation for the people of Thailand are promoted.

### 2) Project Purpose

Food Safety and sanitation in Thailand are assured.

### 3) Outputs

- Quality assurance of food is strengthened by the improvement of laboratory technology with GLP in the services of the DMSc.
- Food sanitation and safety control programs are strengthened in the services of the FDA.

### 4) Inputs

#### Japanese Side

Long-term experts	3
Short-term experts	10
Trainees received	2
Equipment	approx. 23 million yen
Local cost	approx. 23 million yen

#### Thai Side

Counterparts	83
Equipment	
Land and facilities	
Local cost	5.4 million baht (approx. 16 million yen)

## 3. Members of Evaluation Team

### Team Leader:

Tsutomu MARUYAMA, Professor, Faculty of Environmental Health Science, Azabu University

### Food Sanitation:

Shyunsaku MINAMI, Senior Officer for Imported Food and Inspection, Environmental Health Bureau, Ministry of Health and Welfare

### Cooperation Planning:

Fumiko YAMADA, First Medical Cooperation Division, Medical Cooperation Department, JICA

### Project Evaluation:

Shigeru KOBAYASHI, System Science Consultants Inc.

## 4. Period of Evaluation

8 December 1999-18 December 1999

## 5. Results of Evaluation

### (1) Efficiency

Inputs that were implemented during the extension period of the project strengthened the activities and outcome of the preceding five-year cooperation; thus, they were mostly appropriate. Meanwhile, there was a comment from the Thai side that the changes in the period of assignment and specialization of some short-term experts led to their delayed dispatch. There were some cases in which technology transfer was not fully carried out.

### (2) Effectiveness

The functions of DMSc and FDA were strengthened by the project. For example, 84 labs out of 155 in the DMSc were in the process of introducing GLP and the remaining 71 labs had already applied for it. Also, as a result of the strengthened FDA activities such as training and campaigns targeted at private food processing factories and consumers on food sanitation and quality control, 47 factories obtained and another 42 applied for the international certificates for quality control of food processing such as HACCP (Hazard Analysis Critical Control Point) and GMP (Good Manufacturing Practice) during the one-year extension period.

### (3) Impact

Based on the outputs achieved by the project, a National Food Safety Scheme was drafted. Also, research carried out on the food sanitation situation in neighboring countries conducted as a technical cooperation activity for neighboring countries (TCNC) made the capabilities of the DMSc known to the concerned organizations in the countries studied, which raised their interest in food sanitation and quality control.

Following the research in the countries where Thai food is distributed, the dispatch of Thai experts to Laos and Cambodia was carried out. Therefore, it was concluded that the technical skills of the implementing organizations reached a level at which they could support neighboring countries and that a first step was made toward technology transfer from Thailand to neighboring countries.

### (4) Relevance

The Thai Government holds the improvement of food sanitation as one of the issues in the National Health Consumers Protection Plan and the National Food Safety Scheme. Also, in the Eighth National Development Plan, the government expresses its commitment to support neighboring countries in the solution of problems in the health sector. Considering these facts it was evaluated that relevance of the project was high.



Site visit to laboratory

### (5) Sustainability

Both the DMSc and FDA had established organizational structures as responsible agencies for inspection and administration, respectively, on food sanitation and safety control. The coordination mechanism between both organizations and among concerned ministries and other organizations was also well developed. Through the project, the techniques necessary for the introduction of GLP were transferred to the counterparts, who started disseminating these techniques to other officers through seminars and other means. Regarding financial aspects, it was likely that both the DMSc and FDA would be able to secure a stable budget to continue their activities. Based on these findings, sustainability of the project was evaluated to be high.

## 6. Lessons Learned and Recommendations

### (1) Lessons Learned

In order to dispatch short-term experts more effectively, the Japanese side should allow sufficient time to identify appropriate personnel and complete the recruitment procedure. At the same time, the government of the recipient country is advised to make necessary personnel arrangements at an early stage so that counterpart needs match the specialization of the experts.

### (2) Recommendations

Through the extension of the cooperation period, the technical skills of the Thai side on food sanitation reached the level which technology transfer from Thailand to other countries would be possible. Indeed, both the DMSc and FDA requested the implementation of a Third-country Training Program after the termination of the project. It was thus recommended that the Japanese side respond to the request and provide support indirectly, such as through the Dispatch of Experts.

## 7. Follow-up Situation

Based on the above recommendation, a Third-country Training Program titled "Strengthening of Food Sanitation" is being implemented.