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CONTENTS

The CTI Workshop on Energy Efficiency for Asian Countries
9th CTI Workshop Held in Japan

Since 2004, ICETT has carried out the CTI workshop in Japan as part of its International Research Initiative on Global Environment, under the guidance of the Ministry of Economy, Trade and Industry (METI). This project was designed with the primary aim of providing assistance to participating countries for future efficient energy use by introducing policies, technologies, and managerial methods under the overall theme of Japan's cutting-edge technologies for the conservation of natural and energy resources in order to resolve the issue of global warming.

For this fiscal year, the CTI workshop in Japan was held for five days from July 31 (Monday) to August 4 (Friday), 2006, with the participation of government officials and technical engineers from the industrial sector of three Asian countries (Indonesia, Philippines, and Vietnam). The purpose of the workshop was to enhance their understanding of Japan's efforts towards the reduction of greenhouse gas (GHG) emissions in the Asian region. It also aimed to promote efforts for energy efficiency in the respective countries and their industrial sectors.

The project framework, including programme, syllabus, reading materials, and instructions for the preparation of technical reports, were provided on ICETT's website (http://www.icett.or.jp/JNT_Work/eew_20060510.nsf/$about?OpenAbout) so that the participants would be able to fully understand the project and participate in the workshop with a clear understanding of the issues. Furthermore, experts, not only from Japan but also from China and India, were invited as resource persons for the workshop. The programme was designed such that exchange of information and sharing of experiences were done not only through the lectures from the United Nations Development Programme (UNEP), Japan and other developed countries, but also through exchange of ideas among the participants together with the experts to discuss ways to resolve the issues being highlighted. The outcome from the participants' individual presentations and group technical reports reaffirms the need for further improvement in the energy use in their own countries.

The workshop comprised of three sessions and the major items discussed are as follows:

Session 1: Energy Efficiency and Cleaner Production

Presentations on Japan's preventive measures against global warming, and on successful case examples using technologies for resource and energy conservation, were given by METI and by the technical experts from the Energy Conservation Center of Japan, respectively.

The cement production industry, a thermal power plant (combined-cycle power plant), and an automobile parts factory were introduced as case examples during the workshop. A presentation on Sustainable Consumption and Technology and Cleaner Production assessment methods, as promulgated by UNEP, was also given as an example of efforts towards environmental conservation and energy efficiency by an international organization. In relation to the energy efficiency and management systems of Japan, the succeeding presentations focused on energy-saving measures and related technologies being implemented at the Chubu Electric Power Co.'s Yokkaichi Thermal Power Plant. Emphasis was given on energy-efficiency improvements that are achieved through management and improvement on a day-to-day basis, and not only through the introduction of advanced technologies. Furthermore, rather than simply introducing new equipment, it is essential to thoroughly manage existing equipment.

A field trip was also made to an environmentally friendly Japanese traditional inn, Todaya, which was awarded the Japan Environmental Management Award for 2006. There, the participants learned about its in-house co-generation system and recycling efforts.

Session 2: Joint Session at Yokkaichi University

With professors of the Department of Environment and Information Sciences of Yokkaichi University playing the main role, global environmental issues from the standpoint of academia were examined and discussed among the participants. Particular focus was given to Tianjin City, China, a friendship city of Yokkaichi City, in using desulfurization countermeasures for fertilizers to ensure bountiful harvests and diffusion field computations of sulfur dioxide technology for the measurement of gains and losses for ground soil. The economic aspect of making environment-related investment in factories was also highlighted. It was reaffirmed that the case example of China's desulfurization technology presented at Yokkaichi University was a 'successful example' of preventive measures against global warming. The importance of the basic concept of CP was also confirmed.

Session 3: Preparation of Technical Reports

Each of the participants from Indonesia, the Philippines, and Vietnam compiled a technical report on what they learned and future plans. The feasibility of developing the reports into projects was also examined. The results were then prepared as technical reports.

An investigative study was conducted in the EU (France, Germany). One of the themes was reporting on the strategies, project outlines, and outcome (brochure,

Study tour at Chubu Electric Power Co.'s Yokkaichi thermal power plant

technical report) resulting from this workshop at UNEP headquarters and receiving an external assessment of the project. Another theme was Sustainable Consumption and Production (SCP) as promulgated by UNEP, which was examined through the exchange of opinions and interviews.

Regarding the evaluation of the technical reports, it has been UNEP's view that it is relatively difficult to achieve results with a short-term workshop. However, the development of projects from such a workshop may lead to even greater results. On this point, the technical reports of Indonesia and the Philippines (research on case examples) received high evaluation. As an example of the report contents, specifically speaking, although the same is true about all oil-importing countries in general, the presentation and technical report by the participant from Indonesia voiced concern over the electricity shortage and related energy issues, and the increased use of fossil fuels. This was considered a highly successful case example because, as a result, interviews will be conducted on the graduates of this workshop on the various conditions being confronted by Indonesia. It has also led to examining the possibility of promoting the use of alternative energies and a study on the possibility of decreasing GHG emissions as a result.

During the visit to Freiburg in Germany, an environmentally advanced city, an explanation was received on its strategies that place priority on giving due respect to economic activities which protect, and are kind to, the environment through environmental and conservation measures in urban

Joint program with Yokkaichi University

planning. It is considered especially vital to introduce comprehensive measures such as increasing energy efficiency, disseminating the use of renewable energy, and introducing new alternative energy, from the urban planning stage. It was stated that, more than the introduction of technically advanced equipment, the introduction of practical technologies that placed importance on economic benefits with an ecological viewpoint was found to have greater effectiveness. By doing so, it was possible to decrease the amount of waste and reduce consumption of resources.

It was confirmed at this workshop that it is possible to heighten energy efficiency through the introduction of technologies at minimal cost, and a high degree of management (housekeeping) and CP. There are plans to reflect this in future workshop programs.

Upon completion of the workshop and the EU investigative study, it was reaffirmed that the strong leadership of the central government, industrial sector as well as academia, and the accumulated effort of those concerned in the local society are indispensable for the efficient use of energy and its dissemination. In the industrial sector, there is a need for changes in technology, organization, and management at the factory level. The government should also provide support and promote these changes with an appropriate policy framework and measures. For this reason, the roles to be fulfilled by the government, academia, and industrial sector, and building partnership among them, are highly important for improving energy efficiency.

At UNEP

At Freiburg, Germany

External Assessment at UNEP

ICETT's CTI in 2006 achieved wide-ranging results and the Initiative was considered to be highly effective and useful, as was evident in the feedback received from the participants and trainers. The proposals of the participants from Indonesia, the Philippines, and Vietnam were, without exception, deserving attention and this is an area in which ICETT can provide assistance. While UNEP fully recognizes the need for the continuation of assistance and implementation of capacity-building programs for these three countries, UNEP is of the view that there is a need to use differing approaches in methods for capacity-building implementation. There remains the possibility of UNEP continuing to work in cooperation with ICETT in Asia for the improved implementation of the CTI program, particularly in the area of capacity building in relation to CP and energy efficiency. UNEP would like to express its appreciation to ICETT for having executed a variety of tasks that led to the successful results, and for the cooperation received. It is the wish of UNEP to continue to work in cooperation with ICETT.

JICA's Training Course on "Water Quality Monitoring for Central Asia" (Outcome of Fiscal 2006 and Plan for Fiscal 2007)

This project was commissioned to ICETT by the Japan International Cooperation Agency (JICA) to provide a three-year series of training courses for the purpose of improving technologies pertaining to water quality analysis and increasing the precision with which data is managed in the four countries of Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. Fiscal 2006 is the final year of the series.

Map of the four target countries

1. The State of Water Quality Monitoring in the Central Asian Region

The countries of Central Asia declared independence from Russia one after another in 1991 and are in the process of shifting to a market economy. Industries have been primarily livestock farming and agriculture, but in recent years these countries have received increasing attention due to their being relatively blessed with oil, natural gas, and ore resources. It is for this reason as well that Japan having amicable relations with these countries is considered increasingly important.

Based on Geckos project which conducted investigative studies and provided assistance, it has been determined that Kazakhstan's soil has been contaminated with mercury in the process of mining and processing gold. Given this background, it was recognized that there is a need to take the opportunity to actively promote environmental conservation countermeasures, and there has been a heightened consensus of the significance and need for environmental monitoring.

Despite such awareness, water quality monitoring in the above countries has been conducted to the present day using the methods and facilities set into place by the central government during the days of the former Soviet Union. Also, the independence of these countries from Russia has led to a reduction in funds to be used in this area, in addition to the lack of experienced staff, increased number of closing of or ill-equipped local measurement and analysis facilities, neglect of obsolete machinery and materials, and insufficient exchange parts and chemical reagents. Monitoring work is being conducted at minimal maintenance level despite the assistance received from various countries.

Furthermore, upon examination of each work environment by dividing them into sections, it is clear that in the current situation no uniform standard is being used in any given country, no "Standard Operating Procedure" (so-called SOP) has been distributed due to incompletion and other reasons, and the processing and management of data using personal computers is not so prevalent.

Example of analysis equipment used in the four countries (Source: Techno Chubu Company Ltd.)

2. Outline of the Training

Objectives and Goals

This training, targeted to water quality analysis specialists, will allow them to gain an understanding of the environmental monitoring system, and background information will be provided on Japan's administrative policies and measures. The training participants will also be able to improve the analysis technology of their own countries by learning about the method of analysis for particular heavy metals, nitrogen, etc. and data analysis.

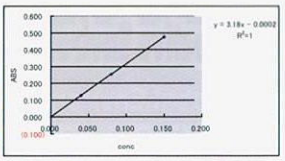
Methodology

The training was conducted with emphasis on practical exercises. These exercises will be conducted for the span of three years, for which ICETT has received the assistance of the Public Health and Environment Research Division of the Mie Prefectural Government and Techno Chubu Company Ltd.

Training Curriculum by Chapter

(1) Understanding water quality monitoring and the analysis-related systems of Japan
(2) Practical exercises in analysis (mainly for nitrogen and heavy metals) and examination of sampling methods
(3) Public agencies, private companies, and NPOs will be visited to gain an understanding of their standards for monitoring technology. Also, methods for processing analysis results and using them further by applying them to policies will be learned.
(4) Summarization: Identifying possibilities for improving the work undertaken in each country and summarizing the methods of implementation.

Although the participants' expectations of being able to actually touch the most advanced equipment available was understandable, the objective of the training was to heighten the accuracy of analysis as an organization using the machinery, materials and human resources currently available at the workplaces of their respective countries.



Example of assignment on drawing a calibration line using MS-Excel in order to identify the nitrogen concentration level in sampled water

3. Outcome of Fiscal 2005 Implementation (December 25, 2005 to February 4, 2006)

Due to having had excellent lecturers who provided sincere guidance, the practical exercises received particularly favorable comments from the training participants.

Many of the participants displayed a high level of enthusiasm each day towards learning about analysis-related work; concretely speaking, they were able to produce results with an extremely small margin of error in their analysis. One of the training participants, having made up his mind to purchase a high quality digital camera and video at Akihabara, immediately put it to use by eagerly making a live recording of the steps for analysis during the practical exercise saying that he wanted to take home his experiences of the training without any omissions.

Points that the participants learned during this training included standardizing the order of the steps for analysis upon discussion with co-workers and openly providing information on the know-how of operations by sharing it with them. They also learned the importance of giving consideration to both safety and environmental measures while undertaking the work, and of holding another discussion with co-workers on the reasons for the differences in analysis results. The Keihanshin region was visited for a training visit on the theme of "water". The participants seemed to feel that they too wanted to create communities at the water's edge as has been done in Japan which has a rich ecosystem that can be enjoyed by its people at any time.

The participants precisely understood the intentions of the training planner and learned that they could expect improved accuracy in their analysis depending on the sampling method used, and whether pretreatment was carried out or data processed using personal computers.

Practical exercise in analysis (Location: Techno Chubu Company Ltd.)

Moreover, they were enlightened by the fact that awareness towards environmental conservation issues is widespread among the general public and even among children in Japan. The participants displayed their enthusiasm of reporting on what they experienced in Japan to as many relevant persons as possible without fail upon return home to their countries.

Special mention is given here to Sanyo Special Steel which lent its cooperation by providing a lecturer to the course. The dispatch of a lecturer was part of the company's social contribution activities and it has been covered in the Report on the Environment and Society 2006 (in Japanese). (See http://www.sanyo-steel.co.jp/corporate_info/index_kankyo.html)

Practical exercise in analysis (Location: Public Health and Environment Research Division, Mie Prefectural Government)

ICETT would also like to take this opportunity to express its appreciation to other partners and agencies that have provided its assistance to date.

4. Training Plan for Fiscal 2006 (November 9 to December 15, 2006)

The training course for the final year of this project will be held for six weeks from this coming November.

The content of the training basically follows previous ones, but the time allotted for practical exercises in analysis will be expanded. There are plans to have the training participants identify issues requiring improvement at their respective workplaces and propose ways for human capacity development in relation to this. By doing so, it will be possible to fulfill the objective set for this year of particularly improving the standards for analysis technology and analysis precision from the individual level to the workplace level, and on to the country level.

In continuation from last year, a large number of lecturers with experiences in providing guidance in relevant fields in each of the countries will be invited to give appropriate advice with consideration to the existing situation. It is hoped to make this training an interactive one.

Research Project on Human Capacity Development for Effective Environmental Technology Transfer

International Research Promotion Initiative on the Global Environment (subsidized by METI)

Human Capacity Development Project for Improvement of Productivity and Environment in China (IPEC)

Outline

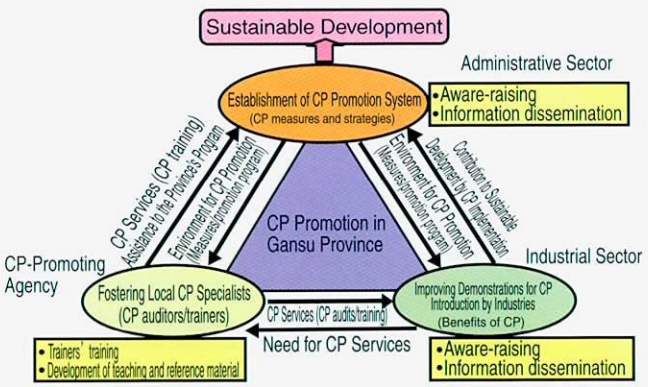
ICETT has implemented the Human Capacity Development Project for Improvement of Productivity and Environment (IPEC) since fiscal 2005 for Gansu province, China. This project aims to contribute towards sustainable environmental improvements in Gansu province through the promotion of Cleaner Production (CP).[1] In continuation of activities conducted in the last fiscal year, the IPEC project will foster the development of trainers responsible for promoting the dissemination of CP and conduct demonstration projects advertising CP benefits, in addition to information dissemination forums and study tours to Japan. (For IPEC project homepage, see http://ipec-gansu.com)

Background

In China, environmental-related issues of the industrial sector are increasingly becoming a matter of serious concern. As China strives to increase the productivity of production processes, it is at the same time promoting CP with the aim of reducing the environmental load through the enactment of the Cleaner Production Promotion Law and establishment of CP centers at the national and local levels. In reality, however, due to the vast scale of the nation, CP dissemination is facing delays, from province to province, due the lack of understanding of CP among local governments and industries, inadequate number of qualified persons, and lack of sufficient information.

Objectives and Outline of the Project

With this background, ICETT has been undertaking the IPEC project since fiscal 2005 with a focus on human capacity development for CP promotion in Gansu province, China, in order to contribute towards sustainable environmental improvements in China. This project is being jointly undertaken through intensive discussions conducted with ICETT's Chinese counterpart, the Centre for Environmentally Sound Technology Transfer (CESTT), and the close cooperation of the Center for Development and Promotion of Science and Technology of Gansu Province (GSSTPC). Under this organization of partnership, Chinese specialists familiar with the local situation and Japanese technology specialists equipped with the knowledge developed over the years by the Japanese government and businesses lend their expertise to the project.



A distinctive characteristic of the IPEC project is that it aims for realistic and effective CP promotion by using the characteristics of both Japan and China to fullest advantage.

IPEC Project Activities and Their Outcome

The IPEC project is undertaking three activities primarily focusing on: (a) trainers' training, (b) CP demonstrations, and (c) awareness-raising and information dissemination activities.

1. Trainers' Training

Through trainers' training, the project is engaged in the human capacity development of specialists who will be capable of offering CP services such as CP audits and training to the local governments and industries of Gansu province through in-class learning and on-site exercises. Furthermore, with the aim of heightening the results of CP services, the training program covers not only topics related to CP in China and CP audits, but also Japan's energy-saving and -conservation efforts and equipment management which are considered useful for their implementation. Moreover, a major characteristic of this training is that it sets much value on the independent efforts of the trainer candidates by actively including discussion and group work among the trainer candidates, and requiring them to use the teaching material they prepared during the CP audits at the model companies. It is through such training methods that trainer candidates are gaining an understanding of CP and how productivity can be increased, as well as enhancing their ability of practical application and self-reliance following the training.

The trainer candidates also participated in the study tour held from September 11 to 15, 2006, during which they enhanced

Trainer candidates learn about reducing the environmental load through equipment management at a model company

their understanding of Japan's environmental countermeasures as well as the energy-saving and -conservation efforts and environmental conservation measures being carried out on the shop floor of industrial plants through lectures and field visits to companies. Comments were received from the trainer candidates regarding: (a) the strict observance of environmental

[1] This was promulgated by the United Nations Development Programme (UNEP) in 1989 in the following statement: "Cleaner Production is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment."

laws and regulations by Japanese companies, (b) the deep impression received regarding the increased productivity resulting from the efforts and innovations undertaken on a daily basis and environmental countermeasures, and (c) the intention of putting the experiences gained through the study tour to effective use upon return to China.

Group photo in front of ICETT

2. CP Demonstrations

CP options implemented at the first two model companies of the IPEC project achieved noteworthy results in both environmental and technological aspects. The Gansu Qilianshan Cement Co., Ltd. was able to reduce the amount of electricity necessary for producing 1 ton of cement from 117 kwh to 107 kwh, with economic benefits amounting to 7.176 million yuan per annum. It was also able to reduce the amount of coal consumption necessary for baking 1 ton of clinkers from 130 kg to 125 kg, with economic benefits amounting to approximately 2.8 million yuan per annum. On the other hand, the Liuhua Group Co. Ltd. Gansu (chemical fertilizer) was able to recover nitrogen from the wastewater and thus comply with the environmental standard (nitrogen concentration). Compared to the end-processing technology they had planned to introduce at the time, they were able to gain more than approximately 20 million yuan of economic benefits. Furthermore, the CP audit report of this company has been recognized as the first report of Gansu province by the governmental agency of Gansu province. These results were presented at IPEC project workshops and forums, and extensively announced and disseminated in the form of distribution material.

Moreover, the Lanzhou Xigu Thermal Power Co., Ltd. (power-generation industry) and Lanzhou City Gongma Cement Co., Ltd., have been newly selected as model companies and the trainer candidates are now proceeding with CP audits under the supervision of specialists.

3. Aware-raising and Information Dissemination Activities

In recognition of the importance of sharing information and results, the IPEC project is endeavoring to disseminate CP and project results through various means. The major activities, from the many undertaken, are introduced as follows.

Study Tour for Government Officials and Management of Local Enterprises

The IPEC project conducted a study tour to Japan from June 12 to 16 for the purpose of deepening the understanding towards CP of government officials and company management of model companies involved in CP activities. The participants were able to enhance their understanding of environmental countermeasures being implemented by the Japanese government and businesses through an exchange of opinions with the businesses during lectures and field visits to the companies. They were also able to re-examine the manner in which CP is currently being promoted in Gansu province. It was particularly impressed upon the participants how the Japanese government, private sector, and local communities are working together in carrying out this endeavor. It was observed that the participants displayed the strong desire to devise the same kind of system in Gansu province.

Workshop and Forum Held

The IPEC project held the "Workshop on Cleaner Production in Gansu Province" at Lanzhou in Gansu province on February 24, 2006 for the purpose of disseminating CP and presenting an interim report on the results of the project. At the workshop, the concept of CP and CP activities in Gansu province were widely disseminated. At the same time, Japanese principles on productivity improvement that are applicable to CP and the results of CP activities at the two model companies were introduced. The presentations by the specialists and companies drew the strong interest of the approximately 70 participants and enhanced their awareness and understanding of CP.

In addition, on August 1, 2006, the "Forum on Cleaner Production and Circular Economy of Gansu Province" was held as a collaborative effort of ICETT, the Gansu Provincial Government, and The Administrative Centre for China's Agenda 21, with the participation of approximately 230persons from throughout Gansu province. Mr. Hao Yuan, Assistant to the Governor of Gansu Province, addressed the forum, followed by presentations by specialists from UNEP, China's National Development and Reform Commission, and Tsinghua University as well as Mr. Masami Hayakawa, Managing Director of ICETT, and Mr. Masamitsu Murayama, ICETT Technical Advisor. The participants heightened their desire to promote and establish a circular economy as well as CP so that they can contribute towards achieving this goal.

Future Plans

(1) The trainer candidates will from here on complete CP audits and the preparation of teaching material. Efforts will be made to deepen their understanding of CP and CP audits while, at the same time, conduct practice exercises in training and reinforcing their abilities as trainers.

(2) The model companies will formulate CP options together with the trainer candidates and specialists. Through the implementation of these options, the model companies will be able to increase their understanding of CP and its benefits and the experiences at those companies will be widely disseminated.

(3) Due to the lack of CP-related material in Gansu province, the Department of Science and Technology of Gansu and the Environmental Protection Bureau, together with specialists involved in the IPEC project, CESTT, and ICETT, will jointly prepare a CP handbook that will provide basic information on CP.

Basic Information on Gansu Province

Area: 454,300 sq. km
Population: 26,187,800 persons (as of the end of 2004)
Industries: High ratio of heavy industries and state-run corporations; rich in ore resources, mainly non-ferrous metals
Others: Located in the area upstream of the Yellow River, it has served as the main traffic line since ancient times. Dun Huang, which thrived as the hub of the Silk Road, is located at the western end of Gansu province.
(excerpts from http://www.chinavi.jp/gansu.html)

The TEDA Environmental Conservation Technology Training Project for Fiscal 2006

(Training on Industrial Wastewater Management – Acceptance of Training participants)

1. Background of the Training

In response to a request from the Tianjin Economic-Technological Development Area (TEDA), ICETT has concluded an agreement for a commissioned project to organize a presentation meeting on the technological results in the form of an investigative study project, training project, and seminar project.

In formal acknowledgement of this commissioned project, signed memorandums of understanding were exchanged by TEDA and ICETT, as previously agreed upon at the China-Japan Forum on Environmental Protection and Energy Saving held in Tokyo on May 29. As part of this commissioned project, training was conducted for eighteen days from August 28 (Mon) to September 14 (Thur) for the environmental staff of the TEDA Administrative Committee and representatives of relevant companies.

2. Purpose of the Training

Yokkaichi City, where ICETT is located, has had a friendship-city relationship with Tianjin City for the past twenty-six years and their interaction has been based primarily in the environmental field. From 1993, commissioned by Yokkaichi City, ICETT has accepted training participants from the Tianjin Environmental Protection Bureau and relevant organizations as well as company environmental engineers.

China has demonstrated remarkable economic growth in recent years. In particular, Tianjin has experienced rapid development as the center of northern China's economy. TEDA has played a vital role in supporting the development of Tianjin City.

Securing water resources is extremely essential for the development of industries and urban areas. However, annual rainfall in northern China remains at a low level. This has resulted in not being able to maintain the minimum required amount of 500 cubic m of water, as determined by WTO, and it is for this reason that there is an inadequate supply of irrigation and drinking water. Moreover, rapid industrial and economic development as well as urbanization has led to a marked increase in the amount of contaminants and toxic substances discharged in the region, and this has resulted in water pollution.

There is a high concentration of foreign and Chinese companies in TEDA and the economic growth ratio of this region surpasses 20%. However, with the designation of the Binhai district as an "experimental zone for comprehensive auxiliary reform," it is certain that TEDA will undergo even further growth.

Given this background, upon consultation with TEDA, ICETT will conduct a training course in Japan on the theme of "Industrial Wastewater Management and Water Pollution Prevention Technology". During this course, practical training will be provided on topics including Cleaner Production (CP) technology so that it will contribute towards TEDA's future modernization and further development as well as global environmental conservation, and aim for an advanced level of environmental management.

3. Outline of the Training

The ultimate aim of this training course is for each training participant to learn about the environmental management technologies of Japanese companies and their methods, and the latest available information in the field. Each training participant will then be required to prepare a final report in which they will explain how they will put what they learned into practice. The aim is for the training participants to devise applicable plans and put them into effect at their workplaces after returning to China.

The curriculum included an introduction to Japan's environmental conservation measures as background information. This was provided through lectures on the environmental administrative guidelines and environmental management system of Japanese companies as well as on concrete examples of environmental conservation technologies and on-site field trips. Using the Yokkaichi City area as an example of a city that experienced industrial pollution and damages parallel to high economic growth, the latest available information was provided on proactive measures taken towards dealing with pollution, and the independent efforts (Responsible Care) of each company from the viewpoint of global environmental conservation today as well as CP technology.

The respective sessions of the training were as follows.

(a) Orientation and Introduction

An orientation on relevant information pertaining to the training participants' daily living and training curriculum during the participants' stay at ICETT was carried out, in addition to an opening ceremony. At this time, the aims of the training and respective sessions were clearly explained. The participants were also requested to present job reports and they were each encouraged to have an awareness of the issues under discussion and the purpose of the training.

(b) Regarding Environmental Management in Japan

The participants were given a comprehensive review of environmental administration in Japan, environmental management in the petrochemical industry as well as the current state of industrial pollution and its socioeconomic consequences. The need for environmental conservation and effective methods was also emphasized.

(c) Latest Technology related to Environmental Conservation

Lectures and on-site visits were conducted on end-of-pipe technologies such as wastewater management technology, equipment used as preventive technology, and the CP method, with a focus on the petrochemical complex in the Yokkaichi City area.

(d) Summary

Finally, as a summarization of the above exercises, final reports were prepared and presented as the training outcome so that the participants would be able to effectively engage in environmental management in their respective sectors upon return to China.

4. Upon Completion of Training

ICETT was commissioned to undertake this training by TEDA, and it was the first time ICETT had received a commission directly from the beneficiary. The fifteen training participants enthusiastically took part in the training and raised many questions. The participants' comments and evaluation reflected their serious intention of putting what they learned from the training into effect in China. The eagerness displayed by the training participants of this training course surpassed that of previous courses and it is believed that the goal set at the beginning of the course had been achieved.

However, since the participants were both from the TEDA Administrative Committee and various company departments, there were differences in levels of knowledge among them. Particularly during the lecture pertaining to the introduction of advanced technology, only a few questions were raised and some were not related to the discussion. They also lacked on-site experience in the manufacturing process and seemed to be discomforted by the smell at the wastewater treatment site.

ICETT will maintain close communication with TEDA in conducting the planning and operations of training, and will endeavor to provide training of the highest caliber more than ever before.

Comprehensive Project on Human Capacity Development for Effective Environmental Technology Transfer (II)

Capacity Building of Regional Capabilities on Cleaner Production and Energy Efficiency

Responding to the strong request of the Department of Science and Technology (DOST) of the Philippines, with the aim of increasing energy efficiency and reducing the environmental burden, ICETT has been undertaking the above project focusing on two major areas: (a) fostering trainers responsible for company assessment; and (b) providing technical advice to volunteer companies in the food-processing industry, which is the main industry in the Philippines. This project is targeted to special administrative regions including the National Capital Region, or NCR (Manila metropolitan region), Region IV (Southern Tagalog district), Region VI (Western Negros district), and Region X (Mindanao district). ICETT's counterpart in this project is DOST of the Philippines which has been participating in ICETT's CTI workshop held in Japan since fiscal 2005. It is a relevant agency of the Philippines with which ICETT continues to work in close cooperation.

In concrete terms, as part of the human capacity development of trainers, a seminar and workshop were held on environmental and energy conservation, energy-saving for the improvement of productivity, energy efficiency (EE) technology, and Cleaner Production (CP), during which local government officials and local assessors from the Philippines were able to enhance their level of understanding on these topics. They also acquired knowledge on how to conduct CP assessments. The DOST staff served as leaders for the company assessments which followed. Furthermore, as part of technical guidance to volunteer companies, assessments were carried out by Japanese and local experts at eight companies selected from each region, resulting in the proposal of recommended options for reducing the environmental burden and enhancing energy efficiency.

Moreover, based on these recommended options, improvements are in the process of being carried out by the company managers and staff through the supervision and assistance of the CP assessors. The status of implementation of the recommended options are monitored to determine the extent of reduction in the environmental burden and the reduction in energy consumption using data and photos as evidence of the benefits the company have achieved.

The project undertook the following seven steps for its successful implementation: (portions in process of planning)

Step 1: Setting the goal and formulating the implementation plan by relevant persons involved in the project (April 2006)

Taking into consideration the United Nations Environment Programme (UNEP)'s CP assessment project and the Green Aid Plan (GAP) of the Japan External Trade Organization (JETRO), ICETT and DOST worked together in devising the project strategies. As a result, the target of this project was narrowed down to the food-processing industry and it was

decided to target companies in the NCR, Region IV, Region VI, and Region X. It was also decided to foster local assessors who would be able to provide technical advice to the companies.

CP Trainers' training

Step 2: Kick-off Meeting and Refresher Course (May 2006)

With Ms. Nuna E. Almanzor, Director of the Industrial Technology Development Institute (ITDI) of the DOST, and Mr. Masami Hayakawa, Managing Director of ICETT, in attendance, a kick-off meeting and refresher course was held with the participation of the counterparts of this project including the Departments of Energy (DOE), Department of Trade and Industry (DTI) and ICETT's graduates. The meeting focused on the formulation of the direction and strategies of the project based on the devised implementation plan. The direction and strategies were subsequently adopted.

Training on CP and EE were conducted during the refresher course wherein the participants enhanced their knowledge on these subjects. Through this activity, everyone involved were able to share a common awareness and understanding of the project.

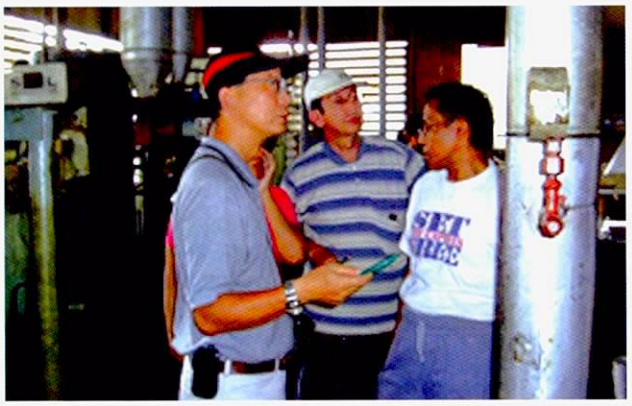
At the refresher course

Step 3: Training/Workshop on CP and EE (June - August 2006)

The DOST staff conducted a training/workshop on CP and EE for local government officials and potential CP assessors in the four regions. Ten to fifteen persons participated from each region. The participants were provided with a training manual, CP assessment guidelines and worksheets, which were prepared by DOST and ICETT.

Step 4: Conduct of CP Assessment at Volunteer Facilities (July - September 2006)

The DOST staff and the trained local CP assessors conducted the CP assessment at volunteer companies from each region. During this activity, data were gathered based on the CP protocol and CP worksheets. For each company, specific CP goals were set to reduce wastes, improve productivity, reduce energy consumption and/or realize savings. Moreover, diagnosis of the root causes of the problem and initial recommendations were made through brainstorming with the top management and company staff.



Technical advice being given at a factory

Step 5: Assessment by Experts (technical advice) (October 2006)

In addition to the initial CP assessment conducted by the local CP assessors, ICETT has dispatched Japanese experts to the companies located in NCR and Region IV. Further recommendations that the company may adopt to improve their operations and meet the set CP goals were provided during the visit. Moreover, the implementation of the recommended CP options will be monitored three months and six months after the assessment. A CP monitoring report that contains the status of the CP implementation will be prepared.

Examples of volunteer companies that have achieved their goals in NCR;

- Merry Cook Co.: Tomato sauce production
  Primary goals:
  (1) 10% reduction in costs (raw material, electricity, and water); and
  (2) 10% increase in production capability
- Hi-las Marketing Corporation: Dried mango production
  Primary goal:
  13% to 16% increase from the current yield rate of dried mango
  The above goals were achieved.

Step 6: Participation in the PIChE Convention (January 2007)

In order to disseminate information on this project as widely as possible, a report on the current state of affairs was presented at the 68th Philippine Institute of Chemical Engineers (PIChE) Convention.

Step 7: Invitation Programme (February 2007)

ICETT implemented the invitation programme to Japan for the trainers, who have played major roles in this project to learn about Japan's environmental and energy-saving technologies. These training participants also visited several Japanese food-processing companies so that they will be able to use what they have learned in their technical advice to the volunteer companies.

Lastly, the assessment reports will be re-edited to include the status of activities in relation to the companies' operations, including detailed information on the companies as well as opinions on future assessment and recommended options. It is our aim to widely disseminate the successful case examples of this project to other regions and industrial sectors.

JICA Group Training Course for Fiscal 2006

Training Course on "Environmental Management Technology in Chemical Industries II"

1. Introduction

The fiscal 2006 training course for central government officials and officials from local government bodies responsible for chemical-related issues, commissioned to ICETT from JICA, was conducted from June 12 to July 21, 2006. The need for this training on "environmental management technology for the chemical industry" is widely recognized. After reviewing the course in its entirety and making necessary improvements, it made a new start as Environmental Management Technology II. This fiscal year's training was the second modified course of its kind.

A total of seven training participants came from China (1), Saudi Arabia (1), Thailand (2), Tunisia (2), and Vietnam (1).

2. Purpose of the Training Course

This Training Course on "Environmental Management Technology in the Chemical Industry II" has been offered since fiscal 2000. The course introduces the technological trends of the chemical industry, including the petrochemical industry, and environmental management technology know-how. It has been designed to enable the participants to acquire knowledge on the concept of balancing economic development with environmental concerns and ways to realize this so that they can contribute to both promoting the chemical industry and environmental conservation in developing countries. The efforts of Japan and other countries towards, as well as information on, the safe management of chemical substances, are presented during the course. This training course aims to enhance the training participants' understanding of the current state of the chemical industry and emerging issues so that they may make a contribution in dealing with environmental issues in their own countries.

3. Training Content

Outline of the Curriculum

The training course comprised five sessions as follows:

(1) Orientation and outline of environmental countermeasures by the chemical industry
(2) Chemical substance risk management technology
(3) Environmental management technology of private companies
(4) Latest technologies for the management of chemical substances
(5) Summarization

Prior to the commencement of lectures, the participants learned about the location of the petrochemical complex from the observation room of the Port Building Tower at Yokkaichi Harbor. They then made a field visit to the Isozu district that had produced a large number of pollution victims. After gaining an understanding of the locational factors of the district and how they differed with those of petrochemical complexes Nos. 2 and 3, the participants attended their first lecture. This lecture by the former vice-mayor of Yokkaichi City and presently ICETT's Technical Advisor was on the theme, "The Record of Japan's Environmental Improvement Efforts – The Example of Pollution in Yokkaichi," which covered the reasons underlying the necessity for pollution prevention and environmental countermeasures. The lecturer stated that although it can be acknowledged that there are improvements in air and water quality with the installation of pollution prevention equipment when faced with pollution, in actuality those who had become victims of pollution are even now suffering from related illnesses. He concluded his lecture asking the participants to consider preventive countermeasures that would allow people to sustain good health. The participants took his words seriously and expressed the recognition of the need for urgent countermeasures to be adopted in their own countries.

The next lecture was on the "Globally Harmonized System of Classification and Labeling of Chemicals". Until now, it has been a voluntary effort but it will be made effective throughout the world in 2008. Only one of the seven training participants, however, had any knowledge of this information. The other participants felt that they had learned of the importance of the system and voiced their intention of sharing this information with others immediately upon return to their countries.

It is common for the participants to raise many questions at each training course, but during this course it was necessary to go beyond the allotted time due to the large number of questions, particularly on air and water pollution preventive technologies.

Extracurricular Activities and Interaction with the Local Community

As part of JICA's activities, a visit was made to Oyamada kita primary school, a public school of Kuwana City, on June 13 (Tue). The training participants were welcomed by the school children who had learned how to say greetings in the languages of the participants' countries, and an international exchange gathering was held at the gymnasium. Each of the training participants then went to separate classrooms and

Tea ceremony

Scene from the training course

Commemorative photo of opening ceremony

Closing ceremony

Tanabata

Field visit to Port Building Tower

interacted with the children with the assistance of the mothers of the children who served as interpreters. The children taught the training participants Japanese games such as origami and kendama (cup and ball), and Japanese songs. The training participants gave an introduction of their countries in return. The participant from Saudi Arabia, attired in the native dress of his country, taught the children the location of his country using a map and wrote his name in Arabic from right to left on the blackboard. The other training participants also introduced children's games and songs, and the school situation in their respective countries. They later also had a taste of the school-provided lunch together with the children in the classroom. The Japanese seasoning of some of the food was not fully compatible with them, but overall the training participants were able to spend an enjoyable time together with the children.

On June 17 (Sat) and 18 (Sun), the participants experienced home stays and home visits with Japanese families who had volunteered their homes from among the Yokkaichi City, Suzuka City, and Tsu City communities. The participants were able to gain many experiences such as being kindly taught about Japanese culture and customs, and they most certainly have pleasant memories of this visit. For the duration of the training course as well, the participants received encouragement during visits from these families and enjoyed continued interaction with them through letters, which provided them with comforting moments despite the busy training schedule.

On June 30 (Fri), as part of an introduction to Japanese customs, a tea ceremony was conducted in the Japanese-style room at ICETT. The participants first received an explanation about the tea ceremony in English from a tea master, and then enjoyed traditional Japanese confectionery suited to the summer season together with the specially prepared tea. Some of them experienced pain in their legs from sitting upright in the Japanese way, but spent a pleasant time at the tea ceremony as they took videos and photos of one another.

On July 7 (Fri), as the second part of the introduction to Japanese customs, the participants experienced Tanabata. All of the participants staying at ICETT were passed out sheets of paper at the end of June on which they wrote their wishes together with ICETT staff and decorated them on the branch of bamboo. Some of the participants wrote their wishes in their own language and the bamboo was covered with decorations, in addition to the origami ornaments.

One of the participants celebrated his birthday on July 5 (Wed) during the training course. Unknown to this training participant, the other participants had planned a birthday party to be held after training was completed that day and celebrated the occasion. A square piece of special paper with messages from everyone, a cake, and a trumpet performance by an ICETT staff had been readied. It was a very enjoyable party and became a day to remember for the birthday celebrant.

Outcome of the Training

Training participants from Asia, the Middle East, and Africa were able to exchange information about their countries with one another and present proposals. Furthermore, the participants were able to gain an understanding through training on issues that, though not yet considered problems in their own countries, may possibly occur in future. The training course used the merits of group training to fullest advantage with the establishment of a relationship whereby participants each expressed their opinions despite differences in national conditions and worked together to resolve the issues.

Staff Observations

The participants of this training course were particularly inquisitive so they raised many questions, which resulted in most of the lectures going beyond their allotted time. The lecturers provided thorough responses and it was apparent that the participants found the lecture content highly satisfactory. The participants also made the effort to use the Japanese they learned in the Japanese class during training. It was especially impressive how they raised their hand and said "sumimasen" (excuse me) to receive the lecturers' permission to speak.

The training participants traveled to the Tokyo area for a field trip using the Shinkansen for the round trip. They transferred to a local line at Shizuoka station when heading for Fujinomiya City in Shizuoka. They experienced surprise when the train departed the station going backwards. The reason for this is that the section from Shizuoka station to Fuji station is part of the Tokaido line, and from Fuji station the train enters the Minobu line located toward the mountains, which makes it necessary to change the direction of the train. The participants were amazed by its uniqueness upon hearing of the reason in the train they took from Fuji station.

The participants from Asia shared that the Japan they experienced was different from that which they had previously heard about in their own countries. They expressed their intention of conveying to others of the good points of this gentle nation that they themselves experienced after returning home. It has been most gratifying for the staff in charge of this training course to know that the participants were able to gain an accurate understanding about Japan. Although it is of course of great importance to teach the participants about technology and Japan's efforts, we consider having been able to encourage the exchange of information among countries throughout the world and convey Japan's current situation to have been a highly significant and fully satisfactory outcome of the course.

Environmental Management Training Program in Japan for the Environmental Cooperation Program for Asia (ECPA)

(commissioned by the Policy Department, Mie Prefectural Government)

From September 27 to October 18, 2006, administrative officers from the city of Ulaanbaatar, Mongolia, received training at ICETT as part of a project commissioned by Mie Prefecture. Recently, in Japan especially, the word "Mongolia" brings to mind sumo wrestling. Mongolians are mostly large in build and all men have experienced engaging in sumo while young. Let us examine why Mie Prefecture invited Mongolians to ICETT for training.

Background of the Project

Mie Prefecture commissioned ICETT to undertake ECPA in 1998. This project involves working in collaboration with a specific Asian local government that is dealing with an environmental issue and working to resolve it over a period of two years. The program is a cooperative effort primarily focusing on providing training in Japan for administrative officers and relevant personnel from the environmental field, and human capacity development by providing advice in the locality of the local government. To date, this program has joined in a collaborative relationship with local governments in the Philippines, Thailand, Indonesia, and Vietnam. From this fiscal year, the program aims to work in collaboration with the Bayanzurkh district in the city of Ulaanbaatar, Mongolia, for environmental improvements. In contrast to countries included in the program to date, in Mongolia more than half the population is concentrated in the capital city of Ulaanbaatar and this Bayanzurkh district alone has approximately 200,000 residents. Ulaanbaatar has a total of eight districts.

Ulaanbaatar

Environmental pollution has intensified in Ulaanbaatar in recent years, and air pollution and waste are of particularly serious proportions. A marked increase of asthmatic sufferers has also been observed. Reasons for this can be traced to coal-generated heat used during the winter season, vehicle exhaust, the use of recently available plastic products that hinder the natural decomposition of trash, and illegal abandonment by immigrants from rural areas. Bayanzurkh district is also being faced with the problems of waste and air pollution. This district is approximately 1,240 sq. km in area. It may be difficult to imagine the size only by looking at the figures but for a clearer picture, think about Yokkaichi City which is approximately 205.3 sq. km in area with a population of about 310,000 people.

Training Content

Having received this commission from Mie Prefecture, ICETT conducted a signing ceremony on August 24, 2006 for the agreement to work collaboratively in the project with the Bayanzurkh district. Being the first year of the project, training was conducted in Japan for training participants from four other administrative districts who showed an interest in the project. The training theme was an overall view of environmental administrative matters, with a focus on waste treatment and environmental education.

At the opening ceremony for the course on September 28, Mr. Sukhbaatar represented the training participants of

September 28 Opening ceremony

Bayanzurkh district in expressing his enthusiasm for participation in the training course. Training began following the ceremony, firstly, with an introduction to Japan's administrative system, and then history of pollution in Yokkaichi City and its basic environmental plan. The training participants realized the necessity for urgent countermeasures upon learning of concrete examples of the damages caused by pollution. The training participants also visited the office of the Mie Prefectural Government which had commissioned this project to meet with the governor. There they received a lecture that centered on the environmental countermeasures of the prefectural office and the legal system in relation to the environment.

During the latter half of the training course, training was conducted with a focus on the efforts of companies and governments as concrete examples of environmental countermeasures. Additional lectures covered the Pollution Control Agreement and car gas emission countermeasures. Following field visits to the Mie Prefecture Environmental Education Information Center and Yokkaichi City Environmental Study Center, atmospheric environment measuring station, and a company's product-recycling factory, a lecture was provided on the importance of environmental education at schools as an example of the "promotion of environmental conservation among citizens". Field visits were then conducted to a recycling facility operated through the cooperation of the city and an NPO, and a high school to observe their unique style of activities. The training participants were surprised by the large participation of city residents at most of the facilities and it was strongly impressed upon them that such awareness had been

Lecture at the Department of Environment and Forestry, Mie Prefectural Government

made possible through environmental education. Although there is a high level of awareness among Ulaanbaatar's government officials, most of its residents do not recognize how essential environmental conservation is. This is why observing how it is possible to satisfactorily carry out educational activities even at simple facilities left a lasting impression on the participants. Lastly, field visits were conducted at a waste treatment plant operated by a local government, large-scale coal electricity-generation plant, and a cement plant which uses waste as fuel.

At Yokkaichi City Environmental Study Center

Future Activities

As a summarization of the training, on the final day of the course, each of the districts presented their plans on how they plan to carry out activities from here on. Major points raised were proposed plans for environmental improvement in their districts, conclusion of agreements for pollution prevention, recycling promotion, and making information open to the public and educational activities. In connection to these activities, a visit is planned to the Bayanzurkh district at the end of January 2007, together with a lecturer who will be providing advice. A seminar will be held in March, and the project will then enter its second year. At the closing ceremony of the course, Mr. Adyasuren, who was the former minister of natural resources and one of the training participants, expressed his appreciation on behalf of the training participants.

Closing ceremony (October 17)

All of the training participants who came to Japan for this training course enthusiastically participated in the lectures and field trips, and their desire to implement what they learned for the environmental improvement of their districts was readily apparent. They often gathered after the lectures and took this opportunity to hold discussions and study together. Aside from the lectures, the participants were particularly impressed by the courtesy visit to the governor of Mie Prefecture and the field trip to

Official visit to Governor of Mie Prefecture (October 2)

Kyoto. They were shown to the reception room of the governor for their meeting with him and they found it to be a good experience even though in a braced atmosphere. Japan's ancient architecture was especially impressive about Kyoto. They experienced amazement as they viewed the scenery while moving from one place to another by how space is being fully utilized in Japan. During the period of the training course, there were also several opportunities to pass near the ocean and visit a port and this added to the good memories of the training participants from Mongolia where there is no ocean.

This was the first time for ICETT to conduct training targeted to Mongolians but all the participants had a bright disposition and were strong drinkers, and enjoyed their stay in Japan despite the rigorous schedule. Furthermore, two of the participants celebrated their birthdays during the training course. The first birthday took place during the field visit to Kyoto so everyone celebrated the occasion in their hotel room with food and beverages they brought. The second happened to be the same day of the farewell party so the training participants were able to celebrate this birthday with a cake at the party. This was most certainly a birthday both celebrants will surely always remember.

Before closing, ICETT would like to express its sincere appreciation to all relevant persons who accepted the participants for field trips and provided lectures in connection with the training. Thank you very much.

Field visit to Yokkaichi Port on a rainy day

Training on Capacity Building for the Personnel intended for Tianjin City, China in 2006 (Water quality control of domestic wastewater and water pollution control technology) (commissioned by Yokkaichi City Government)

■ Six training participants came from Tianjin City, China, a friendship city of Yokkaichi City.

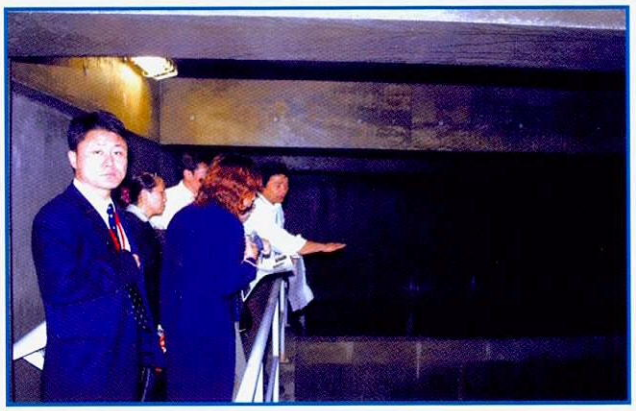
Yokkaichi City has had a friendship city relationship with Tianjin City since 1980. As part of exchange activities between the residents of these two cities, commissioned by Yokkaichi City Government, ICETT began the above project in 1993 to accept training participants for the environmental conservation of Tianjin City. This training course has the objective of giving officials and engineers of Tianjin City's Environmental Protection Bureau the opportunity to learn about Japan's advanced technologies and knowledge in the field of environmental conservation.

During fiscal 2006, a total of six training participants – three from Tianjin City's Environmental Protection Bureau, one each from the Tianjin Academy of Environmental Sciences and Environment Monitoring Center, and one from the Environmental Protection Bureau of the city's Nankai district – came to Japan for training. Their work in Tianjin City primarily focuses on regulations, management, and environmental monitoring in connection with environmental conservation. This training was conducted for the purpose of allowing the participants to acquire knowledge and learn about available technologies applicable for resolving issues faced by Tianjin City. Topics included relevant regulations, policies, and technological development based on Japan's experience in dealing with industrial pollution.

Background of the Training

Major issues that require urgent attention by Tianjin City are alleviating the severe water shortage, improving the ratio of wastewater treatment in regions in the vicinity of urban areas, and seeking a solution that would bring an end to the eutrophication of the ocean water around Bohai Bay.

Tianjin City has a continental climate and experiences great fluctuations in temperature between summer and winter, with very little rainfall. The city suffers from critical water shortage, more than any other area of the country. In regards to urban infrastructure, wastewater treatment plants are being systematically constructed in the central part of the city, but there is a great need to improve the wastewater treatment environment in suburban areas. Furthermore, the cities situated along the coast of Bohai Bay are undergoing rapid economic development and industrialization and this has resulted in the eutrophication of the ocean water.



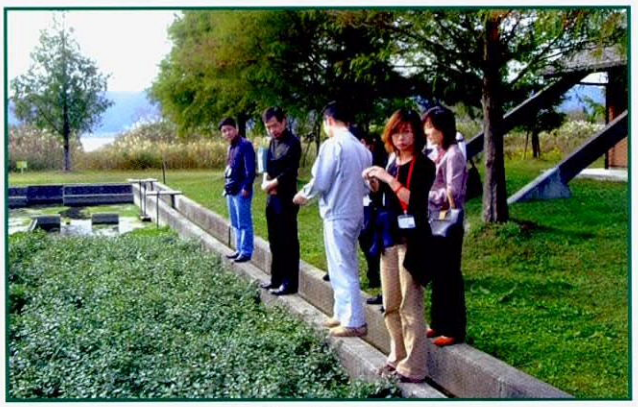
Storm water sedimentation tank located under Yokkaichi Dome

In consideration of the above, industrial wastewater has been included among the training topics since last year because the issue of water resources is one of foremost priority among the problems faced by Tianjin City. For this fiscal year, training was held on the theme of domestic wastewater.

Eighteen-day Training Course

1. Introduction

During the introduction, the training participants acquired basic knowledge on the environmental laws and related government organizational systems of Japan. They also learned about the various means through which information is disseminated to the public to educate them, in order to learn the fundamental principles of Japan's efforts in environmental conservation.



Biyo Center

2. Countermeasures related to Domestic Wastewater

The training participants next learned about domestic wastewater countermeasures through lectures and field visits on the topics of local government policies for domestic wastewater treatment and the development of treatment technologies by companies. Focus was placed on the case examples of Yokkaichi, the location of the training course, and Mie Prefecture. Considering the size of Tianjin City in its entirety, visits were also made to Shiga and Osaka Prefectures where the training participants had the opportunity to learn from their examples in managing water use in the metropolitan regions located near the Lake Biwa and Yodo River water systems.

While instructing the participants about the legal and technological aspects of the issue, it was also considered essential that they recognize the importance of the roles fulfilled by areas other than laws and technologies for environmental conservation, such as raising the awareness of local residents and environmental education. It was with this in mind that the training participants took part in the Global Environment Workshop for Kids, a place where elementary school 5th and 6th graders in Yokkaichi City learn about the environment.

3. Summarization

At the summarization held at the end of training, reports were presented on the training results. These reports examined possible ways to resolve issues to be dealt with by the training

participants upon return home to their countries based on the knowledge and technologies learned through the series of training. A discussion was also held in order to deepen their understanding of the issues.

In Tianjin City, as part of its measures for dealing with the water shortage, in addition to tap water for drinking and industrial use, it is reusing water treated at sewage treatment plants. Since this reused water is of a category, in terms of water quality and purpose of use, between tap water and sewage water, it is referred to as reused water. Efforts are being made to promote its widespread use in Tianjin City.

In order to introduce Japan's unique technology and case examples of their implementation, field visits were made to two facilities that are using reused water. At Yokkaichi Dome, rainwater is reused for flushing toilets and wastewater from the restaurant kitchen of Osaka City's Namba Parks is used for watering the plants of its rooftop garden.

Through the case examples, the participants learned about the possibility of using reused water originating from rainwater and kitchen wastewater. They also came to know that Japanese people are making the effort to follow a water-economizing lifestyle despite the country being richly blessed with water resources. The participants realized the difference between the situation of Japan and that of China where the country is in the very midst of economic development.

A field visit was made to the Biyo Center (Joint Water Purification Experimental Center for Lake Biwa and the Yodo River) located in Kusatsu City, Shiga Prefecture, in order to learn about the technological aspects of water purification. The training participants also learned about the purification mechanism from a lecturer from a company that manufactures combined domestic wastewater treatment facilities who provided an explanation using a cut-away model of the actual product.

Explanation using a cut-away model of the combined domestic wastewater treatment facility

Extracurricular Activities

The duration of the training was a short eighteen days, including the procedures for entering and departing Japan and time for moving from one place to another. It was also the first experience for all the training participants to travel abroad. Although the program was planned under the framework of training on environmental technology, the ICETT staff volunteered their services to conduct a tea ceremony of their very own so that the participants would be able to learn about Japanese culture during their stay in Japan and have a favorable impression of the country, as well as go home with good memories. The tea ceremony was a very simple one held outside of the scheduled program, but the training participants were able to have a glimpse of Japanese culture and it left a deep impression on them as a good memory of their training.

At the Conclusion of Training

It was the first time for the participants of this training course to travel out of China and the first foreigners they came into contact with were Japanese. The participants were impressed by the extent to which the ICETT staff, lecturers, and persons-in-charge at the facilities and companies visited during the field trips were extremely industrious and well mannered as well as considerate.

The training participants had a special interest in three themes, including the case example regarding reused water, the efforts towards water quality improvement of Lake Biwa and Ise Bay, and the small-scale wastewater treatment technology of the combined domestic wastewater treatment facility. These themes were covered throughout the series of training courses. In particular, the combined domestic wastewater treatment facility and community sewerage treatment facility are relatively easy to install and operate. A participant expressed the opinion that the installation of such small-scale treatment facilities would be highly significant in improving the water environment of agricultural villages located in Tianjin City's suburbs. Furthermore, after participating in the Global Environmental Workshop for Kids, in recognition of the vital importance of disseminating information and educating people for awareness-raising, in addition to introducing technologies for environmental conservation, a number of the training participants integrated environmental education in their Environmental Action Plans to be implemented upon their return home. They realized the necessity for both technology and informational activities. return home. They realized the necessity for both technology and informational activities.

Water being sprinkled at the rooftop garden of Namba Parks
(Water drips out of holes in the hose as watering begins drop by drop when the rain detector fails to detect rainfall for an extended period of time.)

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