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International Environmental Cooperation by Local Municipalities: Environmental Cooperation Program for Asia : ECPA Project commissioned by the Mie Prefectural Government

1. Introduction

The International Center for Environmental Technology Transfer (ICETT), which was commissioned by the Mie prefectural government, has implemented and been preceeding with the Environmental Cooperation Program for Asia: ECPA since 1997. Unlike other special projects that the national government has headed so far, a feature of this 3-year total project is that a local municipality becomes the center of the project and the Mie prefectural government, the ICETT, and a subject municipality strive to conserve the environment by taking initiative independently.

2. Project Concept

The ECPA was implemented based on three concepts: 1. international cooperation between local municipalities, 2. sustainable development, and 3. comprehensive environmental conservation. (Refer to Diagram 1.)

(Diagram 1. ECPA Project Concept)

3. Comprehensive Environmental Conservation

The comprehensive environmental conservation that the Mie prefectural government and the ICETT propose for a new concept of environmental cooperation, includes the following activities: providing multilateral assistance, encouraging all the interested parties (public administration, residents, business, etc.) to make a commitment to environmental conservation, and making an effort to reduce and treat environmental pollutants. In other words, it is a package of various commitments; the Mie prefectural government and ICETT's assistance is provided by combining multiple measures such as a combination of research, training, and other items and as far as activities of local municipalities in developing countries are concerned, public administration, residents, business, and a variety of groups work together and strive to reduce and treat environmental pollutants.

4. ECPA-IMUS (the ECPA project in Imus City, Cavite Province, the Republic of the Philippines)

The Mie prefectural government and the ICETT chose Imus City, Cavite Province, the Republic of the Philippines in 1997 as a city where the ECPA would be executed. Imus City, located 18 km south of the capital city, Manila, with a population of about 220,000 (as of 1998) is regarded as one of the important development centers within the CALABARZON Region by the central government. Due to its close proximity to Manila, its population is increasing by 8.7 per cent per annum. Imus City has been rapidly urbanized and industrialized. Serious environmental problems are highly likely to occur in the City in the future.

In 1998, the Mie prefectural government and the ICETT provided multilateral assistance, a combination of research, overseas seminars, acceptance of trainees from overseas and provisions for training, and a dispatch of experts. During the same time Imus City established a system to promote environmental conservation activities on the premise that all the interested parties would participate in the activities, and also formulated an environmental plan. In addition, Imus City has been in the process of formulating an environmental ordinance of its own. If this on-going environmental ordinance and the environmental plan formulated under the project are both approved by the Province and City Councils, Imus City will be the first municipality having both the ordinance and a plan relating to environmental conservation in the Philippines.

Imus City is progressing with the procedures for obtaining approval for the ordinance and the plan; at the same time, it is implementing trial programs that are part of these measures. Among these trial programs, Imus city has made a pledge which has unique characteristics and solutions and is worthy of note: It is a pilot project where a general waste composting program is implemented and designated within the city, and after composting kitchen waste from each household, compost is used for home gardening and the like. This is just a small trial and the public administration and residents work together and make an effort to reduce environmental pollutants (kitchen waste) by themselves; therefore, it can be said that this is a concrete example

Meeting with a company in Imus City

5. Directions for future development of the project and focal points of assistance

As 1999 is the final year, the ECPA-IMUS project will expand in the following three directions in the future: within Imus City, into neighboring municipalities in the future, and into neighboring countries.

1) Activities within Imus City

Imus City will shift its focal activities within the city to the implementation and promotion of the environmental plan that was formulated in 1998. The Mie prefectural government and the ICETT will assist Imus City, attaching importance to the following types of assistance, based upon outcome principles.

[Assistance to public administration and residents, etc. (general waste management)]

- Assistance for the establishment and operation of general waste management systems (separation → collection → treatment)
- Composting project (household waste) in the Pilot Barangay (the smallest unit of administration)
- Projects (composting, business waste) on the establishment and operation of the IBC (Imus Business Club) Recycling Center
- Rivers clean-up project (campaign)

[Assistance to businesses, etc. (measures to treat industrial wastewater)]

- Guidance concerning basic knowledge of wastewater treatment, etc.
- Investigation into the cause of oil spills, etc. as well as a study of preventive measures.

2) Expand project to include neighboring municipalities of Imus City

In order to share the ECPA-IMUS Project knowledge and experience and to assist in the environmental conservation activities of neighboring municipalities, Imus City will hold a seminar as well as distribute printed matter. In response to this, the Mie prefectural government and the ICETT will implement a cooperation program which pertains not only to the planning and operation of seminars, including the dispatch of lecturers, but also to the production of printed matter, including provisions for materials.

3) Expand project to include neighboring countries of the Philippines

In order to utilize the ECPA-IMUS's knowledge based experience, as well as to assist local municipalities in neighboring countries, the Mie prefectural government and the ICETT will launch an ECPA project in Thailand in 1999. Through this newly established network, South-South cooperation on environmental conservation is expected to be realized between Imus City and municipalities in Thailand.

6. Conclusion

By working in cooperation with related organizations (domestic and overseas), the ICETT is scheduled to continue to assist environmental conservation activity in Imus City and its neighboring municipalities; and also, in the Asian Region. The ICETT would like to make an effort to provide information to a wider audience in the hope that this project will become useful for the study of environmental cooperation in the future.

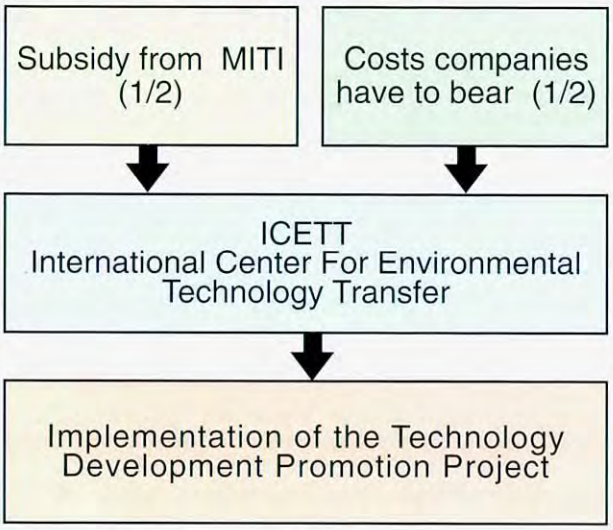
The Mie Prefectural Government has also been assisting local governments in developing countries through training courses focusing on environmental management; pollution control measures, environmental-friendly management, environmental education, etc.

In the ***Asian Environmental Leaders Training Program,*** the ICETT hosted a group of the following 9 local governments in conjunction with one national coordinating group from each country. The duration of the training course was 1 month each from 1996 to 1998, and a seminar in Puerto Princesa City, Philippines is projected in this fiscal year.

Country	INDIA	INDONESIA	PHILIPPINES	THAILAND
Name of National Coordinating Organization	All India Institute of Local Self-Government **(AIILSG)**	International Union of Local Authority-Asian & Pacific Region **(IULA-ASPAC)**	Local Government Development Foundation, Inc. **(LOGODEF)**	Thailand Environmental Institute **(TEI)**
Participating Local Government (1)	Municipal Corporation of Greater **Mumbai**	Regional Development Planning Board of **Sukoharjo**	**Batangas** City	**Laemchabang** Municipality
Participating Local Government (2)	**Vadodara** Municipal Corporation	Regional Development Planning Board of **Wonosobo**	**Mandaue** City	
Participating Local Government (3)		**Balikpapan** City Hall	**Puerto Princesa** City	

The Global-Environmental-Conservation-Related Industrial Technology Development Promotion Project

The ICETT receives a subsidy from the Ministry of International Trade and Industry (MITI); and, the ICETT and domestic companies each bear half of the expenses of projects, undertaking technology development that is useful for global environmental conservation in collaboration with domestic companies. Such technology development is useful for finding solutions to global environmental problems such as global warming, ozone depletion, etc. In order to promote the development of industrial technology that is transferable to developing countries in the mid and long run, the ICETT implements projects utilizing a system that was founded by the MITI in 1990.



Subject technologies are as follows:

1) Technologies that are useful in combating environmental pollution caused by industrial activity:
Industrial activity is accompanied by the release of substances into the environmental media, and some of these substances have a great impact on the environment (e.g. effects on living creatures, air quality, water quality, etc.); technologies relating to treatment, collection, and recycling of these substances, or to manufacturing of substitutes for these substances.
2) Technologies that provide useful solutions to the global warming problem:
Technologies that control the generation of greenhouse gases such as carbon dioxide, methane, etc., as well as other technologies that provide useful solutions to global warming
3) Supporting technologies that assist in the development of technologies relating to 1) and 2)

We are scheduled to develop technologies on the following 12 themes this year. (1-1)~ 6), 2-1)~6))

1. Measures against environmental pollution caused by industrial (especially oil-related) activity

In order to make an effort to conserve the global environment, we will develop technologies for controlling and removing substances that have an impact on the global environment, especially those that are generated, and are accompanied by the consumption of oils, etc.

1) Technology development that helps with the solving of odor problems at synthetic rubber manufacturing plants, as well as for the reduction in the amount of hydrocarbon released into the atmosphere
2) Technology development for making persistent organochlorine substances contained in oil, harmless
3) Development of advanced technology for recycling synthetic rubber
4) Research on the degradation behavior of polymers in order to promote PET recycling, as well as to increase the actual tonnage of PET recycled
5) Development of wastewater treatment technology through high-density growth of nitrifying bacteria
6) Development of a system for treating residues resulting from the settlement and accumulation of liquid waste containing oils, at the bottom of sea

2. Measures contributing to a stable and proper balance between energy demand and supply

We will carry out the following technology development projects focusing on countermeasures against global warming caused by carbon dioxide, etc.

1) Development of technology for controlling carbon dioxide with LPG specification reforming catalysts
2) Research on carbon dioxide fixing through the expansion of plant communities (large algae)
3) Research on fixed type fuel cells that use a liquid fuel
4) Development of technology using innovative and environmentally sound, modular design paint methods
5) Technological development for efficient energy use during the melting process for more effective use of ash from waste incinerators
6) Development of supporting technology for methane/carbon dioxide control at the time of sludge reduction

Picture taken at the Research Reporting Meeting (July 6,1999) for the 1998 Global Environmental Conservation Related Industrial Technology Development Promotion Project

Follow-up project for the Eco-phoenix Plan Project in India: Support improving the capability of small and medium scale chemical enterprises to control pollution - Improved management of wastewater treatment facility operations and an introduction of cleaner technology -

As a part of the Green Aid Plan (GAP) project, the ICETT conducted a comprehensive environmental survey in the Baroda district of Gujarat state in India from 1996 through 1997. Gujarat, as well as Maharashutra, are the center of the Indian chemical industry. In particular, the dye and dye intermediate industries are concentrated in Gujarat where dye factory effluent has caused serious water pollution problems. Therefore, the environmental survey focused on river pollution.

Results of the research clearly indicated that effluent from a dye company consistently contained a large volume of chemical substance. Therefore, in order to solve wastewater and water pollution problems, not only the construction of a wastewater treatment facility, but also decreasing the load of effluent by improving various processes was determined to be necessary.

This time we conducted a follow-up project with the aim of solving effluent problems by improving the operation and management of waste water treatment facilities and decreasing the load of effluent through the introduction of cleaner production technology. Through the JODC (Japan Overseas Development Corporation) Expert Service Abroad (JESA) program, experts on wastewater treatment systems and cleaner production in chemical industries were sent to a common wastewater treatment facility and small and medium scale chemical enterprises at the Vatva and Nandesari Industrial Estates to give technical guidance. A four-day seminar was organized at the end of their stay to disseminate technical information.

Outline of the project is as follows:

Experts : Experts on wastewater treatment systems
Experts on cleaner production

Places : Common effluent treatment plant in the Vatva industrial estate
2 dye manufacturing companies
Common effluent treatment plant in the Nandesari industrial estate
1 dye manufacturing company
1 Pharmaceutical company

Seminar (4 days)

1st day : • Briefing of MITI support project for pollution control and introduction to the ICETT
Ms. Kani (ICETT staff)
• Wastewater treatment system (Case in India)
Prof. Bharadwaj

2nd day : Cleaner production in the chemical industry
Mr. Ikeda (expert lecturer)

3rd day : Wastewater treatment system
Mr. Tanaka (expert lecturer)

4th day : Additional topics by Japanese experts
• Pinch technology
Mr. Ikeda (expert lecturer)
Wastewater treatment system not producing excess sludge Mr. Tanaka (expert lecturer)
Introduction to the common wastewater treatment facility in Ankleshwar industrial complex
Mr. K.K. Sundaram

At the seminar we intended to give a brief outline and offer proposals for improvement based on findings during our visit. Lectures given by Japanese experts are summarized below.

1. Cleaner Production for the Small Scale Chemical Industry - How to Decrease the Load of Effluent -
   1) Introduction to Cleaner Production
   2) Case Study of Cleaner Production
   3) Procedure to Develop Cleaner Production Technology
   4) Cleaner Production Technology for Vinyl Sulphone Ester - Improvement Plans for the VSE Production Process -
2. Waste Water Treatment System
   1) System Design
   2) Optimization for the Operation and Management
   3) Case Study: Improvement Proposal

JFY 1999 Specially Offered Training Course
Technology for Industrial Exhaust Gas Treatment and Energy Saving
Project commissioned by the Japan International Cooperation Agency (JICA)

May 30 - July 3, 1999, ICETT, Yokkaichi City, Japan

The ICETT offered a training course on Technology for Industrial Exhaust Gas Treatment and Energy Saving from May 30 through July 3, 1999.

As a part of the training, 8 participants of the said training course visited a wind power generation plant facility located in Aoyama Heights of Hisai City, Mie Prefecture in order to find out the actual situation of the new energy case at site. This training course was intended to give participants the opportunity to learn about the promotion of air environmental conservation and energy saving in industrial and/or public welfare sectors for about 1 month. Participants in this training course showed very high interest in clean energy during the period.

How training is offered

On one day Mayor Kazumi Fujioka himself briefed us on the history leading up to the construction of the wind power generation plant, outlined features of the plant, and also explained recent conditions and public evaluation after the plant started its operations.

This plant is comprised of 4 units of 750 kWh each and just started operations in June 1999. The Mayor said there were no other sites in Asia which provided this level of generation capacity in one place.

On that day we had strong wind and rain, and could not see anything but just the edge of a 25m long blade. Conversely, however, this showed us how large this plant facility really was.

The power generation plant had been imported mainly from Dutch manufacturers. Even Japan, a nation which boasts of its high technology, was confronted with unexpected troubles and failures when the plant was brought into operation under different climatic conditions, and thus this project presented us an excellent example showing the difficulty of actual operation. This project presented a real example which showed participants how difficult technological transfer is from an actual operational point of view. Furthermore, we asked about the public reaction after the plant started operations there and they said that not only were there merits to selling electricity, but also many other effects were produced (i.e. slowly rotating blades matched well with the scenery which became a new symbol of relaxation for the local public as well as visitors and the city became famous nationwide.) This was helping contribute to the revival of the locality. Such information provided valuable motivation to participants for introducing the wind power plant.

Wind power generation plant in Hisai City

Sakakibara Wind Power Generation Plant in Hisai City

Features

1. The largest scale of wind power generation in Japan
2. 4 units of windmills which generate 750 kWh each (total 3,000 kWh), are supplying clean energy to utility companies.
3. Design well matched with scenery
   The biggest size in Japan : tower 50 m high, rotor (rotating part) 50.5 m in diameter and total height of 75 m from ground level up to top. Simple and streamlined design goes well with scenery.
4. Less noisy, gearless type
   Rotor is connected with generator with no gear so as to suppress noise.

1999 - Coordination Begins for Overseas Training in China

From June 27 through July 6, the ICETT sent a mission to Beijing to begin coordination for overseas training that will take place in 1999 in China. In Beijing, the mission had a meeting with the Site Executive Committee about operational systems and other matters related to the training and also visited several institutes such as environmental research centers in order to grasp environmental conditions. This overseas training will be provided as a part of the Green Aid Plan (GAP) which is being promoted by the Ministry of International Trade and Industry of the Japanese government. Up until now the ICETT has provided overseas training in various places in China.

As a result of this coordination, the coming overseas training will be carried out as follows:

1) Period : 5 days from Jan. 17 through 21, 2000
2) Participants : 50 persons including environmental executive officials
3) Theme : Air pollution control technology

Beijing has been suffering from serious air pollution due to automobile exhaust gas recently, and thus the training will focus on automobile exhaust gas. It was also decided that the Planning Commission of the Municipality of Beijing would play a role of main operator as an Executive Committee. Staff of the GAP project of the State Development Planning Commission will also be involved.

Meeting with our mission in Beijing

Overseas training provided in China

Period	Place	Theme
Aug. 5 - 10, 1991	Shanghai	Air pollution control technology
Aug. 12 -17, 1991	Benxi	Air pollution control technology
Oct. 28 - Nov. 2, 1991	Tianjin	Air pollution control technology
Aug. 31 - Sep. 5, 1992	Guiyang	Air pollution control technology
Mar. 1 - 6, 1993	Tianjin	Water pollution control technology
Oct. 4 - 9, 1993	Guiyang	Water pollution control technology
Mar. 7 - 12, 1994	Nanjing	Water pollution control technology
Oct. 17 - 22, 1994	Shenyang	Environmental conservation technology
Oct. 31 - Nov. 5, 1994	Qingdao	Environmental conservation technology
Oct. 9 - 13, 1995	Chongqing	Air pollution control technology
Oct. 14 - 18, 1996	Changchun	Air pollution control technology
Sep. 22 - 26, 1997	Xi'an	Air pollution control technology
Jan. 11 - 15, 1999	Qingdao	Air pollution control technology

Cover design : "Risk clock" points to 9 : 05 hrs implying an "extremely uneasy" time

The "Questionnaire on Global Environmental Issues and Human Survival" has been issued once per year for researchers, governmental officials and NGO staffs who are involved in environmental issues since 1992. Among these, the 7th questionnaire collected in 1998 revealed that the average risk time for all answers has reached 9 : 05 hrs. The hand on the "risk clock" has moved upwards every year from 7 : 49 hrs in 1992 and reached the time zone of "very uneasy" in 1996. The "Risk clock" has pointed to "very uneasy" for 3 consecutive years since then.

Risk clock

Exchange between overseas participants and Japanese families of the ICETT Summer Environmental School

10 participants in the "Environmental and Safety Technology in Petrochemical Industries" course had profound exchange with students in ICETT's Summer Environmental School.

This training was carried out at JICA's request. Participants stayed at ICETT for about 1 month from July to August and received training in environmental management, energy saving and recycling in the petrochemical industry.

On August 4, just before training came to end, participants had conversations with 39 parents and children of 16 families over lunch and enjoyed a game and quiz with the children after lunch. Participating parents and children seemed delighted at the opportunity to have a good time with overseas participants whom they seldom have the chance to meet, and especially the children were able to create joyful memories of their summer vacation.

The Summer Environmental School has been provided since 1996 and is intended to increase awareness of the importance of tackling environmental issues ranging from regional to global in scale, for the 5th and 6th graders who are required to learn about environmental issues in public schools. In this program they visited PET bottle recycling plants and thermal power plants where they learned about the importance of actions to recycle and corporate environmental measures.

ICETT Training Programs for October 1999 to March 2000

Program name (Related organization)	Country	Period
Country-focused Group Training Course in Industrial Pollution Control Technology for the People's Republic of China (JICA)	China	October - November
Country-focused Group Training Course in Industrial Pollution Control for the Arab Republic of Egypt (JICA)	Egypt	October - November
Specially Offered Training Course in Technology for G.H.G.'s Emission Mitigation (JICA)		January - March
Country-focused Group Training Course in Industrial Air Pollution Control Technology (JICA)	East Europe	January - March
Environmental Conservation Support Training (Mie Prefecture)	Henan, China	October
Wastes Treatment / Recycle Technology Training (Yokkaichi City)	Tianjin, China	November - December
Training course on Energy Saving and Environmental Conservation (NEDO)	South East Asia	November - December
Training Course on Thermal Efficiency Improvement System at a Thermal Power Plant	Indonesia	December
Training Course on Environmental Management (overseas training)	Metro Manila, Philippines	November
Training Course on Air Pollution Control Technology (overseas training)	Beijing, China	January
Training Course on Environmental Management (overseas training)	Puerto Princesa, Philippines	January

The above-mentioned programs may be subject to change.

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