

## Chapter 11. Synthesis on Industrial Waste Information Exchange Program

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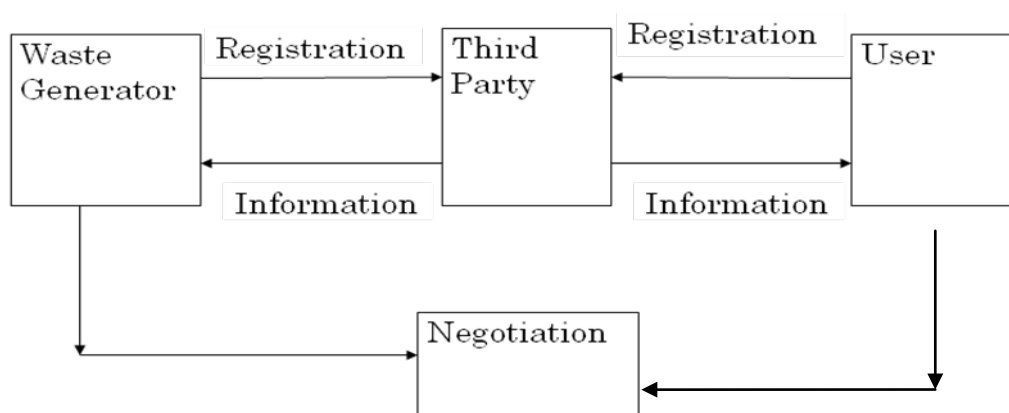
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### Introduction

Industrial Waste Information Exchange Program (IWIEP) links suppliers and users of industrial waste to enhance utilization of this waste. Through this program, both the waste treatment cost of waste generator and the input cost of waste users are reduced. In addition, such efficient utilization of resources has an environmental benefit of reduction of waste and of exploitation of natural resources.

Among Asian regions, Japan, Philippines and Thailand have conducted IWIEPs. The basic structure of the program in these three countries is common. A third party collects the information on what kinds of wastes are generated by waste generators and which wastes can be utilized by users, these information will then be provided to waste generators and users to facilitate matching between them (see Figure 1.).

**Figure 1. Basic Structure of Industrial Waste Information Exchange Program**



**Table 1. Summary of Industrial Waste Information Exchange Programs**

Name of Program	Waste Exchange Program	Waste Exchange Program	Recycle One E-market Place	Industrial Waste Exchange Program	Material Exchange Center	Waste Utilization Data Center	Eco-town Program
Country/Region	Japan	Japan	Japan	Philippines	Thailand	Thailand	Thailand
Organization	Oita Prefecture Government, Oita Environmental Preservation Council	Six Chambers of Commerce located in Eastern part of Osaka Prefecture	Recycle One Inc.	Philippine Business for the Environment; Davao City Chamber of Commerce and Industry (southern Philippines); Eco-Index Program	Thailand Environment Institute	Department of Industrial Works	Department of Primary Industries and Mines
Year started and current condition	1976 - ongoing	1982 - ongoing. Consulting service is more emphasized.	2001-present	1994 – present ongoing (PBE IWEP); 2001 – present (DCCCI and Eco – Index)	2000 –present Ongoing	2001- Stop operation	2007 –present Ongoing
Target Area	Oita Prefecture, Information exchange with neighboring prefectures	Member companies of the six Chambers of Commerce	Japan	All companies; also open to non-industry sectors such as NGOs, local governments and individuals who want to buy, sell or trade recyclables	Thailand, Classified waste into 38 categories	Thailand	Thailand Classified waste into 17 categories

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Registration, and Information Dissemination System	Paper based; Questionnaire; Some information is put on the web.	Paper based	Internet based; Standard for waste users is applied.	Paper based and through optional waste ad listings in PBE quarterly magazine	Internet based and quarterly journal.	Internet based	Internet based
Budget	Prefecture government	Chambers of Commerce	Registration fee was collected until around 2004. Organizers bear the cost.	PBE and IWEP ads in quarterly magazine; DCCCII and Eco - Index	Energy Policy and Planning Office (EPPO), Ministry of Energy (support for first 3 years of the project)	Japan International Cooperation Agency (JICA) and Department of Industrial Works (DIW)	Department of Primary Industries and Mines

Tanaka and Takatsuki (1983) stated that IWIEP was developed in European countries such as United Kingdom and Germany in 1970s. Several state governments in United States, such as California, Minnesota, New Hampshire, Ohio and Tennessee have supported this program.

Each IWIEP in Philippines, Thailand and Japan is reviewed in the previous chapters. This chapter summarizes the programs in the region and discusses the common characteristics of the programs.

## **I. Summary of IWIEP in the Region**

Several IWIEPs have been conducted in Asia. The oldest program in Asia is probably the Waste Exchange Program in Oita Prefecture in Japan which was initiated in 1976. Some local governments and Chambers of Commerce in Japan started similar programs around 1980.

In the Philippines, the Industrial Waste Exchange Program (IWEP) was initiated by the Department of Environment and Natural Resources (DENR). It was started in 1989, but was discontinued in 1992, partly because of limited participation by the industry. IWEP was revived by the Philippine Business for the Environment (PBE), a non-profit organization in 1994. Other place-based waste exchange program in the Philippines are implemented by the by the Davao City Chamber of Commerce (in Mindanao, southern Philippines), and the Eco-Index Program of a group of Industrial estates in Cavite and Laguna (north of Metro Manila).

In Thailand, three industrial information exchange programs have been conducted. The first one is the Waste Information Program by Thailand Environment Institute, which was active around 2005, but is not active right now. The second one is the web-based information exchange project developed by the Department of Industrial Works (DIW) with support from the Japan International Cooperation Agency (JICA). Since the website was not becoming popular, the project is going to be terminated. The third one is the web-based information exchange program, which is a part of the “Eco-Town” Resource Circulating Society Project. The project was started in 2007 by Department of Primary Industries and Mining.

## **II. Common Characteristics**

There are some common characteristics in the IWIEPs in Japan, Philippines and

Thailand. The number of registration of waste information by waste generators and users may not be provided, if they do not know the program. Information dissemination about the program is a key to start such program. In several years, the number of transaction through the program has increased, as the number of participating waste generators and users increased. If the coverage area is extended, the chances of matching also increased.

Questionnaire survey to waste generator and waste users is an option to collect the volume and types of waste generated and the potential capacity of users. Such questionnaire surveys were conducted by Oita prefecture and other local governments in Japan.

But after easy cases are diminished, the number of transaction may also decrease. The difficult wastes, which need specific pre-treatment or technological development, are remained. Without technical supports or consulting service from experts, it may be difficult to match waste users and waste generator.

Based on our studies, most of the programs are free of charge for waste generators and users. The government or the Chamber of Commerce provides the budget for the program. Even those matching services on the internet mostly operated by private companies are free of charge. An exception is the program by Recycle One Inc., which collects registration fee from waste generator and users.

The impact of IWIEP program is not captured well, because some trade is triggered by WIEP, but not counted as successful cases. For example, the transaction is not usually reported, if new transaction is agreed between the generator and the user, after the trade based on IWIEP is made. There are also cases wherein companies in same industry got the information of successful transaction from IWIEP, but they made new transaction with waste users directly, and not through IWIEP.

### **III. Discussion on Third Party**

There are several types of third parties coordinating the programs: government, semi-governmental organization, non-profit organization, Chamber of Commerce, private companies and combination of them (Table 2).

From the view point of waste generators, third party should keep some information confidential. For example, some manufacturers want to keep their usage of

materials confidential. There are possibilities that someone can guess the usage of some materials in the production from waste characteristics. Thus, third party should be a reliable one. Companies in some countries consider the government or semi-government to be more reliable than private, while others consider the private companies to be more reliable. Appropriate settings of the third party depend on the relationship between government and private companies.

**Table 2. Types of Third Party**

	Description	Example
Government	Government conducts the program by themselves.	Thailand: DIW Philippine: DENR until 1992
Non-Profit Organization including Chamber of Commerce	Government asks semi-governmental organization or NPO to conduct the program and provides fund.	Japan: most of local government program, including Oita and Kanagawa Taiwan : MOEA and Green productivity Foundation Thailand: TEI
	Some Chamber of Commerce or NPO implements WIEP by themselves.	Japan: Chamber of Commerce in Northern part of Osaka Prefecture Philippines: PBE, DCCII, Eco-Index
Private Companies	Web-based matching business by private companies.	Funai Consulting Co. “Sanpai-Web”, Recycle One Inc., “Recycle One e-market place”, Material-Link “Risaikuri.net”, e-dreamer “recycle-o”.

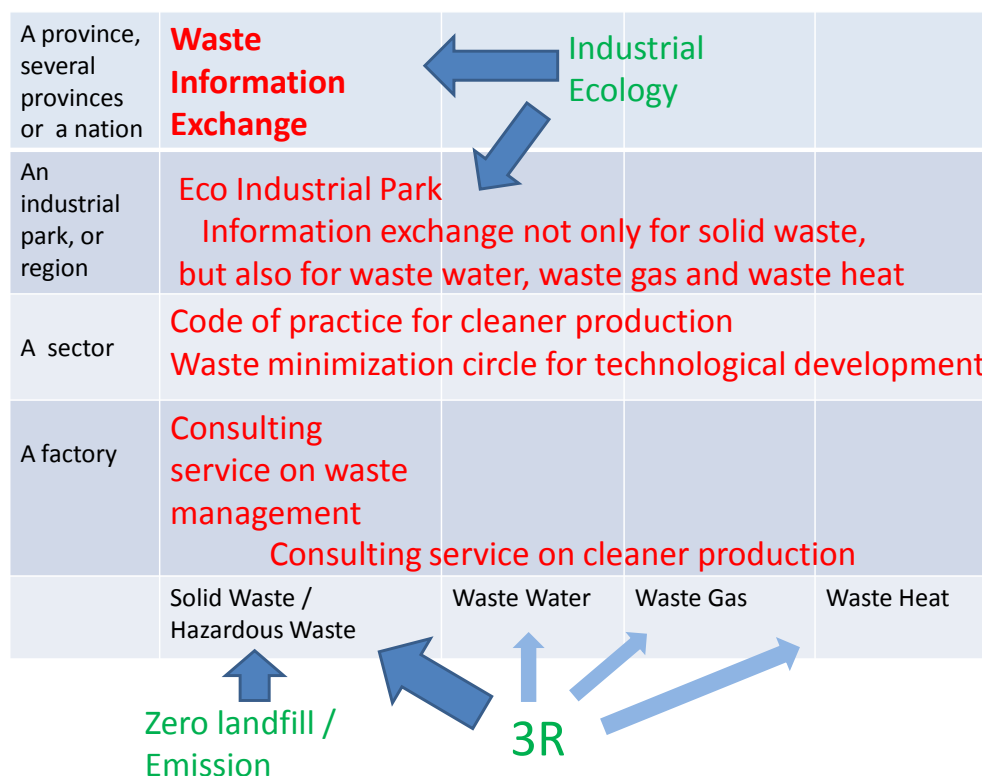
The program runs by private companies may not be sustainable, because it is difficult to get enough income from coordination of such programs. Income may be generated not only from information exchange, but also from consulting services or advertisement on the website.

#### **IV. Other Activities Related to Industrial Waste Information Exchange Program**

There are many types of programs and concepts promoting waste reduction and recycling industry, other than IWIEP. The IWIEP is targeting various industries in a

specific region. The target area is usually wider than the program for eco-industrial park, thus it is very difficult for WIEP to deal with waste water, waste gas and waste heat.

**Figure 2. Relationship of Waste Information Exchange and Other Concepts**



WIEP can be coordinated with other programs such as cleaner production and eco-industrial park. IWIEP may find the way on how to utilize the wastes, which cannot be reduced or utilized through cleaner production program or eco-industrial park program.

Although IWIEP focuses on industrial waste generator, it is possible to design the program to link household and waste recycler. In developing countries, waste dealers including waste picker and consolidator are actively working. Other options include conduct of collection event such as those organized by PBE with its different partners for Earth Day and Environment month celebrations, and the weekly or monthly mall-based recyclable fair/ waste markets organized by the Ayala Malls and the SM Supermalls, as mentioned in Chapter 8.

## Reference

Tanaka Masaru and Takatsuki Hiroshi, 1983. *Gendai no Gomi Mondai:Gijutsu hen*

(Current Waste Problem: Technology) (in Japanese). Chuou Houki, Tokyo.