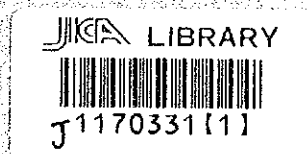


**THE STUDY  
ON  
MASTER PLAN  
ON  
INDUSTRIAL WASTE MANAGEMENT  
IN  
THE BANGKOK METROPOLITAN AREA  
AND  
ITS VICINITY  
IN  
THE KINGDOM OF THAILAND**

**FINAL REPORT  
ANNEX**



**NOVEMBER 2002**

**KOKUSAI KOGYO CO., LTD.  
EX CORPORATION**

MPI
JR
02-165

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
DEPARTMENT OF INDUSTRIAL WORKS  
MINISTRY OF INDUSTRY  
THE KINGDOM OF THAILAND

**THE STUDY  
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1170331【1】

The Study on Master Plan on Industrial Waste Management  
In the Bangkok Metropolitan Area and its Vicinity  
In the Kingdom of Thailand

List of Volumes

Volume I	Executive Summary
Volume II	Main Report
Volume III	Annex
Volume IV	Report of the Study on the Use of Waste Blenders in Japan with Particular Attention to Regulations

*This is the Annex.*

Exchange Rate Used in the Report  
US\$ 1.0 = 43 Bahts, 1 Yen = 0.3 Bahts

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### Code for Industrial Sectors

Study Code	MOI Code	Description of Industries
G01	001 – 002, 004 – 009	Food (agricultural product, non-aquatic animals, aquatic animals etc.)
G02	010 – 015	Food (flour, sugar, tea, ice etc.)
G03	016 – 021	Drink, Beverage
G04	022	Textile, Thread, Fibre
G05	023 – 027	Textile product (Clothes, mats etc.)
G06	028	Wearing Apparel
G07	029 – 033	Hide, Fur, Footwear
G08	034	Woodwork (any or many items)
G09	035 – 036	Woodwork (bamboo, rattan, straw, cork etc.)
G10	037	Furniture
G11	038 – 040	Paper, Cardboard
G12	041	Printed matter
G13	042 – 050	Chemical matter, Petroleum
G14	051 – 052	Rubber
G15	053	Plastic product
G16	054 – 058	Glassware, Ceramics, Non-Metallic Matter
G17	059 – 060	Steel basic industries, Non-ferrous metal basic industries
G18	061 – 062	Metal product (tools, appliances, household furniture, building interior etc.)
G19	063	Metal product (construction, installation)
G20	064	Metal product (others)
G21	065 – 066	Machines (Engines, Turbines, Machinery)
G22	067	Machines (for producing metal or wood products)
G23	068	Machines (for paper, chemical, food, textile etc.)
G24	069 – 070	Machines (calculating machines, Accounting machines, Water pumps, air or gas compressors etc.)
G25	071 – 073	Electric product (Machines or Product under No.70, Radio set, Electric instruments or appliances etc.)
G26	074	Electric product (Electric Equipment)
G27	075 – 077	Transportation machines (Ship, Trains, Streetcars, Cars or Trailers)
G28	078 – 080	Transportation machines (Motorcycles, Tricycles, Bicycles, Aircraft, Wheeled vehicles etc.)
G29	081 – 084	Precision machinery
G30	085 – 087	Others (Musical instruments, Sport, Toys etc.)
G31	088 – 094	Others (Electric power, Gas, Packaging, Cold storage etc.)
G32	095	Others (Engine-driven for vehicles or motorcycles etc.)
G33	003, 096 – 104	Others (Stone, Watches or Clocks, Central waste treatment plant, Generating steam, salt etc.)

Central waste treatment plant is MOI code 101.

MOI code 105 "waste sorting and landfilling" and code 106 "waste reuse/recycling" were newly added in December 2001.

### Non-Hazardous Industrial Waste

Type of Non-Hazardous Waste	Non-Hazardous Waste Code
Parts of plants such as roots, barks and leave	C01-01
Parts of animals such as bones, skins, hair and excreta	C01-02
Parts of wood	C02
Paper wastes	C03
Plastics or synthetic rubbers	C04
Cloth, thread and fabric	C05
Animal's fat and oil and vegetable oil	C06
Natural rubbers	C07
Metals and metal alloys (not in salt form)	C08
Ceramics	C09-01
Glasses	C09-02
Stone, cement, sand or materials consisting of clay, sand or stone e.g. tile, brick gypsum and concrete	C10
Mixed waste	C11
Others	C12



### Hazardous Industrial Waste

HW Code for the Study	Description	Detail Description
W01-01	Inorganic acid	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ), Hydrochloric acid (HCl), Nitric acid (HNO <sub>3</sub> ), Phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ), Other inorganic acids
W01-02	Organic acid	Acetic acid (CH <sub>3</sub> COOH), Formic acid (HCOOH), Other organic acids
W02	Alkalis	Caustic soda (NaOH), Ammonia (NH <sub>3</sub> ), Sodium carbonate (Na <sub>2</sub> CO <sub>3</sub> ), Other alkaline materials
W03-01	Heavy Metal	Salts
W03-02	Compounds	Toxic salts (Hg, As, Cd, Pb, Cr)
W03-03		Heavy metal other than the above
W04-01	Liquid Inorganic	Plating wastes, Cyanides
W04-02	Compounds	Liquid inorganic compounds other than the above
W05	Solid Inorganic Compounds	Asbestos, Slag, Silt
W06-01	Organic Compounds	Reactive chemical wastes (Oxidizing agents, Reducing agents, etc)
W06-02		Solvents
W06-03		Organic compounds other than the above
W07-01	Polymer Materials	Epoxy resin, Chelate resin, Polyurethan resin
W07-02		Latex rubber
W07-03		Polymer materials other than the above
W08-01	Fuel, Oil and Grease	Lubricating oil (Engine oil, Grease, etc)
W08-02		Chlorinated solvents (Trichloroethylene, Methyl chloride, etc)
W08-03		Oil waste other than the above
W09	Fine Chemicals and Biocides	Pesticide, Medicine
W10	Pickling Waste	---
W11-01	Filter Materials,	Inorganic sludge
W11-02	Treatment Sludge	Organic sludge
W12-01	Other Toxic substance	Non-HW mixed or contaminated with HW according to MOI Notification No. 6 (Year 1997) pursuant to the Factory Act.
W12-02	(besides	Waste from specific industrial processes
W12-03	W01-W11)	Chemical dust, Chemical container etc.

# Annex 3

---

*Annex to Chapter 3  
of the Main Report*

## Annex 3.1 Survey Sheet for Factory Survey

No. \_\_\_\_\_

### 1. General Information

1	Name of Company	(Thai)		
		(English)		
2	Type of Industry (See Table 2)	Type		
		Code	main:	sub:
3	Factory Registration No.			
4	Address			Tel.
				Fax.
				E-mail
5	Share Capital	Baht		
6	Number of Employees in the Factory	1. Total	persons	
		2. Hereof in administration	persons	
7	Total Horse Power as Permitted	H.P.		
8	Working period	1.	hours/day	
		2.	days/week	
		3.	month/year	
9	License Conditions	1. No. 2. Yes (attach copies)		
10	Production Flow Chart	(Attach catalog copies)		
11	Main Products	No.	Name of Main Products	Output (ton or m <sup>3</sup> /year)
		1.		
		2.		
		3.		
12	Major Raw Materials	No.	Name of Major Raw Material	Input (ton or m <sup>3</sup> /year)
		1.		
		2.		
		3.		

13	Water/Energy Demands	1.	Water Consumptions	m <sup>3</sup> /year
		2.	Power Consumptions	kWH/year
		3.	Fuel Consumptions	liter/year
		4.	Steam Consumptions	ton/year
		5.	Others (Please Specify))	(            )

## 2. Interviewee and Interviewer

2.1 Interviewee	1. Title of Position	
	2. Name	
	3. Phone Number	
	4. Facsimile Number	
	5. E-mail Address	
2.2 Interviewer	1. Title of Position	
	2. Name	
	3. Signature	
2.3 Date of Interview		

### 3. Industrial Waste (IW) Management

#### 3.1 Waste Generation

Q.1. Are Non-Hazardous Industrial Waste (Non-HIW) and Hazardous Industrial Waste (HIW) discharged separately from your factory?

- 1. Yes, 100 %. (Go to Q.3)
- 2. Yes, partly (Go to Q.3)
- 3. No (Go to Q.2)

Q.2. What is the reason why these waste are not separated? You can select all that correspond to your factory.

- 1. We don't know the difference between Non-HIW and HIW.
- 2. The volume of waste is too small to separate.
- 3. The production process makes it difficult to separate Non-HIW and HIW.
- 4. The collection service does not require to separate Non-HIW and HIW.
- 5. It is troublesome and waste of time to separate Non-HIW and HIW.
- 6. It seems unnecessary to separate Non-HIW and HIW.
- 7. It is difficult to separate Non-HIW and HIW.
- 8. Even though Non-HIW and HIW are separated, there are no ways to utilize them.

9. HIW is not generated in our factory.

10. Others (please specify : \_\_\_\_\_)

Q.3. Is Non-HIW generated at the production process separated from that generated at other sections such as office in your factory?

- 1. Yes, 100 % (Go to Q.5)
- 2. Yes, partly (Go to Q.5)
- 3. No. (Go to Q.4)

Q.4. What is the reason why your factory does not separate them?

- 1. The volume of wastes is too small to separate.
- 2. The production process makes it difficult to separate them.
- 3. The collection service does not require to separate them.
- 4. It is troublesome and waste of time to separate them.
- 5. It seems unnecessary to separate them.
- 6. It is difficult to separate them.
- 7. Even though Non-HIW and HIW are separated, there are no ways to utilize them.

8. Others (please specify : \_\_\_\_\_)

Q.5. How many tons of IW (Non-HIW/HIW) are generated in your factory per year?

Please enter the amount of generated wastes in the Answer Sheet .

#### 3.2 Storage

Q.6. Are IW stored inside your factory?

- 1. Yes.
- 2. No. (Go to Q.10)

Q.7. How do you store IW?

- 1. We mix them all together. (Go to Q.9)
- 2. We store them separately.
- 3. We store only waste that can be reused/recycled.

Q.8. Into how many categories are IW classified in your factory?

- 1. One category

2. Two categories

3. More than two

Q.9. What is the purpose of on-site storage of industrial waste?

1. Temporary storage before its collection by haulers.

2. Temporary storage for on-site reuse and recycling.

3. Temporary storage for on-site treatment and disposal.

4. Temporary storage due to no existence of proper treaters

5. Others (specify : \_\_\_\_\_)

### 3.3 Intermediate Treatment and Recycling

Q.10. Are IW treated on-site in your factory?

1. Yes (Please enter the amount and category of each IW that is treated on site and its internal treatment method in the appropriate places on the Answer Sheet.)

2. No, all the IW are treated off site.

Q.11. Are IW reused or recycled inside your factory?

1. Yes (Please specify how to reuse/recycle each IW on the Answer Sheet)

2. No, IW are not reused/recycled inside the factory.

Q.12. Are there any plans to reuse/recycle IW generated in your factory?

1. Yes

2. No (Go to Q.14)

Q.13. What types of IW do you plan to reuse/recycle in your factory?

(Please specify : \_\_\_\_\_)

### 3.4 Collection

Q.14. Who collects wastes generated in your factory?

1. Private company contracted by us.

2. Private company contracted by municipality

3. Municipality

4. Others (specify : \_\_\_\_\_)

5. No collection service

Q.15. How many times per week does collector come to your factory to pick them up?

1. Every day

2. 5 or 6 times a week

3. 3 or 4 times a week

4. Twice a week

5. Once a week

6. Irregular

7. Others (specify: \_\_\_\_\_) (once a month, ....times a year)

### 3.5 Off-site Treatment and Reuse/Recycling and Disposal

Q.16. Do you treat IW discharged from your factory?

1. Yes, by  Incineration  Landfilling  Others (specify: \_\_\_\_\_)

Q.17. Do you know how IW discharged from your factory are treated/disposed of?

1. I know.

(Go to Q.19)

2. I don't know.

Q.18. If you know, please enter method (treatment, reuse/recycling, disposal) and responsible person by classification of IW in the following table. And please enter those quantity in the Answer Sheet. If you do not understand the classification of IW, please enter them in the column of the mixed waste.

Categories of IW		Treatment		Reuse/Recycling		Disposal	
Code	Type	Methods	Person in charge	Methods	Person in charge	Methods	Person in charge
C11	Mixed Waste						

### 3.6 Future Management of IW

Q.19 How will the generation of IW develop in your factory?

1. It (the volume of IW) will not increase so much.

2. It will increase due to the expansion of production, change of raw materials, etc..

3. It will decrease due to improvement of manufacturing process, change of raw materials, etc..

4. Others (Please specify: \_\_\_\_\_)

Q.20 Are there any future plans to reduce and recycle IW in your factory?

1. No, basically we will apply the present management.

2. Yes, we intend to improve the present waste reduction and recycling system. (Please specify the intentions: \_\_\_\_\_)

3. Yes, we have a specific plan to improve waste reduction and recycling system in our factory.

(Please specify the plan: \_\_\_\_\_)

Q.21 Are there any future plans to improve treatment and final disposal system of IW in your factory?

1. No, basically we will apply the present management.

2. Yes, we intend to improve present treatment and disposal system of our company.

(Please specify the intentions: \_\_\_\_\_)

3. Yes, we have a specific plan to improve treatment and disposal system in our factory.

(Please specify the plan: \_\_\_\_\_)

Q.22 How will a possible future rise in disposal cost of IW affect your factory?

1. The present costs of waste disposal are not significant and an increase in disposal costs will have little impact on our business.

2. The present costs of waste disposal are significant and a substantial rise in disposal costs will affect the price of our products.

3. The present costs of waste disposal are very significant and a substantial

rise in disposal costs will threaten our business.

4. No matter how expensive the disposal cost is, an improved waste management is necessary to obtain environmental image of products.

5. Others (specify : \_\_\_\_\_)



## 4. Waste Exchange

Q.23 Is your factory interested in waste exchange program?

- 1. Yes, very much.
- 2. Yes, to some extent.
- 3. No.

Q.24 Is your factory now involved in any kinds of waste exchange program of either Non-HIW or HIW?

1. Yes (Please specify the exchange program and the amount of exchanged wastes in the Sheet.)

2. No.

Q.25 Are there any plans to introduce or expand the waste exchange program in the future?

1. Yes. (Please specify: \_\_\_\_\_)

2. No.

Q.26 Are there any IW that could be the target of waste exchange program in your factory?

1. Yes (Please enter the information on IW that could be the target of waste exchange program in the Answer Sheet.)

2. No, there are no IW that could be exchanged.

3. I don't know.

Q.27 What do you think necessary to put the waste exchange program into practice? (plural answer question)

1. The legal framework (legislation and regulations of waste exchange program) should be established.

2. A public organization should control the system.

3. Subsidy programs or technical assistance should be introduced.

4. Information on quantity and quality of waste should be opened.

5. The current waste collection system is needed to improved.

6. The current transportation system is needed to improved.

7. waste storage area is needed to secured.

8. I don't know.

9. Others (specify : \_\_\_\_\_)

## 5. Financial Matter

Q.28 How much is the rate of waste management cost in the production cost?  
 \_\_\_\_\_% (\_\_\_\_\_ Baht/year)

Q.29 How much do you spend for the Collection of IW to the collection company  
 per year?  
 \_\_\_\_\_ Baht/year, \_\_\_\_\_ Baht/ton or m<sup>3</sup>)

Q.30 Please fill in the unit cost of collecting IW according to type in the following  
 table.

Type of IW		Unit Cost for Collection
Code	Name	

Q.31 Are you willing to pay more for the collection of IW, if the quality of  
 collection service is improved?

1. Yes.

2. No.

Q.32 How much does your factory spend annually for the internal treatment of IW?  
 \_\_\_\_\_ Baht/year

Q.33 Please fill in the unit cost of internal treatment for each type of IW in the  
 following table.

Type of IW		Unit Cost for Internal Treatment
Code	Name	

Q.34 How much does your factory spend annually for the final disposal of IW by  
 himself?

1. \_\_\_\_\_ Baht/year

2. None

Q.35 Please fill in the unit cost of final disposal for each type of IW in the  
 following table.

Type of IW		Unit Cost for Final Disposal
Code	Name	


## 6. Evaluation of the Present IW System

Q.36 Which of the following phrases best describes the present status of IWM in your factory?

- 1. There are no problems with the present IWM. (Go to the End)
- 2. There are some problems with present IWM.

Q.37 Do you think what are the problems of present IWM in your factory? (You may choose more than one answer given below.)

- 1. We do not know the difference between hazardous and non-hazardous waste.
- 2. We do not segregate hazardous from non-hazardous waste.
- 3. There is no or only limited services available for industrial waste treatment.
- 4. High cost of industrial waste treatment
- 5. Reuse and recycling of industrial waste is non-existent or limited.
- 6. Others (specify : \_\_\_\_\_)

Q.38 Do you think what measures and actions need to be taken to solve the above problems? (You may choose more than one answer given below.)

- 1. Formulation and enforcement of relevant laws and regulations.
- 2. Guidance on proper IWM to the factories (generators).
- 3. Introduction of financial and economic incentives to promote proper IWM.
- 4. Preparation of the guidelines for proper IWM
- 5. Development of the waste reuse and recycle market
- 6. Development of the intermediate treatment facilities for industrial waste.
- 7. Development of the final disposal facilities for industrial waste.
- 8. Others (specify : \_\_\_\_\_)

The Questionnaire is all.

**--- Thank you very much for your cooperation!! ---**

**----- NOTE -----**

The following notes are applicable for the table at the next pages.

**NOTE 1: Internal Treatment Methods in Factory**

1. Dewatering
2. Drying
3. Volume reduction (Baling, Pressing etc.)
4. Incineration
6. Crushing
7. Sorting
8. Reutilization
9. Others (to be specified \_\_\_\_\_)

**NOTE 2: Disposal Methods in Factory**

1. Transport and final disposal at municipal landfill by own means of transportation.
2. Transport and final disposal at municipal Landfill by private subcontractor.
3. Final disposal at factory's compound and/or its property land.
4. Long-time storage at factory's compound awaiting external treatment/disposal.
5. Discharge to sewer or watercourse.
6. Disposal by private subcontractor - treatment and disposal method is not known.
7. Reutilization by other parties, e.g. used at other factory as raw materials.
8. Others (to be specified \_\_\_\_\_)

### Answer Sheet (Waste Generation, Reuse/Recycling, Disposal, Waste Exchange)

No. of Question		Q.5.	Q.5.	---		Q.9				Q.10			Q.17		Q.23/Q.25		
Categories of Non-HIW		Specify the Name of Process	Generated amount (ton/Year)	On-site/Off-site		Internal treatment in the factory				Reuse/Recycling in the factory			Disposal		Waste Exchange of Non-HIW		
Code	Type			---	Amount (ton/year)	Y e s / N o	Amount (ton/year)	Method applied (see note 1)	After treatment amount (ton/year)	Y e s / N o	Amount (ton/year)	Reuse/recycling method	Amount (ton/year)	Method applied (see note 2)	Yes/Plan or Supplier/User	Amount (ton/year)	Waste exchange method
				On-site													
				Off-site													
				On-site													
				Off-site													
				On-site													
				Off-site													
				On-site													
				Off-site													
				On-site													
				Off-site													

3-11

Remark: In case the sheet is not enough, please copy and use it.

## Appendix A : Non-Hazardous Industrial Waste

The definition of Non-HIW follows the annex of the notification of the MOI No. 1 B.E. 2541 (1998) issued pursuant to the Factory Act B.E. 2535(1992). It stipulates three types of Non-HIW as below.

**No. 1** Waste from production process or from factory that have the following characteristics and qualification;

- 1.1 Waste from tree such as root, leave or waste from animal such as bone, skin, hair
- 1.2 Wood
- 1.3 Paper
- 1.4 Plastic or polymers and resins
- 1.5 Textile
- 1.6 Grease, animal oil, vegetable oil
- 1.7 Natural rubbers
- 1.8 Metals and metal alloys such as aluminum, copper, bronze
- 1.9 Ceramic and glasses
- 1.10 Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement

**No. 2** If waste in item no. 1 mix, contaminate with waste according to Industrial Ministry Act No. 6 (Year 1997) issued date 29 October Year 1997, it will be considered that it is not the waste according to this act.

### Chapter 2

#### Waste from Specific Industrial Processes

**No. 3** Waste from production process or factory with the following composition;

- 3.1 Ash from fossil fuel combustion, biomass and combustible materials
- 3.2 Auto shredder wastes
- 3.3 Baghouse, electrostatic precipitator, cyclone and scrubber wastes
- 3.4 Spent catalysts from industrial petrochemical or petroleum
- 3.5 Cement kilns
- 3.6 Dewatered sludges from waste water treatment system or waste water treatment from industry
- 3.7 Dewatered sludges from waste water treatment of tanning factory
- 3.8 Drilling mud from gas or oil exploration, drilling
- 3.9 Refractory materials from industrial furnaces, kilns and ovens
- 3.10 Sand from sand blasting
- 3.11 Sand from foundry casting
- 3.12 Slag from coal gasification
- 3.13 Sulfur dioxide scrubber waste from fossil fuel combustion
- 3.14 Part or shaving dust from tanning factory after chrome tanning.
- 3.15 Tailings from extraction, beneficiation and processing of ores and minerals

The above-mentioned wastes that have never been treated, after testing by leachate extraction procedure according to Industrial Ministry Act No. 6 (Year 1997), then their qualifications and characteristics will not be hazard according to the act.

## **Appendix B : Hazardous Industrial Waste**

Hazardous waste is defined in details in the notification of the MOI No. 6. B.E. 2540(1997) issued pursuant to the Factory Act B.E. 2535(1992). In this survey, however, HIW is classified shown in table 1-2.

### Appendix C : Reuse/Recycle/Waste Exchange

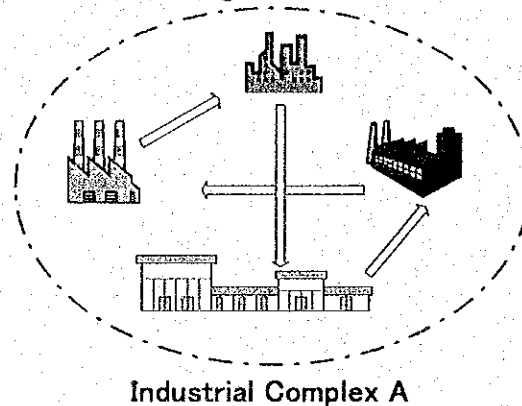
**Waste** : unwanted matter (solid, semi-solid, liquid and gas) that is left from your production process and associated office works.

**Reuse** : to use waste again, or repeatedly, without processing, or only with simple treatment (e.g. use a used bottle after rinsing):

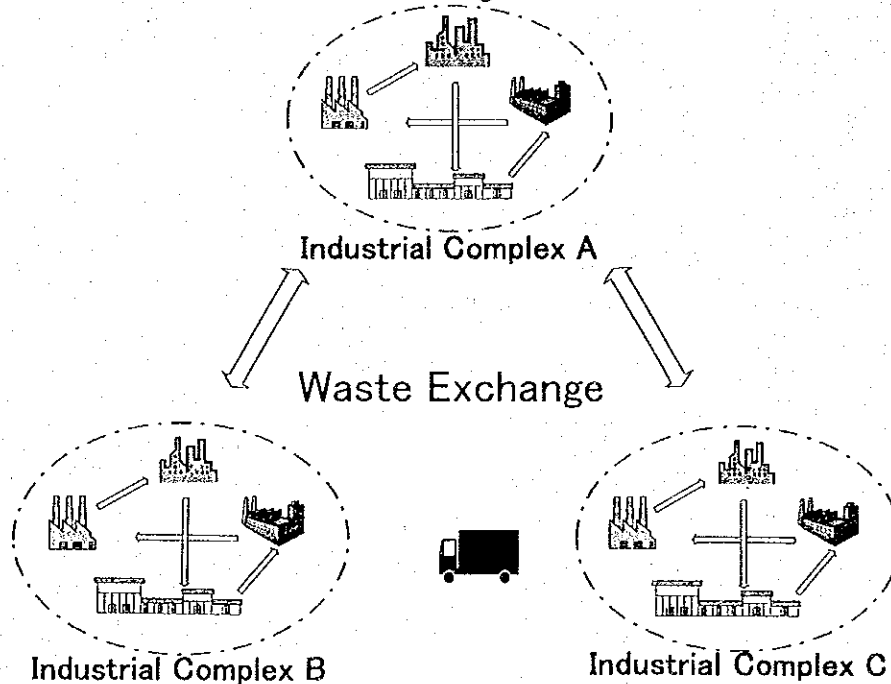
**Recycle** : to use waste again as raw material (including energy source) with chemical, physical and/or biological processing (e.g. producing compost from food waste, manufacturing cement using wastewater sludge).

**Waste Exchange** : Waste can be reused or recycled within one factory or more than two factories. The latter case, where waste from one factory is used (either reused or recycled) by another, is called **Waste exchange**. Waste exchange is categorized into following cases.

Case 1 : Waste Exchange within an industrial complex



Case 2 : Waste Exchange in a Wide Area





**Table 1-1 : Non-Hazardous Industrial Waste**

The definition of Non-HIW follows the annex of the notification of the MOI No.1 B.E. 2541 (1998) issued pursuant to the Factory Act B.E. 2535(1992). It stipulates types of Non-HIW as below table.

Type of Non-Hazardous Waste	Non-Hazardous Waste Code
Waste from tree such as root, leave	C01-01
Waste from animal such as bone, skin, hair	C01-02
Wood	C02
Paper	C03
Plastic or polymers and resins	C04
Textile	C05
Grease, animal oil, vegetable oil	C06
Natural rubbers	C07
Metals and metal alloys such as aluminum, copper, bronze	C08
Ceramic	C09-01
Glasses	C09-02
Stone, sand or material that have composition of soil such as tile, brick, gypsum, cement	C10
Mixed waste	C11
Others	C12

**Table 1-2 : Hazardous Industrial Waste**

Type of Hazardous Waste	Hazardous Waste Code	Example of Hazardous Waste
Inorganic acid	W01-01	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ), Hydrochloric acid (HCl), Nitric acid (HNO <sub>3</sub> ), Phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ), Other inorganic acids
Organic acid	W01-02	Acetic acid (CH <sub>3</sub> COOH), Formic acid (HCOOH), Other organic acids
Alkalis	W02	Caustic soda (NaOH), Ammonia (NH <sub>3</sub> ), Sodium carbonate (Na <sub>2</sub> CO <sub>3</sub> ), Other alkaline materials
Heavy Metal Compounds	W03-01	Salts
	W03-02	Toxic salts (Hg, As, Ca, Pb, Cr, etc)
	W03-03	Heavy metal other than the above
Liquid Inorganic Compounds	W04-01	Plating wastes, Cyanides
	W04-02	Liquid inorganic compounds other than the above
Solid Inorganic Compounds	W05	Asbestos, Slag, Silt
Organic Compounds	W06-01	Reactive chemical wastes (Oxidizing agents, Reducing agents, etc)
	W06-02	Solvents
	W06-03	Organic compounds other than the above
Polymer Materials	W07-01	Epoxy resin, Chelate resin, Polyurethan resin
	W07-02	Latex rubber
	W07-03	Polymer materials other than the above
Fuel, Oil and Grease	W08-01	lubricating oil (Engine oil, Grease, etc)
	W08-02	Chlorinated solvents (Trichloroethylene, Methylene chloride, etc)
	W08-03	Oil waste other than the above
Fine Chemicals and Biocides	W09	Pesticide, Medicine
Pickling waste	W10	---
Filter Materials, Treatment Sludge	W11-01	Inorganic sludge
	W11-02	Organic sludge
Other Toxic substance (besides W01-W11)	W12-01	If waste in item Non-HIW mix, contaminate with waste according to Industrial Ministry Act No. 6 (Year 1997) issued date 29 October Year 1997, it will be considered that it is not the waste according to this act.
	W12-02	Waste from specific industrial processes
	W12-03	Chemical dust, Chemical container etc.

**Table 2 : Factory Code**

Main Code	DIW Code	Description
G01	001	A factory engaged in tea or tobacco curing
	002	A factory engaged in producing any or more items of agricultural products.
	---	Sub code 003 : Go to G33
	004	A factory engaged in any or many activities connected with non-aquatic animals.
	005	A factory engaged in producing any or many items of milk.
	006	A factory engaged in any or many activities connected with aquatic animals.
	007	A factory engaged in producing any or many items of oil from vegetable or animal or fat from animal.
	008	A factory engaged in producing any or many activities connected with vegetable, plant, or fruit.
	009	A factory engaged in producing any or many activities connected with vegetable, plant grain or root.
G02	010	A factory engaged in producing any or many items of food from flour.
	011	A factory engaged in producing any or many items of sugar from sugarcane, beech, sweet grass, or other plant.
	012	A factory engaged in producing any or many items of tea, coffee, cocoa, chocolate, or candy.
	013	A factory engaged in producing any or many items of ingredients or food flavorings.
	014	A factory engaged in producing of ice or cutting, mincing, or granulating ice.
	015	A factory engaged in producing of any or many of animal feed.
G03	016	A factory distilling or blending alcoholic liquors.
	017	A factory producing ethyl alcohol, except ethyl alcohol made from sulfite residue in paper pulp production
	018	A factory producing or blending liquors from fruits
	019	A factory engaged in producing any or many of malt or beer.
	020	A factory engaged in producing any or many of drinking water, non-alcoholic beverage, carbonated water, or mineral water.
	021	A factory engaged in producing any or many item of tobacco, pipe tobacco, strip tobacco, chewing tobacco, or snuff.
G04	022	A factory engaged in producing any or many item of textile, thread, or fiber other than asbestos.
G05	023	A factory engaged in producing any or many item of textile products other than clothing.
	024	A factory engaged in knitting cloth, lace, or clothes with thread or fiber or in bleaching and dyeing or finishing cloth, lace, or clothes knitted with thread of fiber
	025	A factory engaged in producing mats or carpets by weaving, braiding, pleating, or tufting, except those made of rubber or plastic or linoleum
	026	A factory engaged in producing any or many item of rope, mesh, fishing net,
	027	A factory engaged in producing any or many item of products made by means other than weaving or braiding.
G06	028	A factory engaged in producing any or many item of wearing apparel other than shoes.
G07	029	A factory engaged in soaking, cutting, crushing or grinding, tanning, polishing and finishing, currying, embossing, or coloring animal hide
	030	A factory engaged in scraping, tanning, bleaching, dyeing, polishing or finishing fur
	031	A factory engaged in producing carpets or other articles from hide or fur
	032	A factory producing products or parts of products, which are not wearing apparel or footwear.
	033	A factory producing shoes or parts thereof, except those made of wood, vulcanized or molded rubber or plastic
G08	034	A factory engaged in producing any or many item of woodwork.
G09	035	A factory engaged in production of containers or appliances from bamboo, rattan, straw, reed, bulrush, or water hyacinth
	036	A factory engaged in production of any or many items of products produced from wood or cork.
G10	037	A factory engaged in productions of household furniture or building interior decorations from wood, glass, rubber, or non-metal, except household furniture or building interior decorations made of profile plastic, including parts thereof
G11	038	A factory engaged in production of any or many item of paper.
	039	A factory engaged in production of receptacles from paper of every kind or fiberboard
	040	A factory engaged in production of any or many item of pulp, paper, or cardboard.

Main Code	DIW Code	Description
G12	041	A factory engages in the business of printing, file manufacturing, bookbinding, cover producing, or finishing of printed matter. Producing metal mold
G13	042	A factory engaged in production of any or many item of chemical substances, chemical compounds, or chemical materials which are not fertilizer.
	043	A factory engaged in production and handling of any or many items of fertilizer or pesticide.
	044	A factory engaged in production of synthetic resin, elastomer, plastic, or synthetic fiber, except fiberglass
	045	A factory engaged in production of any or many item of paint, varnish, lacquer, or calking or filling material.
	046	A factory engaged in production of any or many item of drug.
	047	A factory engaged in production of any or many item of soap, cosmetics, or body beautifying preparations.
	048	A factory engaged in production of any or many items of chemical substance.
	049	A factory engaged in refining petroleum
	050	A factory engaged in production of any or many items of products from petroleum, coal, or lignite.
G14	051	A factory engaged in producing, repairing, or rethreading tires or tubes for vehicles mechanically driven or driven by man or animal
	052	A factory engaged in production of any or many items of rubber.
G15	053	A factory engaged in production of any or many items of plastic products.
G16	054	A factory engaged in production of glass, fiberglass, or glassware
	055	A factory engaged in production of porcelain or ceramics, including preparations therefore
	056	A factory engaged in production of brick, tile, or pipe for construction of crucible, architectural terracotta, stove lining, chimney pipe or top, or refractory from clay
	057	A factory engaged in production of any or many items of cement, lime, or plaster.
G17	058	A factory engaged in production of any or many items of non-metallic products.
	059	A factory engaged in smelting, fusing, casting, rolling, or drawing or producing iron and steel basic industries
G18	060	A factory engaged in smelting, alloying, refining, melting, casting, rolling, drawing, or producing non-ferrous metal basic industries
	061	A factory engaged in producing, finishing, altering, or repairing tools or appliances made of iron or steel, including accessory or equipment thereof
G19	062	A factory engaged in producing, finishing, or repairing household furniture or building interior decorations made from or mainly from metal, including parts or accessory thereof
	063	A factory engaged in production of any or many items of metal products for construction or installation.
G20	064	A factory engaged in production of any or many items of metal products.
G21	065	A factory engaged in producing, assembling, altering, or repairing engines, turbines, including components or accessories thereof
	066	A factory engaged in producing, assembling, altering, or repairing machinery, including components or accessories thereof, for agriculture or livestock raising
G22	067	A factory in dealing with any or many items of machines for producing metal or wood products, including component or equipment thereof.
G23	068	A factory engaged in producing, assembling, altering, or repairing machinery for paper chemical, food, textile, printing, cement, clay work, construction, mining, petroleum drilling, or oil refining industries, including component or equipment thereof
G24	069	A factory engaged in producing, assembling, altering, or repairing calculating machines, accounting machines, machines for card punching system, digital or analog computers or associated electronic data processing equipment or accessories, cash registers.
	070	A factory engaged in producing, assembling, altering, or repairing water pumps, air or gas compressors, blowers, air conditioners or ventilators, sprinkling-type fire extinguishers, refrigerators or their components, automatic vending machines, washing, la
G25	071	A factory engaged in producing, assembling, altering, or repairing machines or products under No. 70, using electrical power, electric motor, generator, transformer, switch gear or switchboard, rectifier, electrical distribution board, electrical control
	072	A factory engaged in producing, assembling, altering, or repairing radio sets, television sets, sound amplifiers or recorders, gramophones, disclaphones, tape recorders, video tape players or recorders, records, pre-recorded magnetic tapes, wire- or wire
G26	073	A factory engage in producing, assembling, or altering electric instruments or appliances not included in any serial number, including component or equipment thereof
	074	A factory engages in producing of any or many items of electric equipment.

Main Code	DIW Code	Description
G27	075	A factory engages in any or many activities connected with ships.
	076	A factory engages in producing of any or many items of trains, streetcars, or cable cars.
	077	A factory engages in any or many activities connected with cars or trailers.
G28	078	A factory engages in any or many activities connected with motorcycles, tricycles, or bicycles.
	079	A factory engages in any or many activities connected with aircraft or hovercraft.
	080	A factory engage in producing, assembling, altering, or repairing hand-drawn or animal-drawn wheeled vehicles, which are not cycles, including components or accessories thereof
G29	081	A factory engages in any or many activities connected with scientific or medical instrument or tools.
	082	A factory engage in producing ophthalmic instruments, lenses, optical instruments, or photographic or photocopying equipment
	083	A factory engage in producing or assembling watches or clocks, timing devices, or parts thereof
	084	A factory engage in any or many activities connected with diamond, gems, gold, silver, copper alloy, or precious stone.
G30	085	A factory engage in producing musical instruments, including parts or equipment thereof
	086	A factory engage in producing or assembling tools or instruments for sports, physical exercise, billiard, bowling, or angling, including parts or equipment thereof
	087	A factory engages in any or many activities connected with toys, tools or instruments not specified in any other serial number.
G31	088	A factory engage in generating, supplying, or distributing electric power
	089	A factory engage in producing non-natural gas, supplying, or distributing gas
	090	A factory engage in providing, purifying, or distributing to buildings or industrial works
	091	A factory engage in packaging or filling goods which are not produced by it:
	092	A cold storage
	093	A factory engaged in repairing footwear or leatherwear
	094	A factory engaged in repairing household or personal electrical instruments or appliances
G32	095	A factory engaged in any or many activities connected with engine-driven vehicles, trailers, motorcycles, bicycles, including components or accessories thereof.
G33	003	A factory engaged in any or many activities connected with stone, gravel, sand, or dirt for construction.
	096	A factory engage in repairing watches or clocks, timing devices, or ornaments made of diamond, gems, gold, platinum, silver, copper alloy, or precious stone
	097	A factory engage in repairing products not specified in any serial number
	098	A factory engage in laundering, dry cleaning, ironing, pressing, or dyeing clothes, carpets, or fur
	099	A factory engage in producing, repairing, altering, or modifying firearms, ammunition, explosive, weapon or other object having power to kill, destroy, or disable as firearms, ammunition, or explosive, including accessories thereof
	100	A factory engaged in any or many activities connected with improving or changing qualities of products or components thereof without production.
	101	A central waste treatment plant
	102	A factory engaged in producing or generating steam
	103	A factory engaged in any or many activities connected with salt.
	104	A factory engage in producing, assembling, altering, or repairing boilers or containers for boiling water using liquid or gas as heat conducting medium, pressure-resistant vessels, including components or equipment thereof