

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

NATIONAL COMMISSION FOR THE ENVIRONMENT(CONAMA)

THE REPUBLIC OF CHILE

**THE MASTER PLAN STUDY
ON
INDUSTRIAL SOLID WASTE MANAGEMENT
IN
THE METROPOLITAN REGION
OF
THE REPUBLIC OF CHILE**

**FINAL REPORT
VOLUME IV
DATA BOOK**

MARCH 1996

JICA LIBRARY

J 1126291 (2)

**KOKUSAI KOGYO Co., Ltd.
EX. Corporation**

SSS
CR 3
96-018

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

NATIONAL COMMISSION FOR THE ENVIRONMENT(CONAMA)

THE REPUBLIC OF CHILE

**THE MASTER PLAN STUDY
ON
INDUSTRIAL SOLID WASTE MANAGEMENT
IN
THE METROPOLITAN REGION
OF
THE REPUBLIC OF CHILE**

**FINAL REPORT
VOLUME IV
DATA BOOK**

MARCH 1996

**KOKUSAI KOGYO Co., Ltd.
EX. Corporation**



1126291 (2)

**THE MASTER PLAN STUDY
OF
INDUSTRIAL SOLID WASTE MANAGEMENT
IN
THE METROPOLITAN REGION**

LIST OF VOLUMES

VOLUME I	EXECUTIVE SUMMARY
VOLUME I(S)	EXECUTIVE SUMMARY (Spanish Version)
VOLUME I(D)	EXECUTIVE SUMMARY FOR PUBLIC DISTRIBUTION (Spanish Version)
VOLUME II	MAIN REPORT
VOLUME II(S)	MAIN REPORT (Spanish Version)
VOLUME III	ANNEX
	A Minutes of Meetings
	B Profile of the Study Area
	C Factories' Survey
	D Medical Institutions' Survey
	E Public Opinion Survey
	F Survey on Private SWM Enterprises
	G Other Field Surveys
	H Present Industrial, Medical and Municipal SWM
	I Industrial and Medical SW Generation
	J Investigation and Initial Environmental Evaluation of Candidate Sites for Hazardous Waste Disposal
	K Examination of an Optimum Technical System for ISWM Master Plan
	L Examination of an Optimum Institutional System for ISWM Master Plan
	M Examination of an Optimum System for Medical SWM Master Plan
VOLUME IV	DATA BOOK

This is the DATA BOOK.

CONTENTS OF DATA BOOK

	Page :
DATA A FACTORIES' SURVEY	A-1
A.1 Survey Sheet in English	A-1
A.2 Survey Sheet in Spanish	A-14
A.3 List of Factories Surveyed	A-27
A.4 General Data	A-30
A.5 Production Process and Materials Flow	A-33
A.6 Present Generation	A-45
A.7 Forecast of Future Generation	A-49
A.8 Present and Future Hazardous Waste Management	A-55
DATA B MEDICAL INSTITUTIONS' SURVEY	B-1
B.1 Questionnaire in English	B-1
B.2 Questionnaire in Spanish	B-15
DATA C PUBLIC OPINION SURVEY	C-1
C.1 Questionnaire in English	C-1
C.2 Questionnaire in Spanish	C-15
C.3 Follow-up Research Reports by Adimark in Spanish	C-23
DATA D SURVEY ON PRIVATE SWM ENTERPRISES	D-1
D.1 Survey to Solid Waste Transportation Enterprises	D-1
D.2 Survey to Solid Waste Landfills	D-65
D.3 Survey to Solid Waste Recyclers	D-96

DATA A

FACTORIES' SURVEY

*A.1 SURVEY SHEET IN
ENGLISH*

A.1 Survey Sheet for Factories' Survey

1. General Data

1.1 Name of Company		
1.2 Address	1.Provincia	2.Comuna
	3.Address	
1.3 Category of Industry	PROCEFF Code No.	Name of Category
1.4 Special Information on Industry		
1.5 Main Products	Name and output (ton/year) of Main Products	1. 2. 3.
	Input of Raw Materials (ton/year)	1. 2. 3.

1.6 Share Capital	mio. pesos	1.7 Number of Employees in the Factory	Total: Hereof in administration:
1.8 Annual Sales Amount	million Pesos		
1.9 Annual Sales Amount according to Main Products (mio. pesos)	1. 2. 3.		

2. Interviewee and Interviewer

2.1 Interviewee	Title or Position	Name	Phone Number
2.2 Interviewer	Title or Position	Name	
	Signature		
2.3 Date of Interview			

3. Production Process and Materials Flow

3.1 Production Flow Chart

Indicate input of raw materials and waste generation specified in types. Indicate amount of waste and internal treatment.

3.1 Production Flow Chart

Indicate input of raw materials and waste generation specified in types. Indicate amount of waste and internal treatment.

<p>3.2 Use of Raw Materials</p>	<p>1. Heavy Metals (Hg, Pb, Cr, Cd, As, CN,) )</p> <p>2. Solvents (.....) )</p> <p>3. Acids (.....) )</p> <p>4. Alkalis (.....) )</p> <p>5. Pigments (.....) )</p> <p>6. Oils (.....) )</p> <p>7. Asbestos (.....) )</p> <p>8. Other Organic/Inorganic Chemicals (.....) )</p>
<p>3.3 Production Process (Please Specify)</p>	<p>1. Heat Charging Process such as Incineration, Heating, Kiln, Boiler, etc. (.....) )</p> <p>2. Watering (Washing, etc.) (.....) )</p> <p>3. Storage Facilities for Liquid Chemicals (Solvents, Acids, Alkalis, Oils, etc. (.....) )</p>

3.4 Pollution Control Facilities (Please Specify Type and Capacity)	EXISTING	
	1. Flue Gas Treatment (.....)))	
	2. Waste Water Treatment (.....)))	
	3. Others (.....)))	
	PLANNED	
	1. Flue Gas Treatment (.....)))	
	2. Waste Water Treatment (.....)))	
	3. Others (.....)))	
3.4 Water/ Energy Demands	1) Working Days	days/week
	Working Hours	hours/day
	2) Water Consumption	m ³ /year
	3) Power Consumption	kwh/year
	4) Fuel Consumption	kl/year

4. Waste Generation, Treatment and Final Disposal in Factory

The following notes are applicable for the table at the pages 8 and 9.

NOTE 1: Internal Treatment Methods in Factory

1. Dewatering
2. Drying and/or Evaporation
3. Neutralization
4. Reduction
5. Incineration
6. Crushing
7. Sorting
8. Oil Separation
9. Solidification
10. Reutilization
11. Others (to be specified _____
_____)

NOTE 2: Some of waste categories may changed their code numbers after internal treatment at the factory, e.g. if code C-6 (acids) is treated by neutralization with CaCO_3 , code C-6 will move to code C-3, inorganic sludge. Therefore, those wastes shall be noted of Code to be moved. In the transferred code, both original and transferred wastes amount shall be noted respectively.

NOTE 3: 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 consignment of private contractor.
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 consigned to private contractor - treatment and disposal is not known.
7. Reutilization by other parties, e.g. use at other factory as raw materials.
8. Others (to be specified _____)

NOTE 4: *APC: Air pollution control
**Waste Food Production Residues from animal and vegetable production

Categories of waste		Generated amount (tonnes/month)	Internal treatment in the factory		Waste amount after treatment (tonnes/month) (see note 2)	Disposal method applied (see note 3) *Note: Number of disposal method and percentage of total shall be noted.	Name of companies responsible for external treatment and disposal		Costs of external treatment and disposal	
Code	Type		PROCEFF Code	Yes /no			Method applied and percentage of total (see note 1)	Transport	Treatment/disposal	Transport
C-1	Ash including from incinerator									
C-2	Dust and APC-product									
C-3	Inorganic sludge									
C-4	Organic sludge									
C-5	Asbestos									
C-6	Acids									
C-7	Alkalis									
C-8	Solvents									
C-9	Oil waste									
C-10	Inorganic chemical residues									
C-11	Organic chemical residues									
C-12	Other liquid wastes									

Categories of waste		Generated amount (tonnes/month)	Internal treatment in the factory		Waste amount after treatment (tonnes/month) (see note 2)	Disposal method applied (see note 3) *Note: Number of disposal method and percentage of total shall be noted.	Name of companies responsible for external treatment and disposal		Costs of external treatment and disposal Pesos/month	
Code	Type		PROCEFF Code	Yes/no			Method applied and percentage of total (see note 1)	Transport	Treatment/disposal	Transport
C-13	Waste from food production **									
C-14	Glass and ceramics									
C-15	Metal and scrap									
C-16	Paper and cardboard									
C-17	Plastics									
C-18	Rubber									
C-19	Textile and leather									
C-20	Waste similar to domestic waste									
C-21	Wood									
C-22	Slag from melting									
C-23	Construction Waste									
C-24	Other solid wastes									

5. Identification of Hazardous Substances of Selected Waste Categories

Indicate hazardous substances and storage method.

Categories of waste		Hazardous substances (please tick off the relevant)											Separate storage yes/no	Storage facility (please specify)	
Code	Type	PROCEFF Code	Hg	Pb	Cr	Cd	As	CN	PCB	Solvents	Org. phosphorous comp- ounds				
C-1	Ash														
C-2	Dust and APC-products														
C-3	Inorganic sludge														
C-4	Organic sludge														
C-5	Asbestos														
C-6	Acids														
C-7	Alkalis														
C-8	Solvents														
C-9	Oily waste														
C-10	Inorganic chemical resi- dues														
C-11	Organic chemical residues														
C-12	Other wastes														

6. Present Management of Hazardous Waste

6.1 Describe the present management system for hazardous materials and wastes in your factory (Plural answers are acceptable):

1. There are appointed responsible persons for management and control of hazardous materials and waste.
2. There are implemented safety procedures for hazardous materials and waste.
3. Hazardous waste and materials are clearly defined and marked.
4. Hazardous materials and wastes are separately stored.
5. There are treatment facilities for hazardous wastes in the factory. (Please describe the type of them _____
_____)
6. Others. (Please specify _____
_____)

6.2 Specify the present problems regarding hazardous waste management in your factory (plural answers are acceptable):

1. Lack of regulations and guidelines defining what to do.
2. Lack of information by which we can identify what is hazardous waste.
3. Lack of information on technology for proper storage and disposal of hazardous waste.
4. There are no treatment and disposal facilities of hazardous waste available.
5. The amount of hazardous waste stored at the factory increases.
6. Treatment of hazardous waste is expensive.
7. Financial limitation for hazardous waste treatment.
8. Lack of laboratories for the identification of hazardous materials.
9. Others (Please specify _____
_____)

6.3 What is your opinion regarding the hazardous waste management system in the Metropolitan Region?

1. There are no specific problems in the present management system.
2. The present management system needs gradual improvement to apply higher standards.
3. An urgent improvement is necessary.
4. Others (Please specify _____
_____)

7. Future Management of Hazardous Waste

7.1 How will the generation of hazardous waste develop in your factory (plural answers are acceptable if 4 or 5 is included)?

1. It (hazardous waste) will not increase so much.
2. It will increase due to expansion of production, change of raw materials, etc..
3. It will decrease due to improvement of manufacturing process and change of raw materials, etc..
4. Hazardous sludge, solvents, acids, alkalis, etc., will increase due to the reinforcement of water quality regulation for discharging.
5. Hazardous dust will increase due to the reinforcement of flue gas regulation.
6. Others (please specify _____)

7.2 What is your intention concerning the future general hazardous wastes management system in your factory?

1. Basically, we will apply the present system.
2. We intend to improve the present system of our company independently of possible environmental regulation.
3. We will improve our system in accordance with the reinforcement of environmental regulation.
4. Others (Please specify _____)

7.3 What is your intention concerning future reduction and recycling of wastes in your factory?

1. Basically, we will apply the present management.
2. We intend to improve the present waste reduction and recycling system. (Please specify the intentions _____)
3. We have a specific plan to improve waste reduction and recycling system in our factory. (Please specify the plan _____)

7.4 What is your intention concerning treatment and final disposal of wastes in your factory?

1. Basically, we will apply the present management.
2. We intend to improve present treatment and disposal system of our company. (Please specify the intentions _____

_____)
3. We have a specific plan to improve treatment and disposal system in our factory. (Please specify the plan _____

_____)

7.5 In case you need to treat hazardous wastes, how do you respond to the needs?

1. We will install our own treatment facility.
2. We will consign to other company, if this is cheaper than we can do it ourselves.
3. We will consign to other companies, even if this is slightly more expensive than the cost of own treatment facilities.
4. Others (Please specify _____

_____)

7.6 How will probable higher costs of hazardous waste disposal affect your factory?

1. The present costs of waste disposal are not significant and increased costs will not be important.
2. The present costs of waste disposal are significant and considerable higher costs will affect the price of our products.
3. The present costs of waste disposal are very significant and considerable higher costs will affect the existence of our factory.
4. An improved waste management is necessary to obtain environmental image of products - no matter the costs.
5. Other (Please specify _____

_____)

*A.2 SURVEY SHEET IN
SPANISH*

**FORMULARIO DE ENCUESTA DE LAS CONDICIONES ACTUALES
DE LOS DESECHOS INDUSTRIALES**

1. Datos Generales

1.1 Nombre de la Empresa			
1.2 Dirección	1. Provincia		2. Comuna
	3. Dirección		
1.3 Categoría de la industria	Código PROCEFF N°	Nombre de la Categoría	
1.4 Información especial de la Industria			
1.5 Productos Principales	Nombre y producción (ton/año) de los Productos Principales	1. 2. 3.	
	Demanda de Materias Primas (ton/año)	1. 2. 3.	

1.6	Capital		1.7	Número de empleados en la fábrica	TIT: ADRIANA personas
		mio. pesos			
1.8	Monto de ventas anuales	millones de pesos			
1.9	Monto de ventas anuales por productos principales (millones de pesos)	1.			
		2.			
		3.			

2. Entrevistado y Entrevistador

2.1	Entrevistado	Título o Cargo	Nombre	Teléfono
2.2	Entrevistador	Título o Cargo	Nombre	
		Firma		
2.3	Fecha de la entrevista			

3. Diagrama de Flujo de Procesos y Materiales

3.1 Diagrama de Flujo de la Producción

Indicar los ingresos de materias primas y generación de desechos especificando el tipo. Indicar los montos de desechos y tratamientos internos.

3.1 Diagrama de Flujo de la Producción

Indicar los ingresos de materias primas y generación de desechos especificando el tipo. Indicar los montos de desechos y tratamientos internos.

3.2 Uso de Materias Primas	<ol style="list-style-type: none"> 1. Metales Pesados (Hg, Pb, Cr, Cd, As, CN) (..... ) 2. Solventes (..... ) 3. Acidos (..... ) 4. Alcalis (..... ) 5. Pigmentos (..... ) 6. Aceites (..... ) 7. Asbesto..... (..... ) 8. Otros químicos orgánicos/inorgánicos (..... )
3.3 Proceso Productivo (favor especificar)	<ol style="list-style-type: none"> 1. Procesos térmicos como incineración, calentamientos, hornos, calderas, etc. (..... ) 2. Empleo de agua (lavado, etc.) (..... ) 3. Instalaciones para almacenamiento de químicos líquidos (Solventes, Acidos, Alcales, Aceites, etc.) (..... )

3.4 Instalaciones para el control de contaminación (Favor especificar el Tipo y Capacidad)	EXISTENTES	
	1. Tratamiento de gases efluentes	(.....)
	
)	
	2. Tratamiento de RILES	(.....)
)	
3. Otros	(.....)	
.....)		
PROYECTADOS		
1. Tratamiento de gases efluentes	(.....)	
.....)		
2. Tratamiento de RILES	(.....)	
.....)		
3. Otros	(.....)	
.....)		
3.4 Demanda de Agua/Energía	1. Días Laborales	días/semana
	Jornada	horas/día
	2. Consumo de Agua	m ³ /año
	3. Consumo de Electricidad	kwh/año
	4. Consumo de Combustible	kl/año

4. Generación de Residuos, Tratamiento y Disposición Final en Fábrica

Las siguientes notas son aplicables para la tabla de las páginas 8 y 9.

NOTA 1: Métodos de Tratamiento Interno en Fábrica

1. Deshidratación
2. Secado y/o Evaporación
3. Neutralización
4. Reducción
5. Incineración
6. Molienda
7. Clasificación
8. Separación de Aceite
9. Solidificación
10. Reutilización
11. Otros (especificar _____)

NOTA 2: Algunas categorías de desechos pueden cambiar códigos después del tratamiento interno en fábrica, p. ej. si el código C-6 (ácidos) es tratado por neutralización con CaCO_3 , el código C-6 se cambiará a C-3, lodo inorgánico. Luego, esos desechos deben inscribirse con el código al cual se reemplazan. En el código transferido, se deberán anotar los volúmenes tanto del desecho original como del transferido.

NOTA 3: Métodos de Disposición en Fábrica

1. Transporte y disposición final en botaderos municipales por medios de transporte propios.
2. Transporte y disposición final en botaderos municipales por contratistas privados.
3. Disposición final en fábrica o terreno propio.
4. Almacenamiento de largo plazo en fábrica a la espera de un tratamiento/disposición externo.
5. Descarga al alcantarillado o curso de agua.
6. Depósito encargado a un contratista privado - tratamiento y disposición desconocido.
7. Reutilización por terceros, p. ej. uso en otras fábricas como materia prima.
8. Otros (especificar _____)

NOTA 3: * APC:

**Producción de desechos de Alimentos:

Control de polución del aire

Residuos de productos animales o vegetales

Categoría de Desecho		Volumen		Tratamiento interno en fábrica		Volumen anual de desecho después del tratamiento (Ton/Mes) (Ver nota 2)	Método de disposición aplicada (Ver nota 3) Nota: Número de métodos y porcentaje del total debe incluirse	Nombre de compañías responsables del tratamiento y depósito externos		Costos del tratamiento externo y depósito	
Código	Tipo	Código PROCEFF	Generado (Ton/Mes)	SVNO	Método aplicado y porcentaje del total (Ver nota 1)			Transporte	Tratamiento/depósito	Transporte	Pesos/Mes
C-1	Cenizas incluyendo la de incineración										
C-2	Pelvo y productos de APC *										
C-3	Lodo Inorgánico										
C-4	Lodo Orgánico										
C-5	Asbesto										
C-6	Acidos										
C-7	Alcalis										
C-8	Solventes										
C-9	Residuo Acetoso										
C-10	Residuos Químicos Inorgánicos										
C-11	Residuos Químicos Orgánicos										
C-12	Otros Desechos Líquidos										

Categoría de Desecho		Volumen		Tratamiento interno en fábrica		Volumen anual de desecho después del tratamiento (Ton/Mes) (Ver nota 2)	Método de disposición aplicada (Ver nota 3) Nota: Número de métodos y porcentaje del total debe incluirse	Nombre de compañías responsables del tratamiento y depósito externos		Costos del tratamiento externo y depósito	
Código	Tipo	Código PROCEFF	Generado (Ton/Mes)	SI/NO	Método aplicado y porcentaje del total (Ver nota 1)			Transporte	Tratamiento/depósito	Transporte	Pesos/Mes
C-13	Desechos de producción de alimentos **										
C-14	Vidrio y Cerámica										
C-15	Metales y Chatarra										
C-16	Papel y Cartón										
C-17	Plásticos										
C-18	Goma										
C-19	Textiles y Cuero										
C-20	Desechos de tipo doméstico										
C-21	Madera										
C-22	Escoria de fundición										
C-23	Desechos de Construcción "										
C-24	Otros Desechos Sólidos										

5 Identificación de Sustancias Peligrosas de las Categorías de Desechos Seleccionados

Indicar las sustancias peligrosas y método de almacenamiento

Categoría de Desecho		Sustancias peligrosas (favor indique las relevantes)											Almacenamiento separado		Instalación de Almacenamiento (favor especificar)		
Código	Tipo	Código PROCEFF	Hg	Pb	Cr	Cd	As	CN	PCB	Solventes	Componentes Orgánicos fosforado						
C-1	Cenizas incluyendo la de incineración																
C-2	Polvo y productos de APC *																
C-3	Lodo Inorgánico																
C-4	Lodo Orgánico																
C-5	Asbesto																
C-6	Acidos																
C-7	Alcalis																
C-8	Solventes																
C-9	Residuo Aceitoso																
C-10	Residuos Químicos inorgánicos																
C-11	Residuos Químicos Orgánicos																
C-12	Otros Desechos Líquidos																

6. Manejo Actual de Desechos Peligrosos

6.1 Describa el sistema actual de manejo de los materiales y desechos peligrosos en su fábrica (respuestas plurales se aceptan):

1. Existen personas responsables por el manejo y control de los materiales y desechos peligrosos.
2. Existen procedimientos establecidos para los materiales y desechos peligrosos.
3. Los desechos y materiales peligrosos están claramente definidos y marcados.
4. Los desechos y materiales peligrosos se almacenan separadamente.
5. En la fábrica existen instalaciones para el tratamiento de los desechos peligrosos (Favor describir el tipo de ellos _____

_____)
6. Otros (Favor especificar _____
_____)

6.2 Indique sus actuales problemas en relación con el manejo de desechos peligrosos (respuestas plurales se aceptan):

1. Falta de regulaciones y normativas que definan que hacer.
2. Falta de información para identificar que es un residuo peligroso.
3. Falta de información sobre tecnologías para un adecuado almacenamiento y depósito de desechos peligrosos.
4. No hay tratamiento ni instalaciones de depósito de desechos peligrosos.
5. Limitaciones financieras para el tratamiento de desechos peligrosos.
6. Falta de laboratorios para la identificación de desechos peligrosos.
7. Otros (Favor especificar _____
_____)

6.3 ¿Cuál es su opinión acerca del sistema de manejo de desechos peligrosos en la Región Metropolitana?

1. No hay problemas específicos en el actual sistema de manejo.
2. El actual sistema de manejo necesita ser gradualmente mejorado para aplicar estándares más elevados.
3. Es necesaria una mejora urgente.
4. Otros (Favor especificar _____
_____)

7. Manejo Futuro de los Residuos Peligrosos

7.1 ¿Cómo será el desarrollo de la generación de desechos peligrosos en su fábrica?

1. No se incrementará mayormente (el desecho peligroso).
2. Aumentará debido al crecimiento en la producción, cambio en las materias primas, etc.
3. Disminuirá debido a las mejoras en los procesos productivos y cambio en las materias primas, etc.
4. Desechos peligrosos como: lodos, solventes, ácidos, álcalis, etc., aumentarán debido al fortalecimiento de las normas de calidad de aguas de descarga.
5. Polvos peligrosos aumentarán debido al fortalecimiento de las normas de calidad de gases.
6. Otros (Favor especificar _____)

7.2 ¿Cuál es su intención acerca del sistema de manejo futuro de desechos peligrosos en su fábrica?

1. Básicamente, aplicaremos el sistema actual.
2. Intentaremos mejorar el sistema actual de nuestra compañía independientemente.
3. Mejoraremos nuestro sistema de acuerdo con el aumento de las regulaciones ambientales.
4. Otros (Favor especificar _____)

7.3 ¿Cuál es su intención acerca de la futura reducción y reciclaje de desechos en su fábrica?

1. Básicamente, aplicaremos el sistema actual.
2. Intentaremos mejorar el actual sistema de reducción y reciclaje de desechos.
3. Tenemos un plan específico para mejorar el sistema de reducción y reciclaje de desechos en nuestra fábrica. (Favor especificar el plan _____)

7.4 ¿Cuál es su intención concerniente al tratamiento y la disposición final de los desechos en su fábrica?

1. Básicamente, aplicaremos el sistema actual.
2. Intentaremos mejorar el presente sistema de tratamiento y disposición de nuestra fábrica.
3. Tenemos un plan específico para mejorar el sistema de tratamiento y disposición de nuestra fábrica. (Favor especificar el plan _____)

7.5 En caso de necesitar tratar desechos peligrosos, ¿Cómo responde a las necesidades?

1. Instalaremos nuestro propio tratamiento.
2. Encargaremos a otra compañía, si es más barato que hacerlo nosotros mismos.
3. Encargaremos a otras compañías, aún cuando sea algo más caro que el costo de nuestro propio tratamiento.
4. Otros (Favor especificar _____)

7.6 ¿Cómo considera los costos probablemente altos de la disposición de desechos peligrosos?

1. Los costos de disposición de los desechos no son significativos y su aumento no será importante.
2. Los costos de disposición de los desechos son significativos y los costos considerablemente altos afectarán el precio de nuestros productos.
3. Los costos de disposición de los desechos son muy significativos y los considerablemente altos costos afectarán la existencia de nuestra fábrica.
4. Un mejoramiento del manejo de desechos es necesario para obtener una imagen de conciencia ambiental de nuestros productos - no importando los costos.
5. Otros (Favor especificar _____)

*A.3 LIST OF FACTORIES
SURVEYED*

Table List of Factories Surveyed

Table with columns: CATEGORIAS, CIU A, CIU B, CIU C, NAME OF INDUSTRIES, ADDRESS, PROVINCIA, COMUNA, INTERVIEW, POSITION, PHONE. The table lists various industrial facilities across different regions of Chile, including their names, addresses, provinces, municipalities, interviewees, positions, and phone numbers.

A.4 GENERAL DATA

*A.5 PRODUCTION PROCESS
AND MATERIALS FLOW*

Use of Raw Material

Industrial Category	CHU	RUF	Nos. of Industries	Raw Material											
				Heavy Metals	Solvents	Acids	Alkalis	Pigments	Oils	Asbestos	Others				
Highly Potential Industries	351	87.001.500-3	1			1	1						1		
		90.100.000-k	1				1	1		1					
		3512	81.098.500-3	1	1						1				
			90.073.000-4	1		1	1	1						1	
			92.893.000-9	1		1								1	
	3513	92.181.000-8	1		1	1			1	1					
	351 Total			6	1	3	4	3	1	3			3		
	352	3521	9.068.000-0	1	1	1			1	1					
			91.666.000-6	1		1	1	1	1	1				1	
			94.860.000-5	1		1			1	1	1			1	
		3522	61.605.000-1	1											1
			81.378.300-2	1		1	1	1	1	1	1				1
			81.493.800-k	1		1	1	1	1	1	1				1
			86.390.100-6	1		1	1	1	1	1	1				1
			90.322.000-7	1		1	1	1	1	1	1				1
91.039.000-7			1		1	1	1	1	1	1				1	
91.320.000-4			1												
91.637.000-8			1		1	1	1	1	1	1				1	
91.760.000-7			1		1				1	1				1	
3523			84.071.900-6	1		1	1	1	1	1	1				1
		86.780.400-5	1		1	1									
		91.042.000-3	1							1				1	
		91.913.000-8	1						1	1					
		92.042.000-1	1		1		1			1				1	
		92.405.000-4	1			1	1	1	1					1	
		92.809.000-0	1			1	1	1	1	1				1	
		93.664.000-1	1		1	1	1	1	1	1				1	
3529		93.681.000-4	1		1	1	1	1	1	1				1	
		88.981.900-6	1		1				1	1				1	
		90.436.000-7	1		1	1	1	1	1	1				1	
		92.091.000-9	1		1				1	1				1	
		92.099.000-2	1		1	1								1	
		96.565.420-8	1							1				1	
352 Total			26	1	19	15	14	19	21			20			
354	3540	80.228.500-0	1										1		
		84.060.600-0	1										1		
		92.264.000-9	1		1	1	1	1	1	1			1		
		96.526.350-0	1		1	1									
354 Total			4		2	2	1	1	1	1		3			
356	3560	78.167.120-7	1		1					1					
		79.932.700-7	1		1				1				1		
		83.653.100-0	1										1		
		84.185.400-4	1				1	1	1	1					
		84.912.700-4	1							1			1		
		86.474.000-k	1		1				1	1					
		86.778.100-5	1		1	1	1	1	1				1		
		87.006.000-9	1	1	1			1	1	1			1		
		89.010.400-2	1		1	1	1	1	1	1					
		92.147.000-2	1		1				1	1					
		92.274.000-3	1		1				1						
92.371.000-0	1						1								
92.615.000-6	1		1												
356 Total			13	1	9	3	3	9	7			5			
371	3710	9.289.200-3	1	1	1		1	1	1						
		90.320.000-6	1	1	1				1			1			
		92.176.000-0	1		1				1	1					
		93.160.000-1	1		1				1	1			1		
		93.628.000-5	1		1	1				1					
		93.926.000-5	1										1		
96.103.000-5	1	1			1										
371 Total			7	3	5	1	2	1	5			3			

Use of Raw Material

Industrial Category	CIU	RUT	Nos. of Industries	Raw Material								
				Heavy Metals	Solvents	Acids	Alkalis	Pigments	Oils	Asbestos	Others	
	3720	91.021.000-9	1	1	1	1	1	1	1			
	3721	82.510.200-0	1		1	1					1	
	3722	91.449.000-6	1	1	1			1	1		1	
		92.261.000-2	1	1			1					
372 Total			4	3	3	2	2	2	2		2	
	3811	93.364.000-0	1	1		1	1				1	
		93.731.000-5	1		1				1			
	3813	80.893.200-8	1		1							
		85.425.400-6	1		1					1		
		85.530.000-0	1							1		
		92.340.000-1	1							1		1
		92.370.000-5	1		1	1	1	1	1	1		
		92.544.000-0	1	1		1				1		1
		95.147.000-7	1		1	1	1	1	1			1
	96.551.980-7	1	1	1	1	1	1	1	1	1		
	3814	84.898.000-5	1			1			1	1		1
		85.202.900-5	1		1	1	1		1	1		
		89.996.200-1	1		1	1						1
		91.601.000-1	1				1	1		1		
		91.881.000-5	1			1	1		1	1		
		92.065.000-7	1	1			1	1		1		
		92.543.000-5	1	1							1	1
		92.567.000-6	1			1			1	1		
		92.723.000-3	1			1			1	1		
		93.401.000-0	1				1	1		1		1
	96.554.720-7	1			1	1	1	1	1	1	1	
	3815	80.339.900-k	1	1		1				1	1	1
		91.410.000-3	1	1			1			1	1	1
		92.190.000-7	1									
		92.698.000-9	1			1				1		
		96.565.870-K	1	1			1	1				1
	3819	79.534.110-2	1						1	1		
		83.017.600-4	1	1		1			1	1		1
		83.574.800-6	1	1	1	1	1		1	1	1	
		84.716.400-K	1		1	1	1			1		
		85.261.700-4	1						1	1		
		96.716.860-2	1						1			1
381 Total			32	12	15	17	11	13	24	4	14	
Total Highly Potential Industries			92	21	56	44	36	46	63	5	50	
Potential Industries	3211	79.609.190-8	1	1	1	1	1	1	1		1	
		83.589.300-6	1									
		84.035.800-3	1			1					1	
		88.184.400-9	1									
		90.718.000-k	1		1	1	1	1	1		1	
		90.933.000-9	1		1	1	1	1	1		1	
		91.415.000-0	1		1	1	1	1	1		1	
		91.468.000-k	1			1	1	1	1	1	1	
		91.781.000-1	1			1			1	1	1	
		92.198.000-0	1			1	1	1	1			
		92.451.000-5	1							1		
		92.675.000-3	1			1	1	1	1		1	
		92.861.000-4	1			1	1	1	1	1		
		93.209.000-7	1			1	1	1	1	1	1	
		94.583.000-K	1		1	1	1	1			1	
		96.003.000-1	1		1	1	1	1	1	1	1	
		96.500.230-8	1			1	1	1	1	1	1	
3211 Total			17	1	6	15	13	14	12		13	
Potential Industries	3231	79.962.720-5	1	1	1	1	1	1	1			
		89.283.900-K	1	1	1	1	1	1	1		1	
		91.710.000-4	1	1	1	1	1	1	1		1	
		92.334.000-9	1									

Use of Raw Material

Industrial Category	CIU	RUT	Nos. of Industries	Raw Material								
				Heavy Metals	Solvents	Acids	Alkalis	Pigments	Oils	Asbestos	Others	
3231 Total			4	3	3	3	3	3	3		2	
	3319	89.469.900-0	1		1							
3319 Total			1		1							
341	3411	90.222.000-3	1		1	1	1					
		96.593.660-2	1		1		1	1				
	3412	83.609.800-5	1		1						1	
		89.201.400-0	1				1				1	
		92.305.000-0	1								1	
		96.537.740-9	2	1	2	2	1	1	2		1	
	3419	89.611.200-7	1									
		92.766.000-8	1		1				1	1		1
94.282.000-3		1			1	1		1				
341 Total			10	1	6	4	3	4	5		5	
3420	3420	60.806.000-6	1	1	1	1	1	1	1	1	1	
		82.136.800-6	1				1	1				
		91.215.000-3	1	1	1	1		1	1		1	
		91.408.000-2	1			1	1	1	1			
		91.994.000-k	1		1	1	1		1			
		93.002.000-1	1	1				1	1			
		93.781.000-8	1		1	1						1
		94.672.000-3	1		1			1				
3420 Total			8	3	5	5	3	6	6	1	3	
355	3551	89.255.900-7	1		1			1	1			
		92.854.000-6	1		1				1			
	3559	79.561.570-9	1				1	1	1		1	
		83.070.800-6	1			1		1	1		1	
		91.619.000-k	1		1			1	1			
355 Total			5		3	1		4	5		2	
362	3620	84.974.300-7	1			1	1	1	1			
		90.331.000-6	1			1			1			
		90.687.000-2	1		1	1	1	1			1	
		93.372.000-4	1			1	1	1	1			
		362 Total			4		1	3	3	3		1
3699	3699	93.275.000-7	1		1					1	1	
		95.050.000-K	1						1		1	
3699 Total			2		1				1	1	2	
382	3823	95.065.600-1	1		1	1				1	1	
		61.105.000-3	1		1	1			1		1	
	3829	87.682.500-7	1		1				1			
		90.274.000-7	1		1	1	1	1	1			
		91.234.000-7	1		1		1		1			
		92.970.000-7	1	1	1	1	1	1	1			
		93.402.000-6	1									
382 Total			7	1	6	4	3	2	5	1	2	
383	3831	89.091.900-6	1		1				1			
		92.805.000-9	1									
	3839	90.761.000-4	1	1	1	1	1	1	1		1	
		91.006.000-7	1	1		1	1	1	1			
		91.335.000-6	1								1	
		92.017.000-5	1		1	1	1	1	1			
		92.052.000-6	1		1	1	1	1	1		1	
383 Total			7	2	4	4	4	4	5		3	
384	3842	61.216.000-7	1		1			1	1			
		78.284.100-9	1		1				1			
	3843	84.652.600-5	1	1	1	1	1	1	1	1	1	
		93.113.000-5	1		1			1	1			
		93.576.000-3	1		1	1						
		61.113.000-7	1	1	1	1	1	1	1		1	
384 Total			6	2	6	3	2	4	5	1	2	
385	3851	91.531.000-1	1						1			
		92.915.000-7	1			1		1	1		1	

Use of Raw Material

Industrial Category	CIU	RUF	Nos. of Industries	Raw Material								
				Heavy Metals	Solvents	Acids	Alkalis	Pigments	Oils	Asbestos	Others	
385 Total			2			1		1	2		1	
390	3909	92.642.000-3	1		1			1	1		1	
390 Total			1		1			1	1		1	
625	6253	2.741.500-8	1						1			
		81.754.800-8	1									
		85.086.100-5	1									
625 Total			3						1			
952	9520	3.286.228-4	1		1						1	
		5.666.030-5	1		1			1			1	
		82.054.900-7	1		1							
		83.995.400-K	1		1						1	
		85.291.200-6	1		1						1	
		85.579.100-5	1			1	1	1	1		1	
		85.590.200-1	1				1					
952 Total			8		6	1	2	2	1		6	
Total Potential Industries			85	13	49	44	36	48	55	4	43	
Less Potential Industries	311	82.557.000-4	1									
		91.944.000-7	1						1		1	
		92.185.000-k	1			1	1		1			
		96.568.090-4	1	1								
		96.568.370-4	1		1	1	1	1	1	1	1	
		90.703.000-8	1		1	1	1		1			
		94.167.000-3	1		1	1		1	1		1	
	96.591.040-9	1			1							
	84.476.300-k	1			1			1	1	1		
	311 Total			9	1	3	6	4	3	6	1	4
	313	3133	88.155.900-5	1			1	1		1		1
			91.144.000-8	1				1				1
			96.524.410-7	1			1	1				1
	313 Total			3			2	3		1		3
	3212 - 3213			1		1	1	1		1		
3212 - 3219 Total			1		1	1	1		1			
322	3220	81.840.000-4	1		1						1	
		9.577.470-k	1		1				1		1	
		92.458.000-3	1						1			
		96.068.000-6	1			1			1		1	
		96.569.720-9	1			1	1				1	
322 Total			5		2	2	1		3		4	
324	3240	81.407.200-2	1		1			1	1		1	
		91.384.000-3	1		1	1	1	1	1		1	
324 Total			2		2	1	1	2	2		2	
3691 - 3693			1					1		1		
3691 - 3696 Total			1					1		1		
410	4101	94.272.000-9	1			1	1				1	
410 Total			1			1	1				1	
Total Less Potential Industries			22	1	8	13	11	6	13	2	14	
Grand Total			199	35	113	101	83	100	131	11	107	

		Production Process						
Industrial Category	CHU	RUF	Nos. of Industries	Production Process				
				Heat Charging Process	Watering	Storage Facilities for Liq. Chemicals		
Highly Potential Industries	351	3511	87.001.500-3	1	1	1	1	
			90.100.000-k	1		1	1	
		3512	81.098.500-3	1	1	1		
			90.073.000-4	1	1	1	1	
			92.893.000-9	1	1		1	
	3513	92.181.000-8	1	1				
	351 Total			6	5	4	4	
	352	3521	9.068.000-0	1		1	1	
			91.656.000-6	1	1	1	1	
			94.860.000-5	1		1	1	
			3522	61.605.000-1	1	1	1	1
				81.378.300-2	1	1	1	1
				81.493.800-k	1	1	1	1
				86.390.100-6	1	1	1	1
				90.322.000-7	1	1	1	1
91.039.000-7				1	1	1	1	
3523			91.320.000-4	1	1		1	
		91.637.000-8	1	1	1	1		
		91.760.000-7	1		1	1		
		84.071.900-6	1	1	1			
		86.780.400-5	1	1	1	1		
		91.042.000-3	1	1	1	1		
		91.913.000-8	1	1	1			
		92.042.000-1	1	1	1	1		
		92.405.000-4	1	1	1	1		
92.809.000-0		1	1	1	1			
3529		93.664.000-1	1	1	1			
		93.681.000-4	1	1	1	1		
		88.981.900-6	1		1	1		
		90.436.000-7	1	1	1	1		
		92.091.000-9	1	1	1	1		
		92.099.000-2	1	1	1	1		
352 Total			26	22	25	23		
354	3540	80.228.500-0	1	1				
		84.060.600-0	1	1		1		
		92.264.000-9	1	1	1	1		
		96.526.350-0	1	1	1	1		
354 Total			4	4	2	3		
356	3560	78.167.120-7	1	1	1	1		
		79.932.700-7	1			1		
		83.653.100-0	1	1	1			
		84.185.400-4	1	1	1			
		84.912.700-4	1	1	1			
		86.474.000-k	1	1	1	1		
		86.778.100-5	1	1	1			
		87.006.000-9	1		1	1		
		89.010.400-2	1		1	1		
		92.147.000-2	1		1	1		
		92.274.000-3	1			1		
		92.371.000-0	1	1				
		92.615.000-6	1		1	1		
356 Total			13	7	10	8		
371	3710	9.289.200-3	1	1	1	1		
		90.320.000-6	1	1	1			
		92.176.000-0	1	1	1			
		93.160.000-1	1	1	1	1		
		93.628.000-5	1	1	1			
		93.926.000-5	1	1	1			
371 Total			7	7	7	2		

Production Process

Industrial Category	CIU	RUT	Nos. of Industries	Production Process		
				Heat Charging Process	Watering	Storage Facilities for Liq. Chemicals
372	3720	91.021.000-9	1	1	1	1
	3721	82.510.200-0	1		1	1
	3722	91.449.000-6	1	1	1	1
		92.261.000-2	1	1	1	
372 Total			4	3	4	3
381	3811	93.364.000-0	1	1	1	
		93.731.000-5	1	1	1	
	3813	80.893.200-8	1			1
		85.425.400-6	1			
		85.550.000-0	1		1	
		92.340.000-1	1		1	1
		92.370.000-5	1	1	1	1
		92.544.000-0	1	1	1	1
		95.147.000-7	1	1	1	1
	3814	96.551.980-7	1	1	1	1
		84.898.000-5	1	1	1	1
		85.202.900-5	1	1	1	
		89.996.200-1	1	1	1	1
		91.601.000-1	1	1	1	1
		91.881.000-5	1	1		
		92.065.000-7	1	1	1	1
		92.543.000-5	1	1	1	
		92.567.000-6	1	1		1
		92.723.000-3	1	1		
	3815	93.401.000-0	1	1	1	
		96.554.720-7	1	1		
		80.339.900-k	1	1	1	1
		91.410.000-3	1	1	1	1
		92.190.000-7	1		1	
		92.698.000-9	1	1	1	1
	3819	96.565.870-K	1	1	1	1
		79.534.110-2	1	1		
		83.017.600-4	1	1	1	1
		83.574.800-6	1	1	1	1
		84.716.400-K	1	1		1
		85.261.700-4	1	1		
	381 Total			32	27	23
Total Highly Potential Industries			92	75	75	61
Potential Industries	3211	79.609.190-8	1	1	1	1
		83.589.300-6	1	1	1	
		84.035.800-3	1	1	1	1
		88.184.400-9	1	1	1	
		90.718.000-k	1	1	1	1
		90.933.000-9	1	1	1	1
		91.415.000-0	1	1	1	1
		91.468.000-k	1	1	1	1
		91.781.000-1	1	1	1	1
		92.198.000-0	1	1	1	1
		92.451.000-5	1		1	1
		92.675.000-3	1	1	1	
		92.861.000-4	1	1	1	1
		93.209.000-7	1			1
		94.583.000-K	1	1	1	1
	96.003.000-1	1	1	1	1	
3211 Total			17	15	16	14
3231	3231	79.962.720-5	1			
		89.283.900-K	1	1	1	1
		91.710.000-4	1	1	1	1
			92.334.000-9	1		

Production Process

Industrial Category	CIU	RUT	Nos. of Industries	Production Process		
				Heat Charging Process	Watering	Storage Facilities for Liq. Chemicals
3231 Total			4	2	2	2
3319	3319	89.469.900-0	1	1		1
3319 Total			1	1		1
341	3411	90.222.000-3	1	1	1	1
		96.593.660-2	1		1	1
		83.609.800-5	1		1	
		89.201.400-0	1	1		
		92.305.000-0	1	1	1	
	96.537.740-9	2	2	1	1	
	3419	89.611.200-7	1		1	
		92.766.000-8	1	1		1
		94.282.000-3	1	1	1	
341 Total			10	7	7	4
3420	3420	60.806.000-6	1	1	1	1
		82.136.800-6	1	1		
		91.215.000-3	1	1	1	
		91.408.000-2	1	1	1	
		91.994.000-k	1	1	1	
		93.002.000-1	1		1	
		93.781.000-8	1	1	1	1
		94.672.000-3	1	1	1	
3420 Total			8	7	7	2
355	3551	89.255.900-7	1	1	1	
		92.834.000-6	1	1	1	
		79.561.570-9	1	1	1	
	3559	83.070.800-6	1	1	1	1
		91.619.000-k	1	1	1	1
355 Total			5	5	5	2
362	3620	84.974.300-7	1	1		1
		90.331.000-6	1	1	1	
		90.687.000-2	1	1	1	1
		93.372.000-4	1	1	1	
362 Total			4	4	3	2
3699	3699	93.275.000-7	1	1		
		95.050.000-K	1	1	1	
3699 Total			2	2	1	
382	3823	95.065.600-1	1	1	1	1
		61.105.000-3	1	1	1	1
		87.682.500-7	1	1	1	
		90.274.000-7	1	1		
		91.234.000-7	1		1	
		92.970.000-7	1	1	1	
		93.402.000-6	1		1	1
382 Total			7	5	6	3
383	3831	89.091.900-6	1	1		
		92.805.000-9	1			
	3839	90.761.000-4	1	1	1	
		91.006.000-7	1	1	1	
		91.335.000-6	1	1		
		92.017.000-5	1	1	1	1
		92.052.000-6	1	1	1	
383 Total			7	6	4	1
384	3842	61.216.000-7	1		1	
		78.284.100-9	1			1
	3843	84.652.600-5	1	1		
		93.113.000-5	1	1	1	1
		93.576.000-3	1	1	1	1
3845	61.113.000-7	1	1	1	1	
384 Total			6	4	4	4
385	3851	91.531.000-1	1	1		1
		92.915.000-7	1	1	1	

Production Process

Industrial Category	CHU	RUF	Nos. of Industries	Production Process			
				Heat Charging Process	Watering	Storage Facilities for Liq. Chemicals	
385 Total			2	2	1	1	
390	3909	92.642.000-3	1		1		
390 Total			1		1		
625	6253	2.741.500-8	1		1		
		81.754.800-8	1		1		
		85.086.100-5	1				
625 Total			3		2		
952	9520	3.286.228-4	1	1	1		
		5.666.030-5	1	1	1		
		82.054.900-7	1	1	1		
		83.995.400-K	1	1	1	1	
		85.291.200-6	1	1	1		
		85.579.100-5	1	1	1	1	
		85.590.200-1	1	1	1	1	
		86.187.200-9	1	1	1	1	
952 Total			8	8	8	4	
Total Potential Industries			85	68	67	40	
Less Potential Industries	311	3111	82.557.000-4	1	1	1	
			91.944.000-7	1	1	1	1
		3112	92.185.000-k	1	1	1	1
			96.568.090-4	1	1		
		3113	96.568.370-4	1	1	1	1
			90.703.000-8	1	1	1	1
			94.167.000-3	1	1	1	
			96.591.040-9	1			
		3119	84.476.300-k	1	1	1	1
	311 Total			9	8	7	5
	313	3133	88.155.900-5	1	1	1	1
		3134	91.144.000-8	1	1	1	1
			96.524.410-7	1	1	1	1
	313 Total			3	3	3	3
	3212 - 321	3213	91.008.000-8	1	1	1	1
	3212 - 3219 Total			1	1	1	1
	322	3220	81.840.000-4	1	1	1	1
			9.577.470-k	1	1		
			92.458.000-3	1	1	1	
			96.068.000-6	1	1	1	1
			96.569.720-9	1	1	1	1
	322 Total			5	5	4	3
324	3240	81.407.200-2	1	1	1	1	
		91.384.000-3	1	1	1	1	
324 Total			2	2	2	2	
3691 - 369	3695	96.569.760-8	1	1	1		
3691 - 3696 Total			1	1	1		
410	4101	94.272.000-9	1	1	1	1	
410 Total			1	1	1	1	
Total Less Potential Industries			22	21	19	15	
Grand Total			199	164	161	116	

Pollution Control Facilities

Industrial Category	CHU	RUT	Nos. of Industries	Existing			Planned				
				Flue Gas	Waste Water Treatment	Other	Flue Gas	Waste Water Treatment	Other		
Highly Potential Industries	351	3511	87.001.500-3	1			1				
			90.100.000-k	1							
		3512	81.098.500-3	1	1						
			90.073.000-4	1							
			92.893.000-9	1			1				
	3513	92.181.000-8	1		1				1		
	351 Total				6	1	1	2		1	
	352	3521	9.068.000-0	1		1					
			91.666.000-6	1		1	1		1		
			94.860.000-5	1			1				
		3522	61.605.000-1	1							
			81.378.300-2	1			1				
			81.493.800-k	1	1					1	
			86.390.100-6	1		1				1	
			90.322.000-7	1	1			1	1		
			91.039.000-7	1				1			
			91.320.000-4	1							
			91.637.000-8	1	1	1			1		
			91.760.000-7	1		1	1				
			3523	84.071.900-6	1			1			
		86.780.400-5		1			1				
		91.042.000-3		1							
		91.913.000-8		1							
		92.042.000-1		1							
		92.405.000-4		1				1			
		92.809.000-0		1			1	1			
93.664.000-1		1		1	1						
93.681.000-4		1	1	1							
3529		88.981.900-6	1								
		90.436.000-7	1								
		92.091.000-9	1	1							
		92.099.000-2	1					1	1		
96.565.420-8		1									
352 Total				26	6	11	7	3	4		
354	3540	80.228.500-0	1								
		84.060.600-0	1	1							
		92.264.000-9	1	1	1			1			
		96.526.350-0	1								
354 Total				4	2	1			1		
356	3560	78.167.120-7	1								
		79.932.700-7	1								
		83.653.100-0	1								
		84.185.400-4	1								
		84.912.700-4	1								
		86.474.000-k	1	1	1						
		86.778.100-5	1								
		87.006.000-9	1								
		89.010.400-2	1				1		1		
		92.147.000-2	1			1	1				
		92.274.000-3	1								
		92.371.000-0	1								
		92.615.000-6	1			1					
356 Total				13	1	3	2		1		
371	3710	9.289.200-3	1	1			1		1		
		90.320.000-6	1	1							
		92.176.000-0	1	1							
		93.160.000-1	1	1				1			
		93.628.000-5	1	1	1						
		93.926.000-5	1	1	1						
96.103.000-5	1	1	1			1					
371 Total				7	7	1	1	3	1		

Pollution Control Facilities

Industrial Category	CIU	RUT	Nos. of Industries	Existing			Planned			
				Flue Gas	Waste Water Treatment	Other	Flue Gas	Waste Water Treatment	Other	
372	3720	91.021.000-9	1	1	1			1		
	3721	82.510.200-0	1			1				
	3722	91.449.000-6	1							
		92.261.000-2	1	1	1		1		1	
372 Total			4	2	2	1	1	1	1	
381	3811	93.364.000-0	1					1		
		93.731.000-5	1	1	1					
	3813	80.893.200-8	1							
		85.425.400-6	1							
		85.550.000-0	1			1				
		92.340.000-1	1			1				
		92.370.000-5	1	1	1					
		92.544.000-0	1					1	1	
		95.147.000-7	1	1	1		1			
		96.551.980-7	1			1			1	
	3814	84.898.000-5	1							
		85.202.900-5	1	1						
		89.996.200-1	1							1
		91.601.000-1	1							
		91.881.000-5	1	1						
		92.065.000-7	1	1	1					
		92.543.000-5	1	1	1					
		92.567.000-6	1							
		92.723.000-3	1							
		93.401.000-0	1			1				
	3815	96.554.720-7	1			1	1		1	
		80.339.900-k	1			1				
		91.410.000-3	1	1	1				1	
		92.190.000-7	1			1				
		92.698.000-9	1							
	3819	96.565.870-K	1	1	1				1	
		79.534.110-2	1							
		83.017.600-4	1	1				1	1	
		83.574.800-6	1							
		84.716.400-K	1	1	1					
		85.261.700-4	1							
	96.716.860-2	1								
381 Total			32	11	15	1	3	7	1	
Total Highly Potential Industries			92	30	34	14	10	14	4	
Potential Industries	3211	79.609.190-8	1	1					1	
		83.589.300-6	1					1		
		84.035.800-3	1							
		88.184.400-9	1							
		90.718.000-k	1	1	1				1	
		90.933.000-9	1	1		1				
		91.415.000-0	1			1				
		91.468.000-k	1	1	1					
		91.781.000-1	1					1	1	
		92.198.000-0	1			1	1		1	
		92.451.000-5	1							
		92.675.000-3	1			1				
		92.861.000-4	1							
		93.209.000-7	1							
		94.583.000-K	1				1			1
		96.003.000-1	1			1				
	96.500.230-8	1	1	1			1			
3211 Total			17	5	6	3	2	4	2	
3231	3231	79.962.720-5	1		1			1		
		89.283.900-K	1		1			1		
		91.710.000-4	1		1					
		92.334.000-9	1	1	1					

Pollution Control Facilities

Industrial Category	CIU	RUT	No. of Industries	Existing			Planned		
				Flue Gas	Waste Water Treatment	Other	Flue Gas	Waste Water Treatment	Other
3231 Total			4	1	4			2	
3319	3319	89.469.900-0	1	1		1			
3319 Total			1	1		1			
341	3411	90.222.000-3	1	1	1				
		96.593.660-2	1					1	
	3412	83.609.800-5	1						
		89.201.400-0	1						
		92.305.000-0	1		1			1	
	3419	96.537.740-9	2		1			1	
		89.611.200-7	1			1			
92.766.000-8		1							
341 Total			10	3	5	1	1	4	
3420	3420	60.806.000-6	1			1		1	
		82.136.800-6	1						
		91.215.000-3	1						1
		91.408.000-2	1				1		
		91.994.000-k	1						
		93.002.000-1	1						
		93.781.000-8	1			1	1	1	1
94.672.000-3	1								
3420 Total			8		1	2	2	2	1
355	3551	89.255.900-7	1	1	1				
		92.854.000-6	1						
	3559	79.561.570-9	1						1
		83.070.800-6	1				1		
355 Total			5	1	1	1	2		1
362	3620	84.974.300-7	1		1				
		90.331.000-6	1	1					
		90.687.000-2	1	1			1	1	
		93.372.000-4	1	1					
362 Total			4	3	1		1	1	
3699	3699	93.275.000-7	1						
		95.050.000-K	1	1	1	1	1	1	1
3699 Total			2	1	1	1	1	1	1
382	3823	95.065.600-1	1	1					
		61.105.000-3	1						
	3829	87.682.500-7	1			1		1	
		90.274.000-7	1	1	1				
		91.234.000-7	1		1			1	
		92.970.000-7	1	1	1		1		
93.402.000-6	1	1							
382 Total			7	4	3	1	1	2	
383	3831	89.091.900-6	1						
		92.805.000-9	1						
	3839	90.761.000-4	1	1	1			1	
		91.006.000-7	1	1	1				
		91.335.000-6	1	1	1				
		92.017.000-5	1		1				
92.052.000-6	1		1						
383 Total			7	3	5			1	
384	3842	61.216.000-7	1		1				
		78.284.100-9	1						
	3843	84.652.600-5	1						
		93.113.000-5	1			1			
		93.576.000-3	1		1				
3845	61.113.000-7	1	1	1			1		
384 Total			6	1	3	1		1	
385	3851	91.531.000-1	1	1					
		92.915.000-7	1					1	1

Pollution Control Facilities

Industrial Category	CHU	RUT	No. of Industries	Existing			Planned		
				Flue Gas	Waste Water Treatment	Other	Flue Gas	Waste Water Treatment	Other
385 Total			2	1				1	1
390	3909	92.642.000-3	1		1				1
390 Total			1		1				1
625	6253	2.741.500-8	1		1				
		81.754.800-8	1		1	1			
		85.086.100-5	1						
625 Total			3		2	1			
952	9520	3.286.228-4	1						
		5.666.030-5	1						
		82.054.900-7	1						
		83.995.400-K	1						
		85.291.200-6	1						
		85.579.100-5	1		1	1		1	
		85.590.200-1	1		1				
		86.187.200-9	1						
952 Total			8		2	1		1	
Total Potential Industries			85	24	35	13	10	20	7
Less Potential Industries	311	3111	82.557.000-4	1	1	1			
			91.944.000-7	1		1		1	
		3112	92.185.000-k	1		1	1		
			96.568.090-4	1	1	1			
		3113	96.568.370-4	1		1	1		
			90.703.000-8	1	1	1		1	1
			94.167.000-3	1		1			1
			96.591.040-9	1					
		3119	84.476.300-k	1			1		
		311 Total		9	3	7	3	1	3
		313	3133	88.155.900-5	1	1	1		1
			3134	91.144.000-8	1	1		1	1
			96.524.410-7	1	1		1	1	1
		313 Total		3	3	1	1	2	3
		3212 - 3219	3213	91.008.000-8	1			1	1
	3212 - 3219 Total		1			1	1		
	322	3220	81.840.000-4	1		1			
		9.577.470-k	1		1		1		
		92.458.000-3	1	1					
		96.068.000-6	1		1		1	1	
		96.569.720-9	1		1				
	322 Total		5	1	4		1	2	
	324	3240	81.407.200-2	1					
		91.384.000-3	1			1			
	324 Total		2			1			
	3691 - 3696	3695	96.569.760-8	1		1		1	
	3691 - 3696 Total		1		1	1		1	
	410	4101	94.272.000-9	1	1	1			
	410 Total		1	1	1				
Total Less Potential Industries			22	8	14	6	5	10	1
Grand Total			199	62	83	33	25	44	12

A.6 PRESENT GENERATION

Table ISW Generation Amount Obtained by EMT's RISNOR Study and JICA's Survey

Industrial Category	CITU Employees	No. of Employees	Waste Category																Grand Total (t/month)							
			C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C-10	C-11	C-12	C-13	C-14	C-15	C-16		C-17	C-18	C-19	C-20	C-21	C-22	C-23
Highly Potential Industries	351	3511	3512	3513	3514	3515	3516	3517	3518	3519	3520	3521	3522	3523	3524	3525	3526	3527	3528	3529	3530	3531	3532	3533	3534	3535
Medium Potential Industries	356	3561	3562	3563	3564	3565	3566	3567	3568	3569	3570	3571	3572	3573	3574	3575	3576	3577	3578	3579	3580	3581	3582	3583	3584	3585
Total Highly Potential Industries	351	3511	3512	3513	3514	3515	3516	3517	3518	3519	3520	3521	3522	3523	3524	3525	3526	3527	3528	3529	3530	3531	3532	3533	3534	3535
Medium Potential Industries	356	3561	3562	3563	3564	3565	3566	3567	3568	3569	3570	3571	3572	3573	3574	3575	3576	3577	3578	3579	3580	3581	3582	3583	3584	3585
Total Medium Potential Industries	356	3561	3562	3563	3564	3565	3566	3567	3568	3569	3570	3571	3572	3573	3574	3575	3576	3577	3578	3579	3580	3581	3582	3583	3584	3585
Total Less Potential Industries	351	3511	3512	3513	3514	3515	3516	3517	3518	3519	3520	3521	3522	3523	3524	3525	3526	3527	3528	3529	3530	3531	3532	3533	3534	3535
Grand Total	707	7071	7072	7073	7074	7075	7076	7077	7078	7079	7080	7081	7082	7083	7084	7085	7086	7087	7088	7089	7090	7091	7092	7093	7094	7095

Table ISW Coefficient Amount and Rate obtained by EWT's RISNOR and JICA's Survey

Table with columns for Instrument Category, C/U, 1-24, and Total. It lists various instrument categories (e.g., GRI, GRK, GRM, GRN, GRP) and their corresponding values across 24 time periods. The 'Total' column provides a summary for each category. The values are generally small, with some larger values in the later periods (20-24).

*A.7 FORECAST OF FUTURE
GENERATION*

