



推動資源回收政策 建構循環型社會

Promoting the Recycling
Policy to Construct A
Recycling-Based Society

行政院環境保護署
資源回收基金管理委員會
鄭祖壽 副執行秘書

- 背景說明

Introduction

- 資源回收四合一制度

Four-in-One Resource Recycling Program

- 臺灣資源回收現況

Current Status of Resource Recycling in Taiwan

- 展望與挑戰

Prospect and Challenges



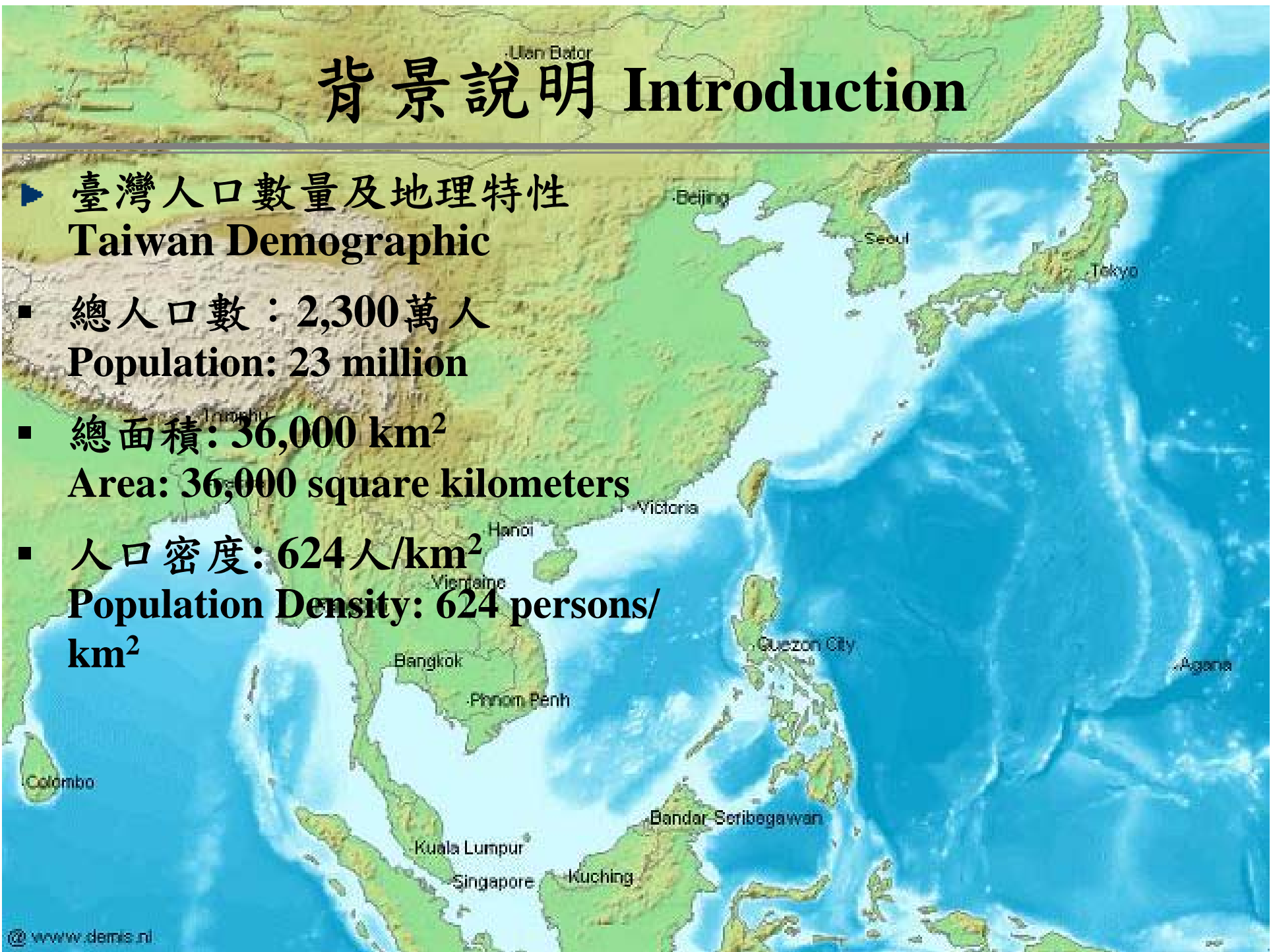
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Executive Yuan, R.O.C.

背景說明 Introduction

▶ 臺灣人口數量及地理特性 Taiwan Demographic

- 總人口數：2,300 萬人
Population: 23 million
- 總面積：36,000 km²
Area: 36,000 square kilometers
- 人口密度：624 人/km²
Population Density: 624 persons/
km²



環境負荷 Environmental Load

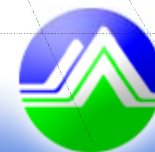
環境負荷與其他國家/地區之比較

Environmental Load Comparison

地區 Area	台灣 TW	大陸 CN	香港 HK	美國 US	日本 JP	德國 DE
人口密度 Population Density	630	133	6,639	31	338	231
汽機車密 度 Mobile Density	561	18	559	25	232	145
豬隻密度 Pig Density	195	47	0.1	6	25	74

單位：數量/平方公里

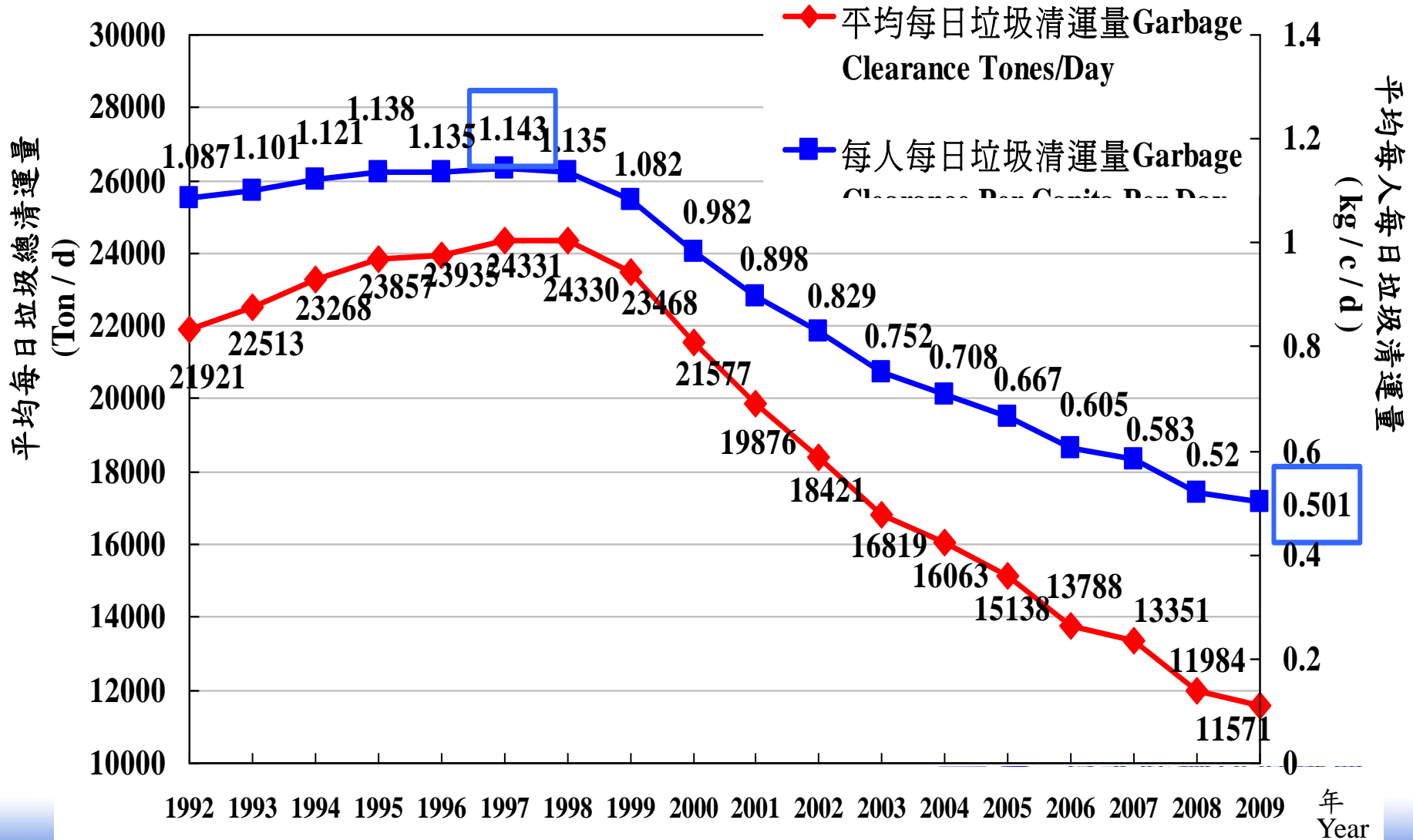
Unit：Number/km²



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垃圾清理概況 MSW Clearance



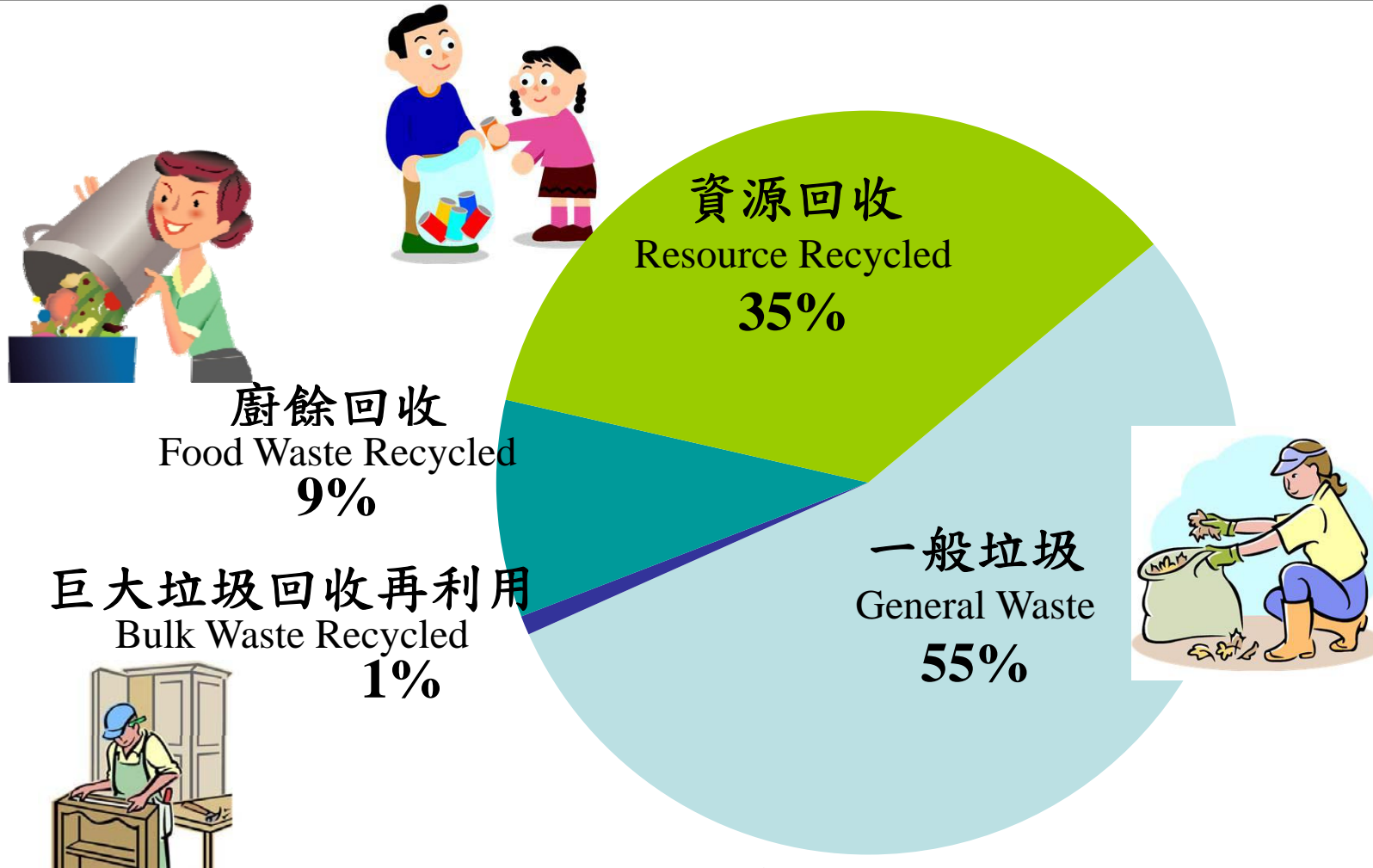
廢棄物管理沿革 MSW Management



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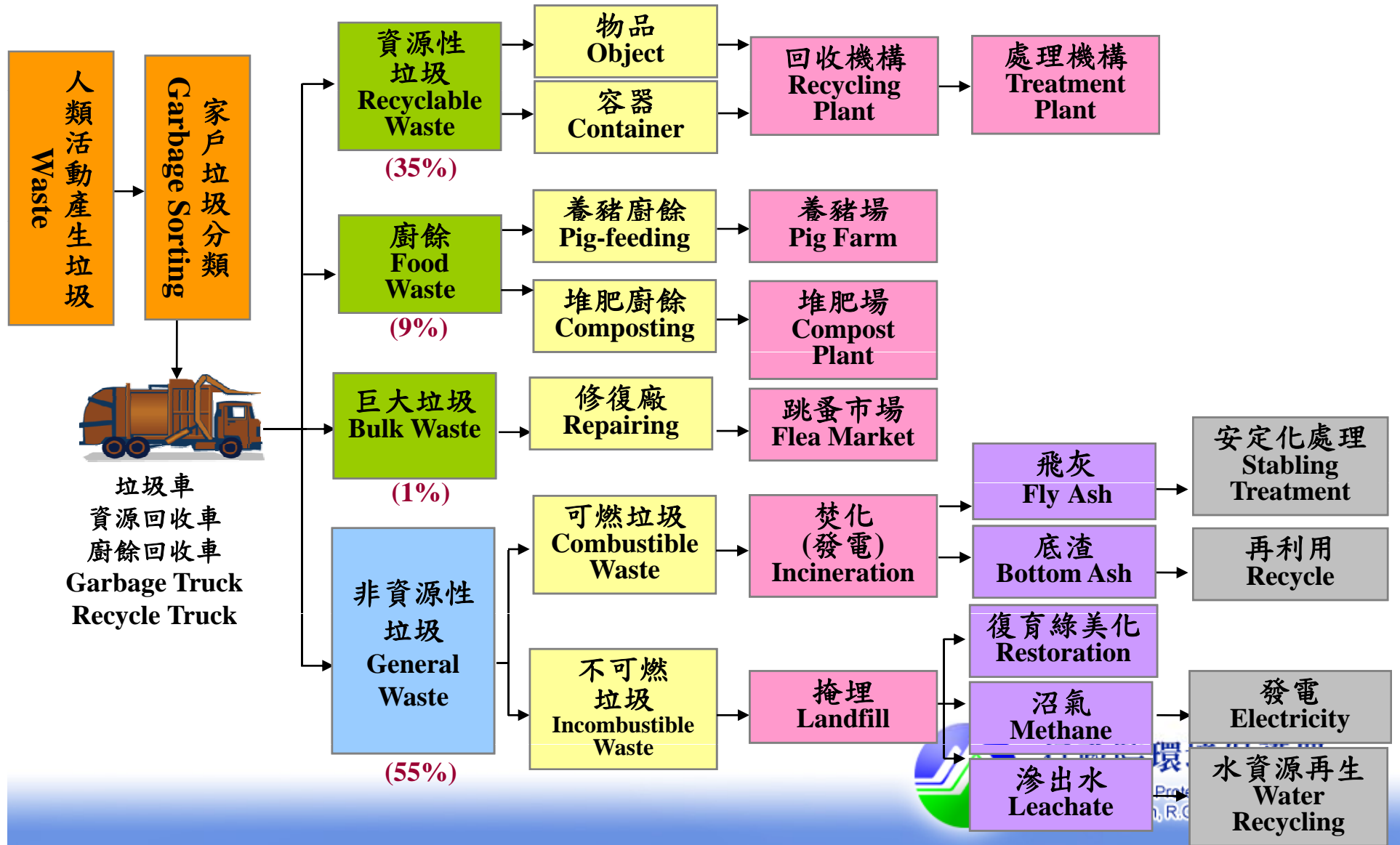
垃圾分類清理概況 MSW Sorting



2009年垃圾分類清理概況

Municipal Solid Waste Sorting in 2009

分類回收與清理架構 Clearance Structure



非資源性垃圾 General Waste



1. 家戶垃圾
General Waste

2. 垃圾費
Garbage Fee

3. 清潔隊
Municipal
Garbage Collection Team



4. 焚化爐
Incinerators

5. 熱能回收
Waste-to-Energy

6. 底渣再利用
Bottom Ash Recycle

巨大垃圾 Bulk Waste



1. 漂流木 Drifting Wood



2. 家戶廢家具 Bulk Waste



3. 廢家具修繕整理 Repair



4. 再生家具 Reuse



5. 修繕展示場 Repair Store



6. 跳蚤市場 Garage Sale

廚餘垃圾 Food Waste



1. 家戶廚餘
Food Waste



2. 清潔隊 Municipal
Garage Collection Team



3. 廚餘處理
Food Waste Treatment



4. 養豬場
Pig Farm



5. 堆肥場
Composting Treatment



6. 社區家庭液肥
Composting Treatment

資源性垃圾 Recyclable Waste

■ 執行機關一般廢棄物應回收項目

Recyclable Waste Recycled by Implementing Agency

- 紙 Paper
- 鐵 Iron
- 鋁 Aluminum
- 玻璃 Glass
- 塑膠 Plastic
- 光碟片 CDs
- 行動電話及其充電器 Cell Phone & Charger



■ 公告應回收項目 Mandatory Recyclable Items



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零廢棄政策- *Zero Waste Policy*

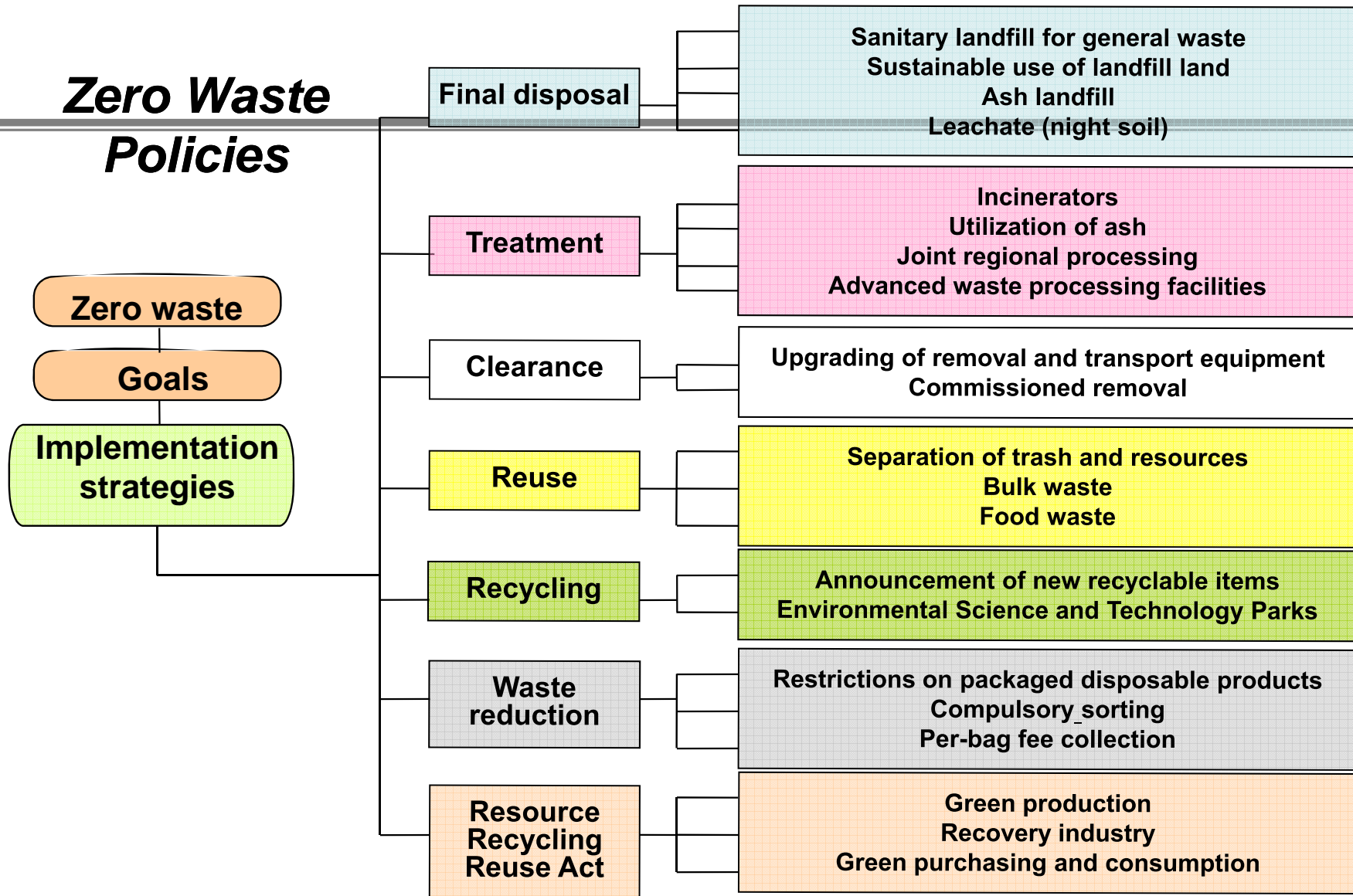
- **手段- To achieve Zero Waste by**
 - Green design, production, consumption, purchasing, source reduction, recycling, reuse, and recovery to reduce consumption of raw materials, promote the efficient use of resources
- **目標 - Reduction targets (the baseline year of 2001)**
 - 2007: 25% 2011: 40% 2020: 75%
- **結果 - After 2007, no untreated trash to be put into landfills (except in remote areas)**



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Zero Waste Policies



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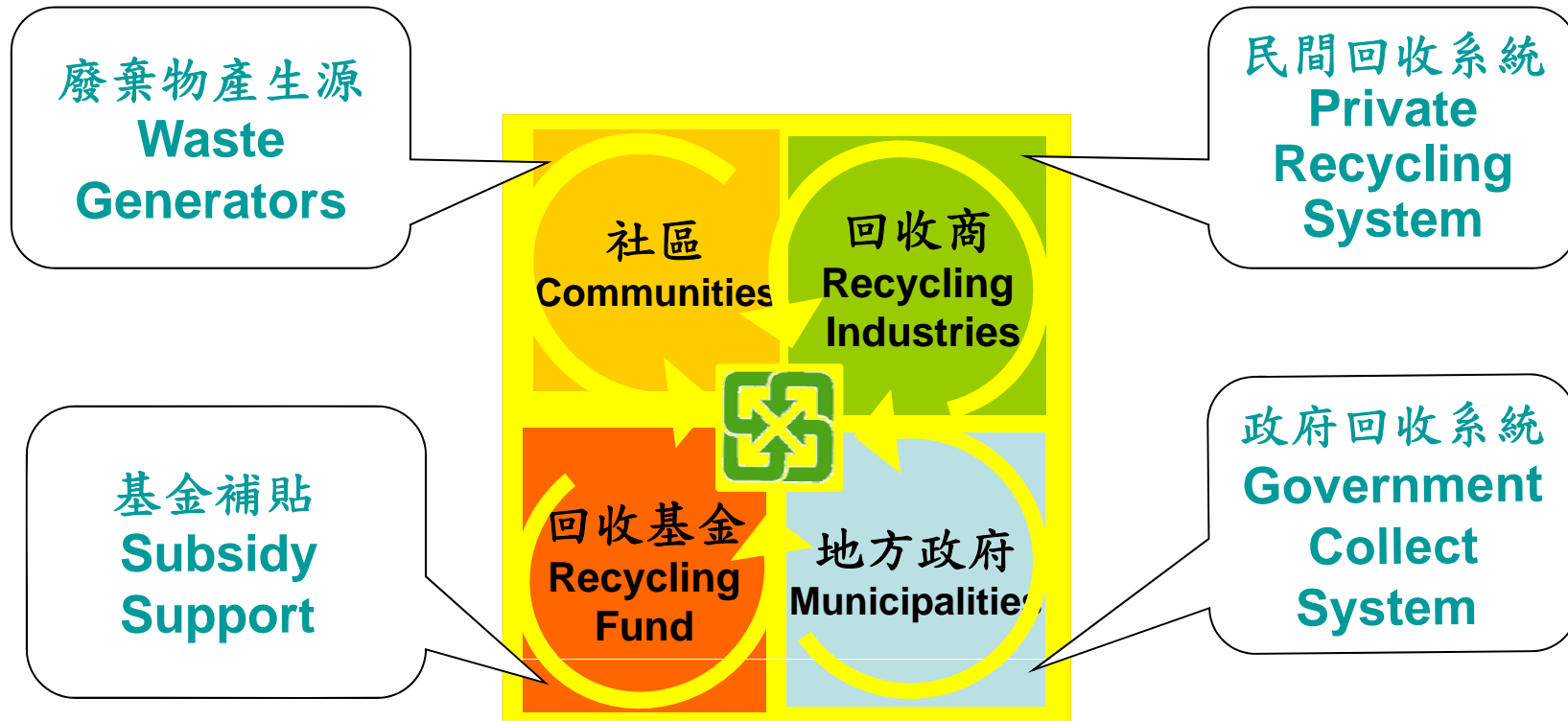
資源回收四合一制度

Four-in-One Resource Recycling Program



資源回收四合一制度

Four-in-One Resource Recycling Program

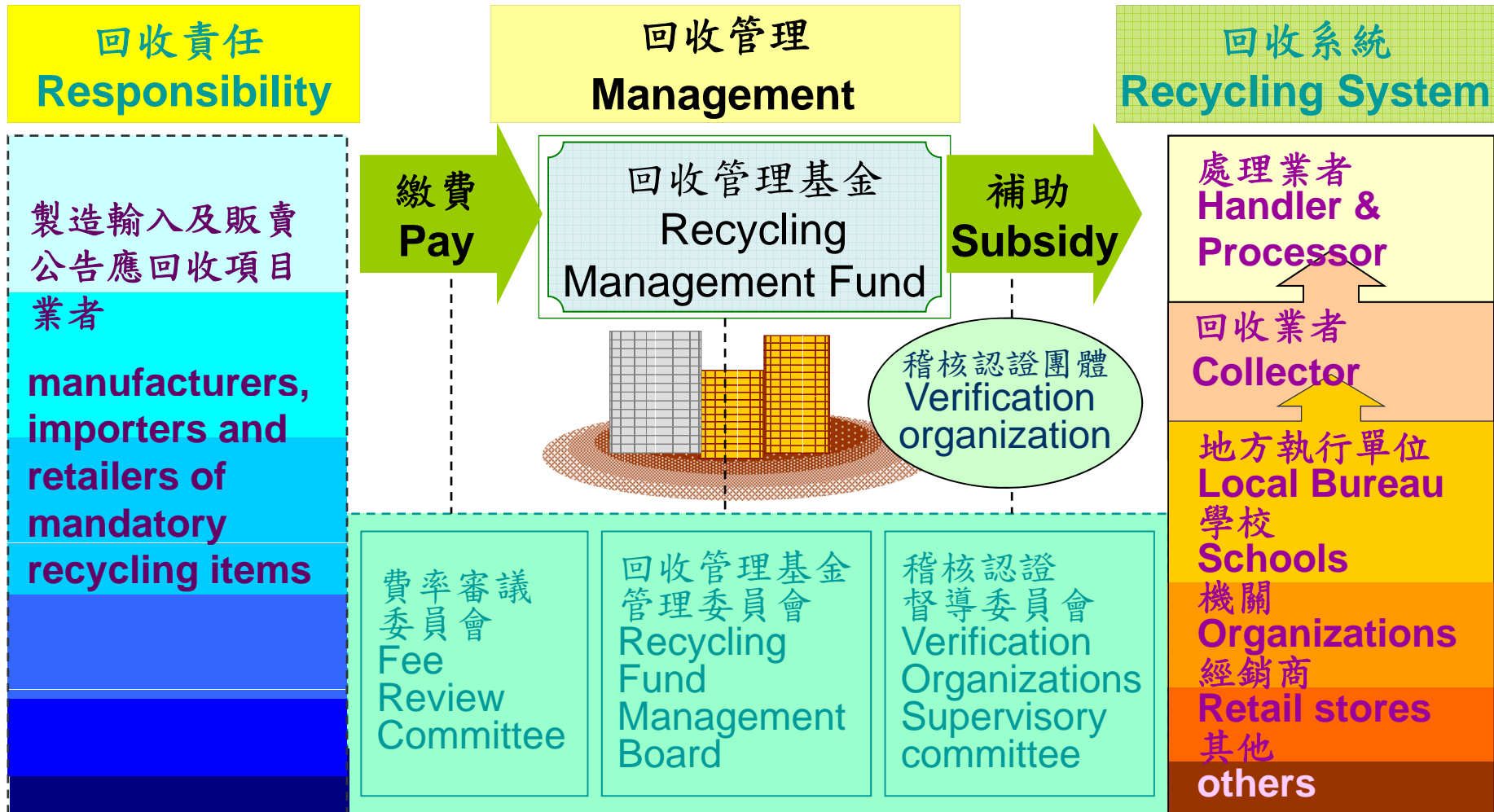


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回收基金功能與運作

Recycling Management Fund Function & Operation



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公告應回收項目 – Due Recycled Waste

Mandatory Recycling Items

1. 鐵容器
Iron container



2. 鋁容器
Aluminum container



3. 玻璃容器
Glass container



4. 紙容器
Paper container



5. 塑膠類
Plastic container



6. 農藥廢容器
Pesticide container



7. 乾電池
General batteries



8. 廢機動車輛
Automobiles\Motorcycles



9. 輪胎
Tires



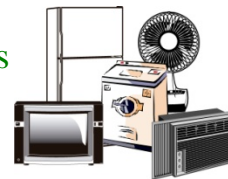
10. 鉛蓄電池
Car batteries

11. 潤滑油
Lubricants

12. 資訊物品類
Electronics IT objects



13. 電子電器類
Household appliances



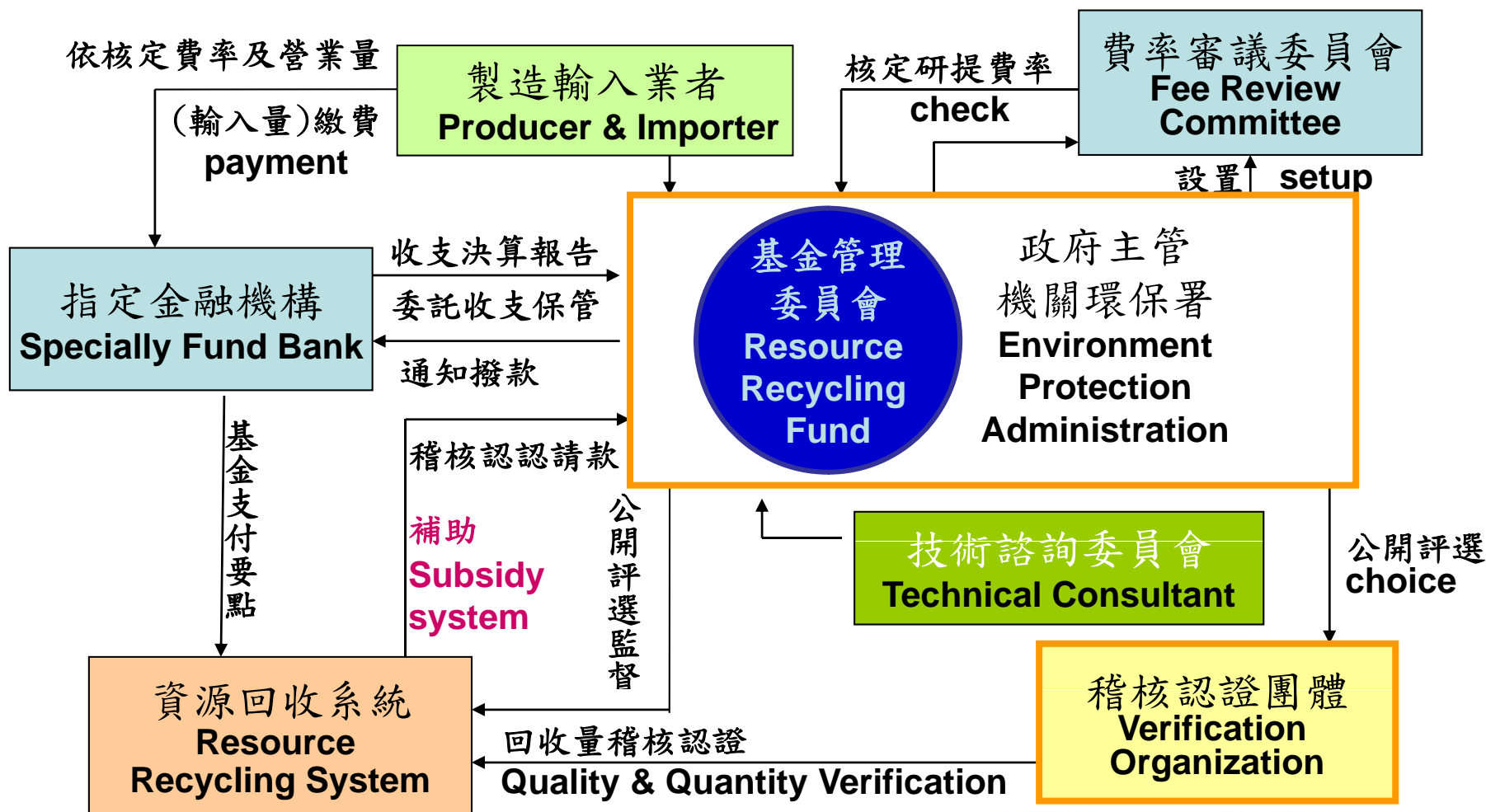
14. 照明光源類
Fluorescent lamp



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四合一資源回收系統 - 4 in 1 resource recycling system

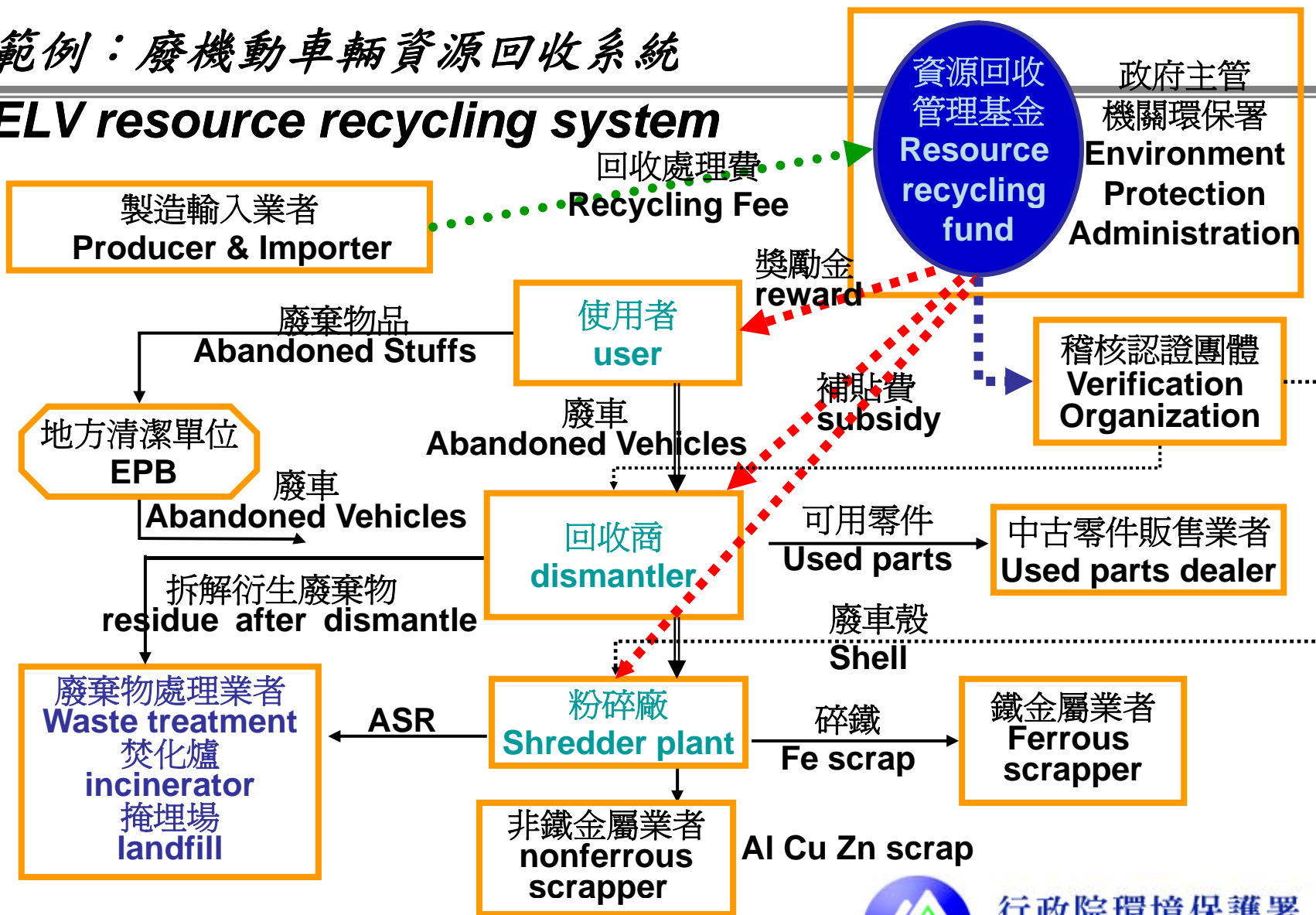


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範例：廢機動車輛資源回收系統

ELV resource recycling system



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公告應回收廢棄物相關法規 – Regulation (I)

廢棄物清理法 - Waste Disposal Act (WDA)

<http://www.epa.gov.tw/english/laws.wasteact.htm>

- 應回收廢棄物責任業者管理辦法
The management measures for Responsible Producer
- 應回收廢棄物回收貯存清除處理方法及設施標準
Criteria governing methods and facilities for recycling, storage, clearance and disposal of Due Recycled Waste
- 應回收廢棄物清除處理補貼申請審核管理辦法
Management measures for application and review of subsidy regarding the recycling and disposal of Due Recycled Waste



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公告應回收廢棄物相關法規 – Regulation (II)

廢棄物清理法 - Waste Disposal Act (WDA)18-23
<http://www.epa.gov.tw/english/laws.wasteact.htm>

- 應回收廢棄物稽核認證作業辦法
The operational measures of inspection and certification of Due Recycled Waste
- 應回收廢棄物回收處業管理辦法
The management measures of scale, registration, cancellation of registration, reporting and other relevant matters of the recycling disposal enterprise



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責任與誘因 - Responsibility & Incentive (I)



廢棄物清理法第16條

According to Article 16 of WDA

Manufacturers and importers must pay a resource recycling fee to the Recycling Management Fund based on the sales/ import amount.



廢棄物清理法第18條

According to Article 18 of WDA

The Responsible Enterprise and the recycling, disposal enterprise may apply with the Resources Recycling Management Fund for subsidy.



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責任與誘因 - Responsibility & Incentive (II)

範例：廢資訊物品 - Electronics IT objects

年 Year	費率 - Recycling Fee (NT/unit)							補貼費 - Subsidy (NT/unit)									
	主機 PC	螢幕 Monitor		筆記型 電腦 Notebook	印表機 - Printer			鍵盤 Key board	主機 PC	螢幕 Monitor		筆記型 電腦 Notebook	印表機 Printer	鍵盤 Key board			
					Laser type	Ink-jet type	Dot- Matrix										
1998	175	125		200	-			-	185.5	245		181	-	-			
1999	175	125		200					-			352			383.5		223
2000	157	147		112					-			352			383.5		223
2001	94	102		52	142	84	156	-	352	383.5		260	192	-			
2002	94	147		52	98	58	108		286.5	292.5		308.5	192				
2003 2006	114.8	127		39	137	81	151		182	215		303	192				
2007	114.8	CRT及 ≤25" LCD	>25" LCD	39	137	81	151	15	182	CRT	LCD	303	150	12			
		127	233						(依主軸元件數 採差別補貼)	215	303						



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範例：廢資訊物品處理規範 – IT objects Treatment Regulation

The treatment should follow the regulation, including the followings:

1. 禁止焚化和掩埋

Landfill or incineration shall be avoided.

2. 陰極射線管螢光粉應妥善處理

The fluorescent coating glass panel of CRT can be further treated.

3. 含汞零組件應以非破壞方式適當處置

All mercury-containing parts must be removed by non-destructive means for proper treatment.

4. 液晶顯示器應妥善處置

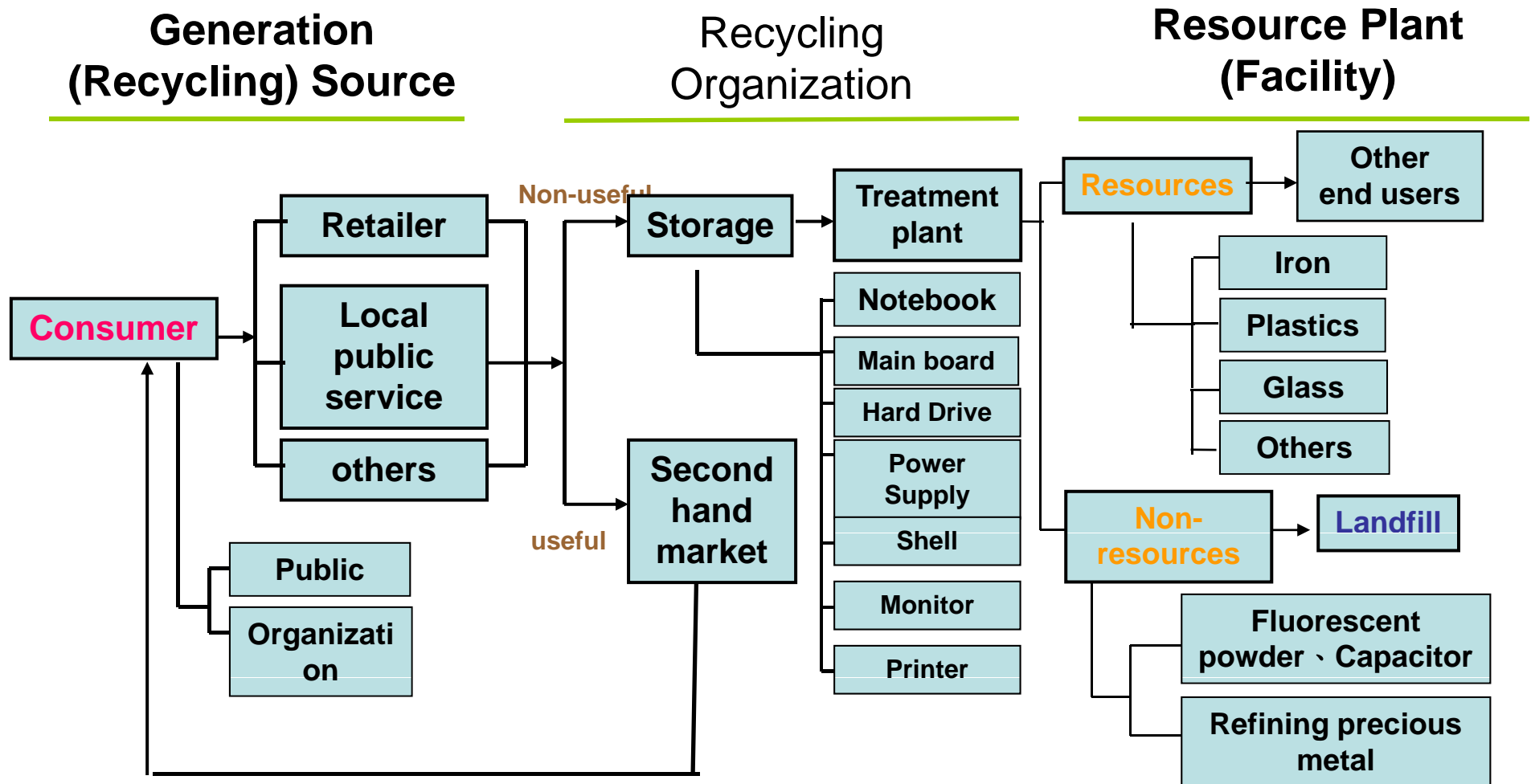
The Liquid Crystal Display must be properly treated.



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Waste IT Object Recycling Flow-chart



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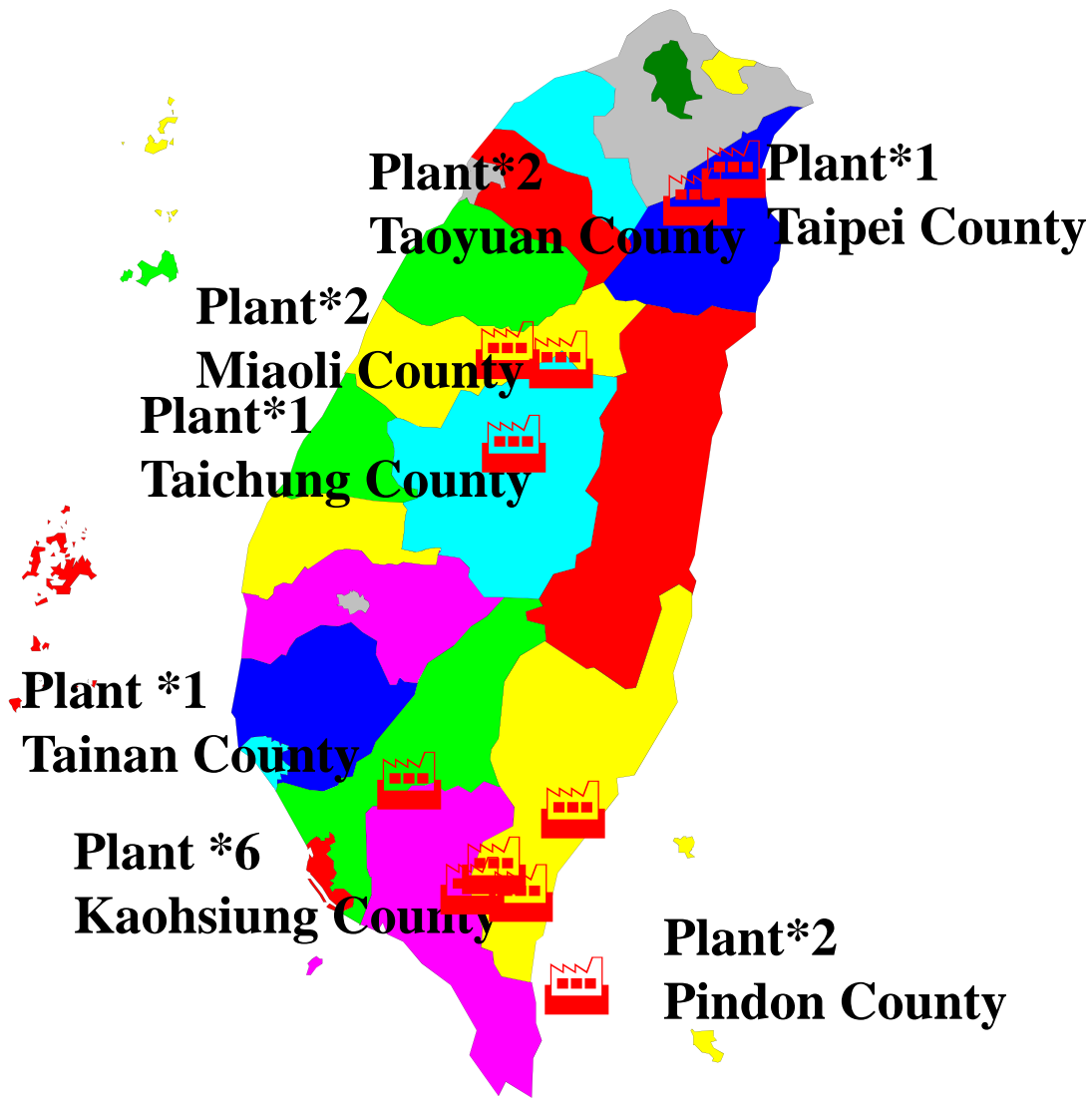
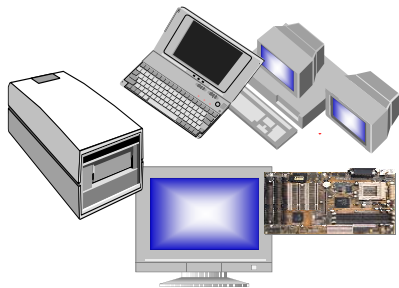


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WEEE Treatment Plant

 The
Location of
Treatment
Plant



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Treatment Process



TV treatment area



Washing Machine treatment area



Refrigerator treatment area



Air conditioner treatment area



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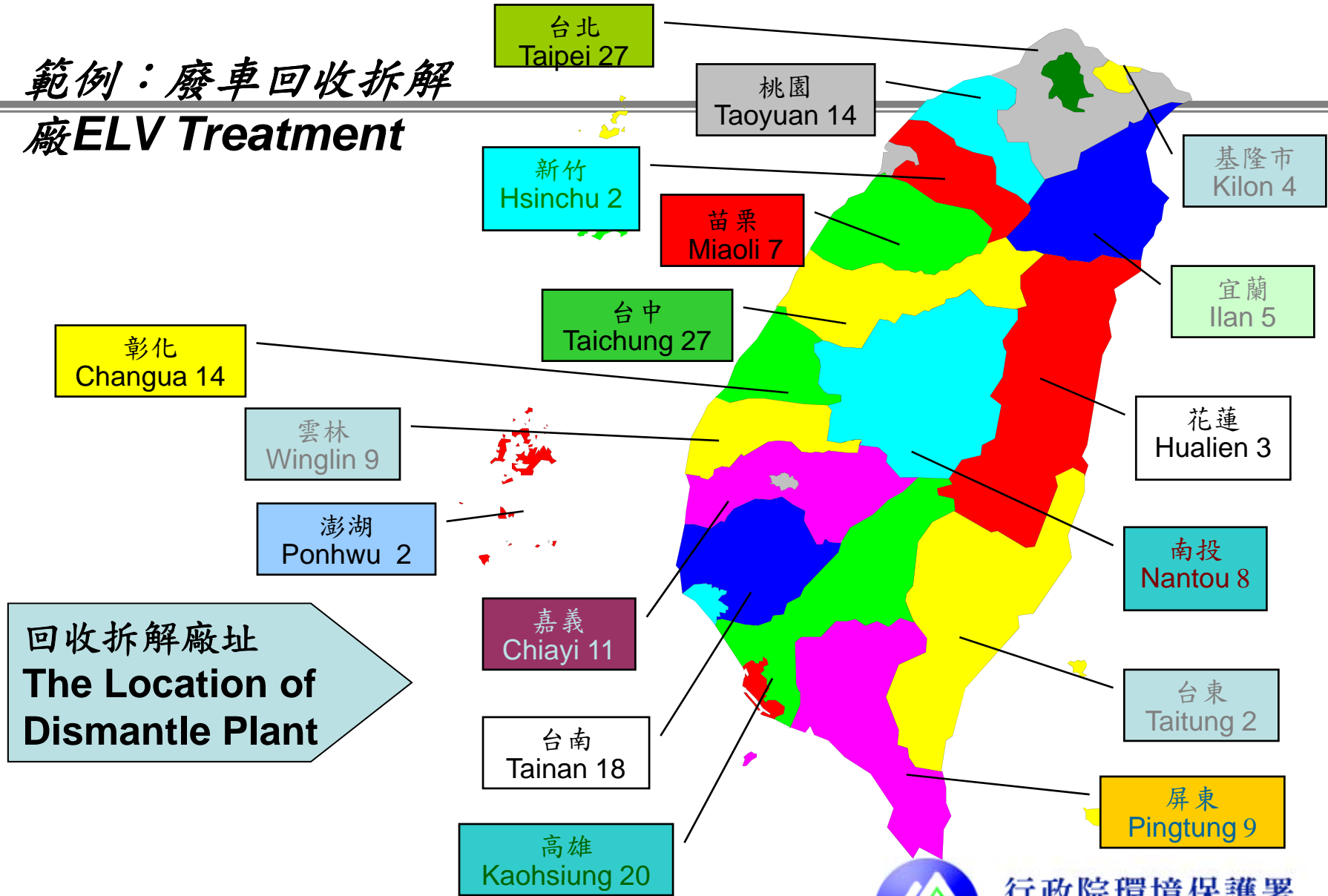
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IT Treatment Process



署
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範例：廢車回收拆解 廠ELV Treatment



回收拆解廠址
The Location of
Dismantle Plant



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廢車處理粉碎廠 ELV Treatment

廢車粉碎廠址
The Location of
Auto Shedder
Plant

桃園縣 1
Taoyuan County

台中縣 1
Taichung
County

高雄縣 2
Kaohsiung County

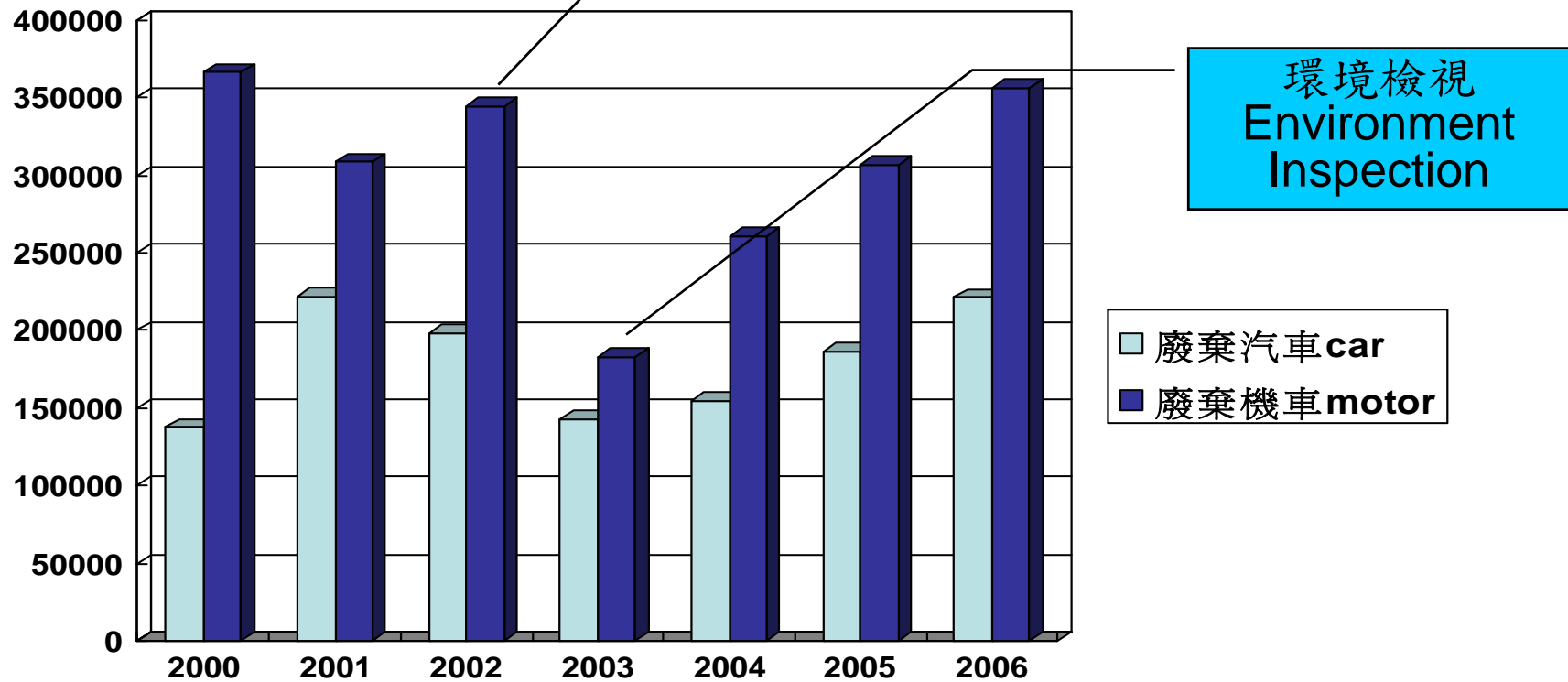
屏東縣 1
Pindon County



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廢機動車輛回收處理成果

ELV Recycling Result



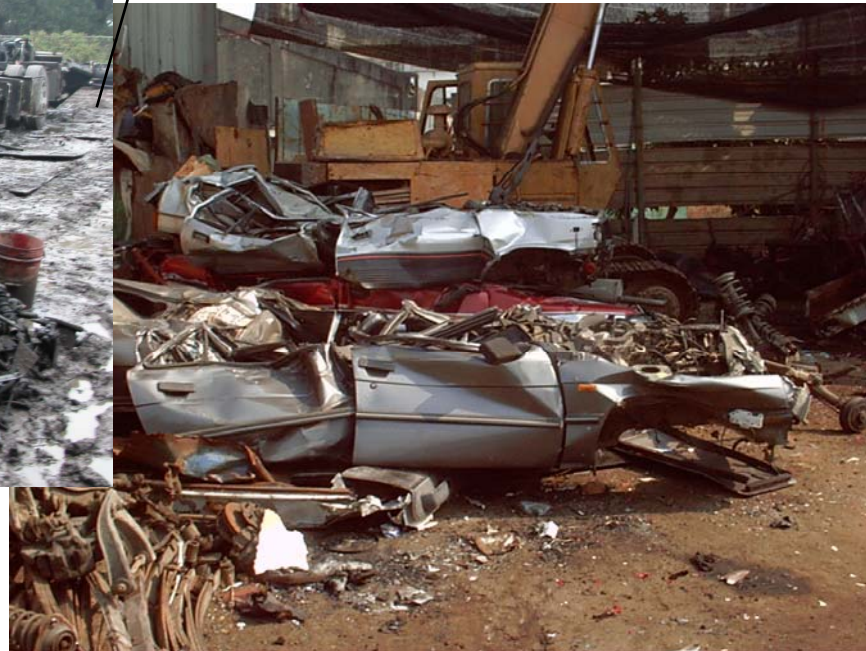
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廢機動車輛回收處理環境改善 Environment Improvement



拆解廠環境問題
Environment
problem of
Dismantle plant



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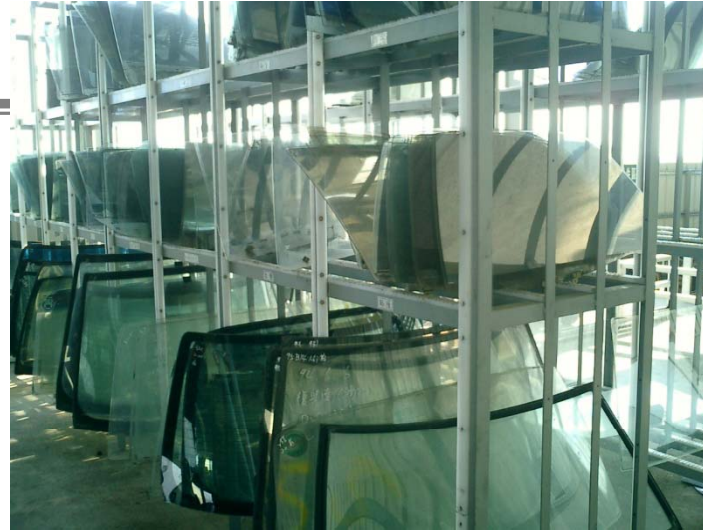
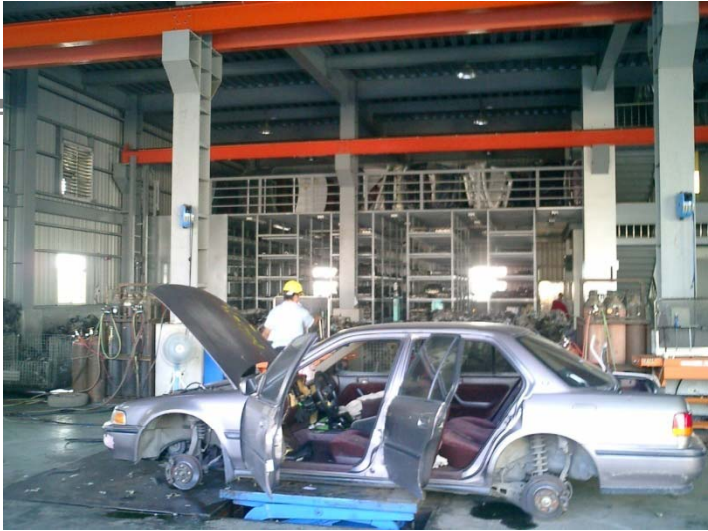
環境改善

Environment Improvement



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資源回收現況

Current Status of Resources Recycling



Mandatory Recycling Items

since 1998

item	year started	item	year started
Tires	1989	Containers	
Lubricants	1990	PET container	1989
Car batteries	1990	Iron container	1989
Automobiles	1994	Aluminum container	1989
Motorcycles	1994	Pesticide container	1989
Household appliances	1997	Foamed PS container	1991
Electronics	1997	PS container	1992
IT objects	1997	PVC container	1992
General		PP/PE container	1992
batteries	1999	Al foil container	1992
Fluorescent lamp	2002	Glass container	1993
		Paper container	1993

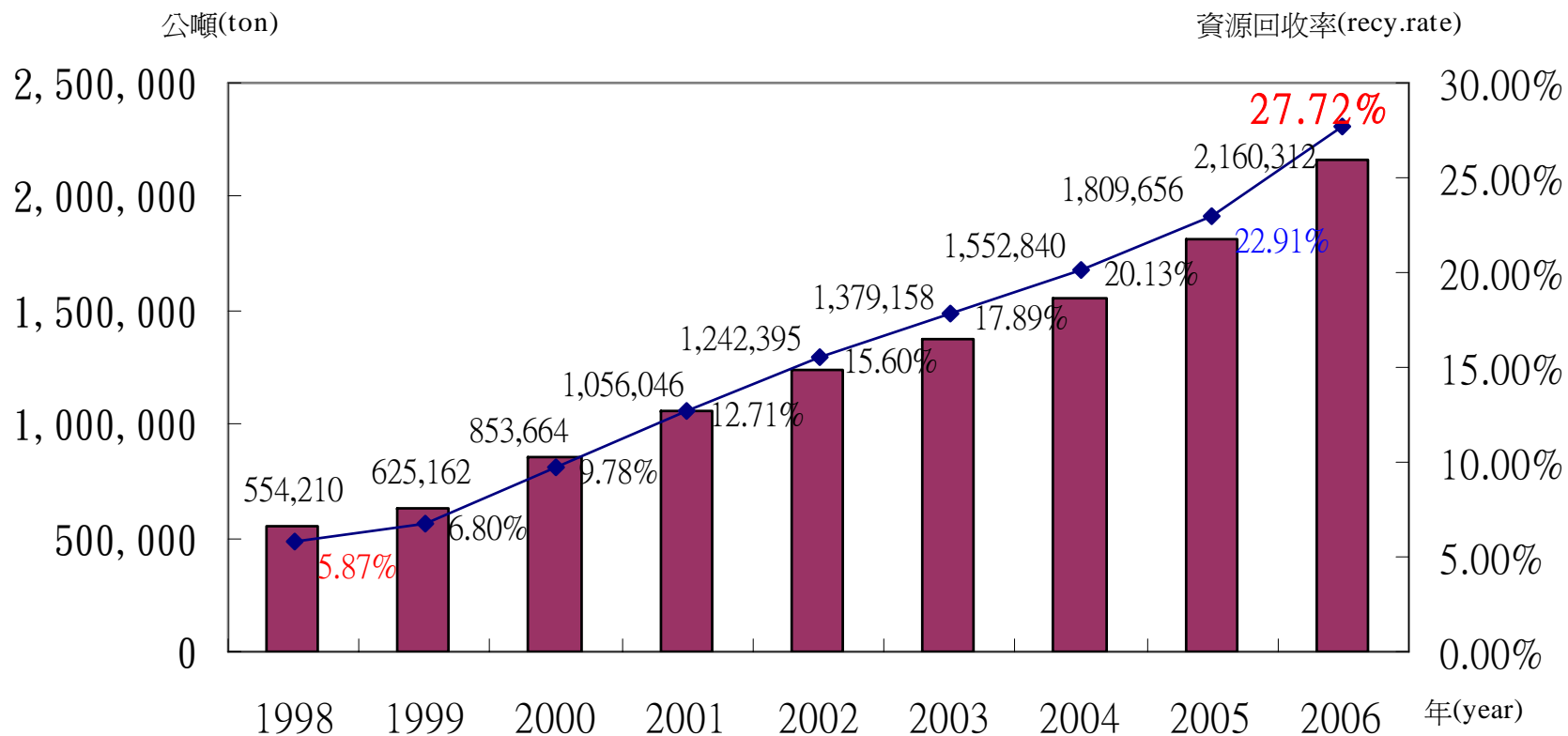


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地方執行機關資源回收量與回收率

Recycling and Reduction Statistics



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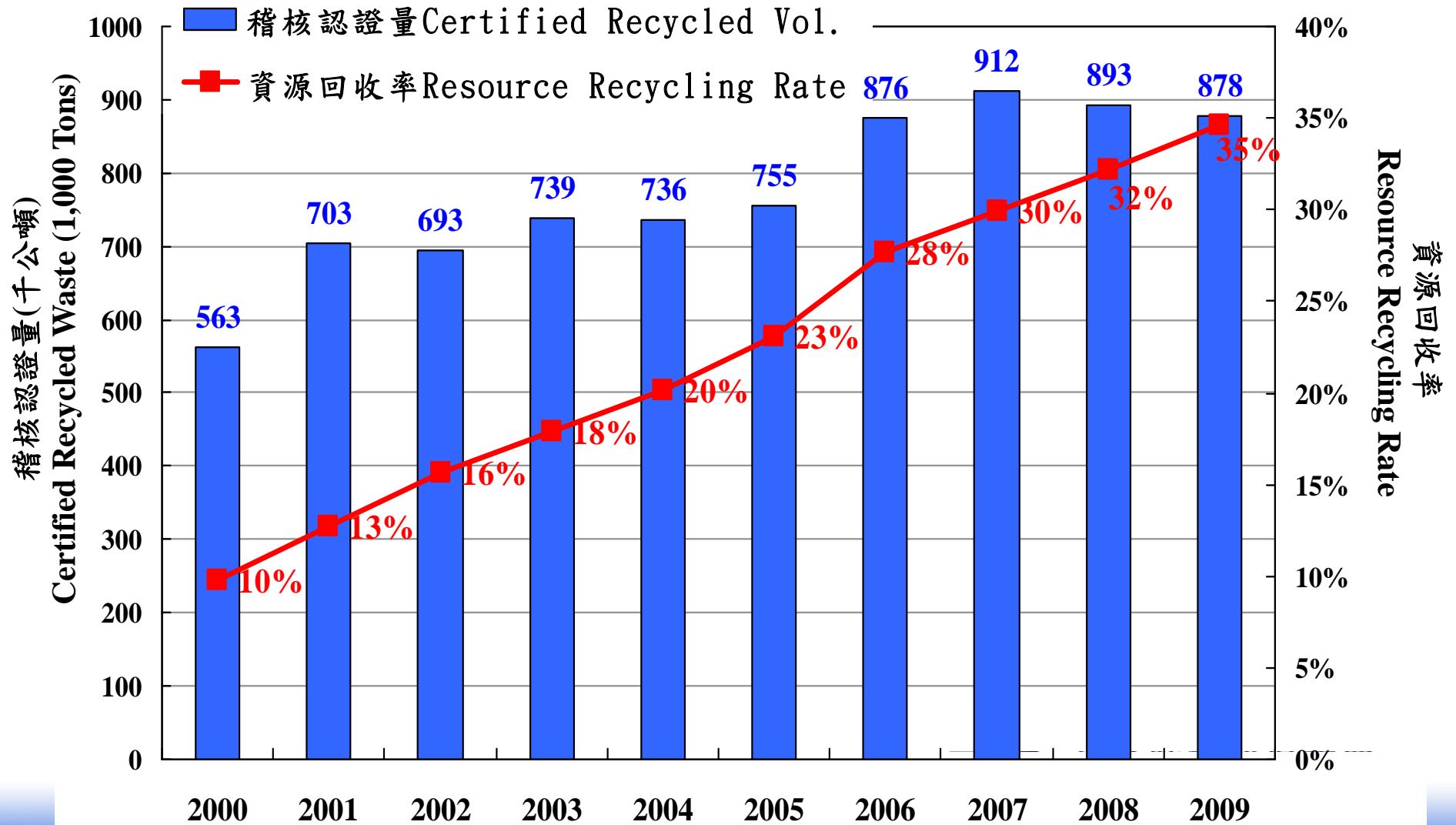
資源回收成效--回收率

Recycling Rate of Mandatory Recyclable Items

公告應回收項目 Mandatory Recycling Items	2007 回收率 Recycling Rate	2008 回收率 Recycling Rate	2009 回收率 Recycling Rate
容器 Container	57.4%	60.0%	66.2%
乾電池 General Battery	27.06%	67.25%	50.85%
汽機車 Automobile/Motorcycle	79.50%	72.85%	91.04%
鉛蓄電池 Lead-Acid Battery	61.38%	62.08%	37.15%
輪胎 Tire	61.99%	68.68%	68.80%
潤滑油 Lubricant	21.23%	44.01%	61.81%
電子電器 Household Appliance	51.00%	53.26%	55.60%
資訊物品 Electronics IT Object	39.77%	39.05%	31.83%
照明光源 Fluorescent lamp	51.78%	56.48%	67.49%

資源回收成效—稽核認證量與資源回收率

Certified Recycled Waste & Resource Recycling Rate



展望與挑戰

Prospect and Challenge



創新 · 進取 · 專業

Prospect and Challenge

展望與挑戰

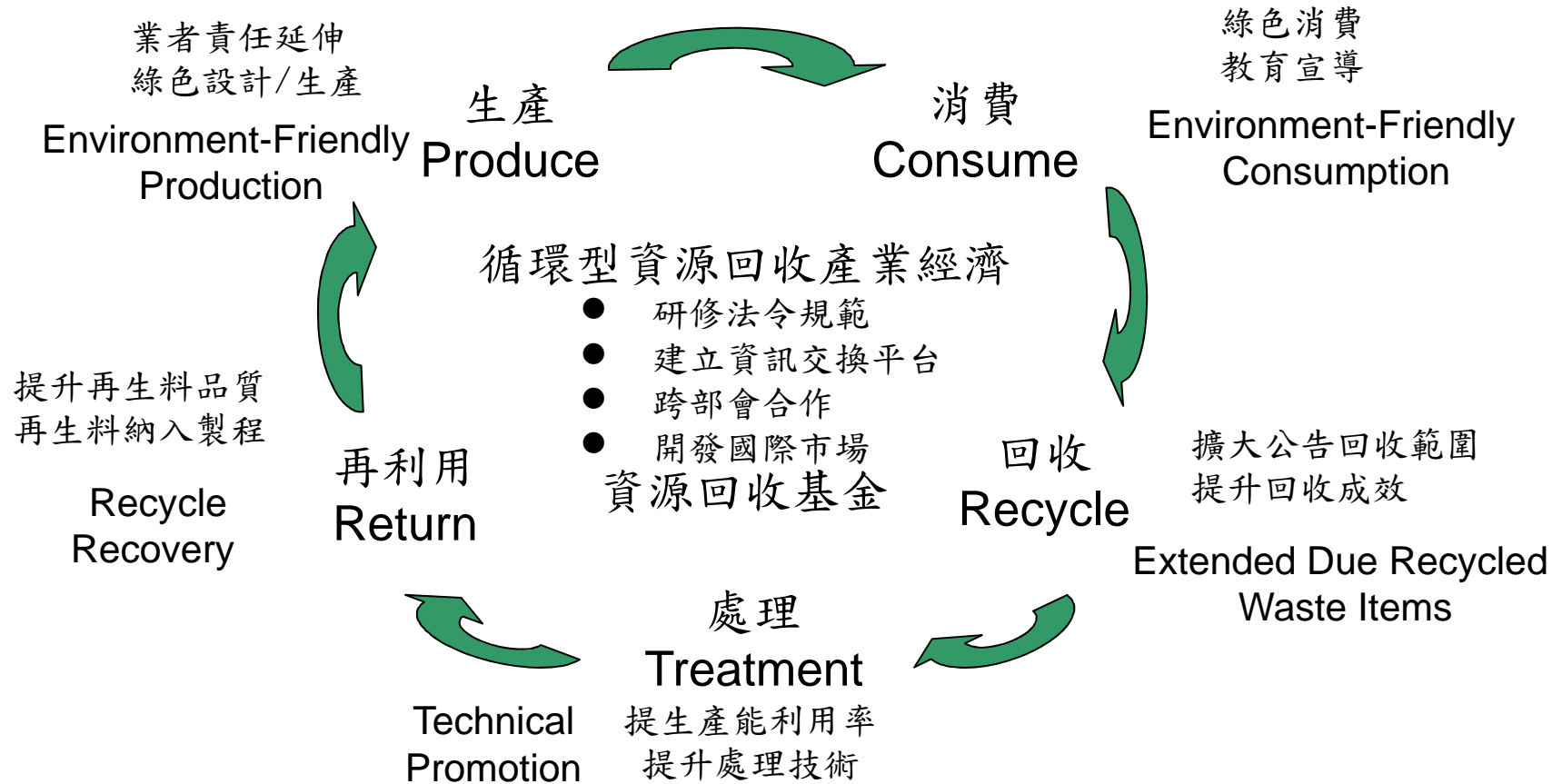
- 複合性材質回收
Complex Material
- 成本效益考量
Cost Consideration
- 回收處理技術探討
Treatment Technique
- 生產業者責任制
Extended Producer Responsibility
- 資源回收產業
Recycling Business Model



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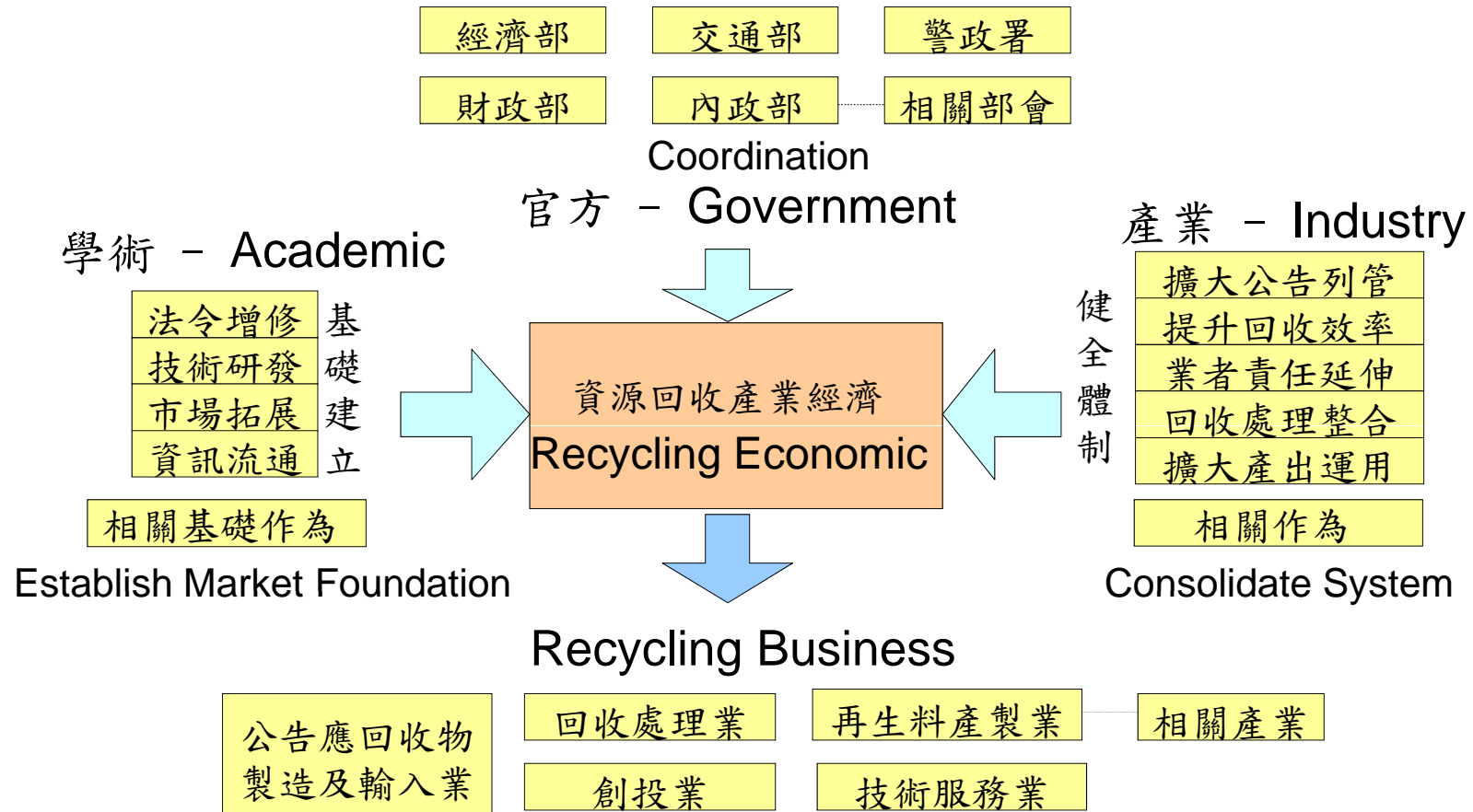
資源回收產業經濟循環 - Recycling Business



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產官學合作推動資源回收產業- Recycling Cooperation



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Thank You for Your Attention

