

Waste Management and Recycling in JAPAN

1. Establishment of a Sound Material-Cycle Society
2. Overview of the Waste Management in Japan
3. Implementation of Recycling Laws

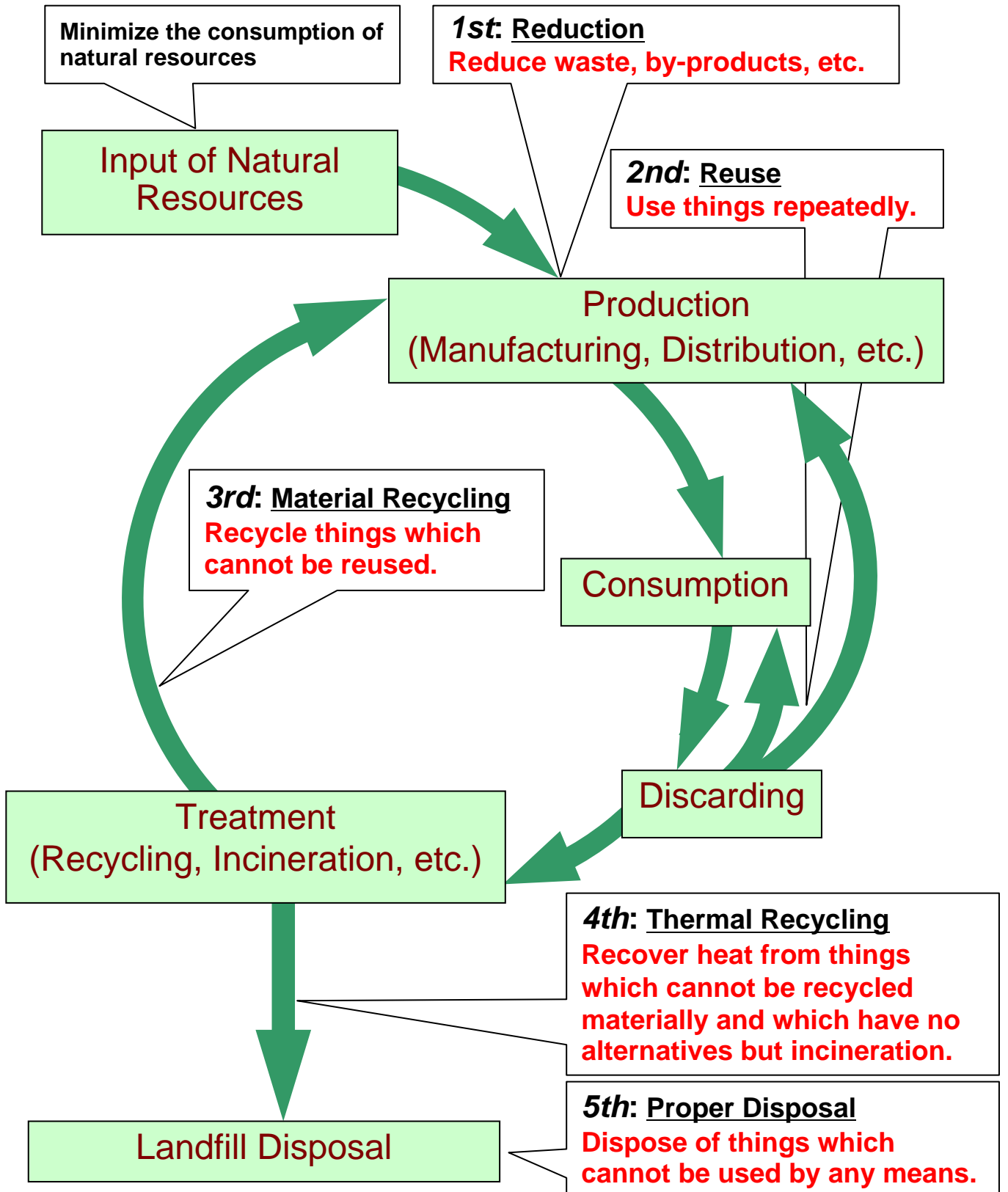


Ministry of the Environment
Government of Japan
June 2004

1. Establishment of a Sound Material- Cycle Society

Japan is Undertaking the Transition to a Sound Material-Cycle Society

Concept of “Sound Material-Cycle Society”



If the above-mentioned order seems not to contribute to the reduction of the environmental load, exceptions are permitted so that different orders can be adopted.

“Fundamental Law for Establishing a Sound Material-Cycle Society”

was enacted in May 2000 in order to enable Japan to transit to a **Sound Material-Cycle Society** during the 21st century.

Sound Material-Cycle Society:

A sound material-cycle society, in which the consumption of natural resources is minimized and the environmental load is reduced as much as possible, is established by promoting reduction, reuse, recycling, heat recovery and appropriate disposal.

Fundamental Law for Establishing a Sound Material-Cycle Society

Purposes of the Law

- Set forth the fundamental policies which facilitate a sound material-cycle society
- Articulate the basic principles underlying such a society
- Clarify the responsibilities of stakeholders
- Establish a Basic Plan

Basic principles

- Realize a society in which sustainable development is possible with less environmental impact
- Prioritize the ways of handling products, waste and recyclables
- Ensure the appropriate material cycle in nature

Responsible Bodies

National government

Citizens

NGOs and NPOs

Business organizations

Local governments

Fundamental Plan for Establishing a Sound Material-Cycle Society

Key Features

- Reductions in the generation of waste
- Appropriate recycling and waste disposal
- Encouragement of the use of recycled products and materials
- Assessment of products and packaging with regard to the “3Rs”
- Implementation of economic measures such as taxes and levies
- Establishing waste management facilities
- Education
- Facilitating of activities of non-governmental organizations
- Research and development
- International collaboration

Legislative Framework to Establish a Sound Material-Cycle Society in Japan

Fundamental Environment Law

Fundamental Environment Plan

Fundamental Law for Establishing a Sound Material-Cycle Society

Fundamental Plan for Establishing a Sound Material-Cycle Society

- Ensuring a sound material cycle in society
- Minimizing the consumption of natural resources
- Reducing environmental loads

Waste Management and
Public Cleansing Law

Appropriate waste management

Law for the Promotion of Utilization
of Recyclable Resources

Promotion of reuse and recycling

Regulations affecting particular categories of items

Container and Packaging Recycling Law

Home Appliance Recycling Law

Construction Material Recycling Law

Food Recycling Law

End-of-life Vehicle Recycling Law

Green Purchasing Law

In March 2003, the Government of Japan established

“Fundamental Plan for Establishing a Sound Material-Cycle Society.”

This Fundamental Plan is established as one of programmes of a 10-year framework in the Johannesburg Plan of Implementation of WSSD in September 2002.

Fundamental Plan for Establishing a Sound Material-Cycle Society

Image of a Sound Material-Cycle Society

Manufacturing: DfE (Design for Environment), long-life products, lease & rental

Waste management: cyclical use, appropriate disposal system

Quantitative Targets: FY2000-2010

1 Targets for Indicators Based on Material Flow Accounts

- a) Resource Productivity
- b) Cyclical Use Rate
- c) Final Disposal Amount

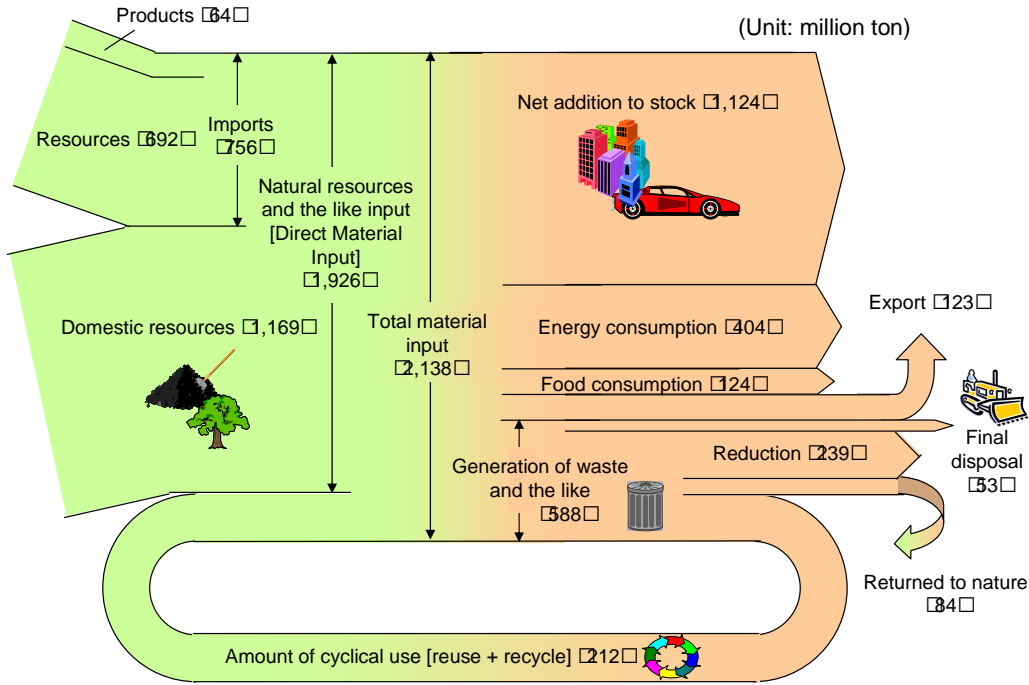
2 Targets for Indices Related to Efforts

- Reducing the quantity of municipal solid waste
20% reduction of garbage discharged from households per person per day compared with FY2000
- Promoting sound material-cycle related businesses
Doubling the size of the related market and the number of related jobs compared with FY 1997

Efforts Required of Entities

- National Government
Fostering partnerships among stakeholders
- Citizens
Changing their lifestyle
- NPOs and NGOs
Promotion of their activities
- Business Organizations
Promoting the “3Rs” based on EPR (Extended Producer Responsibility)
- Local Governments
Enforcing laws and regulations; acting as coordinators

Material Flow Accounts (MFA) of Japan



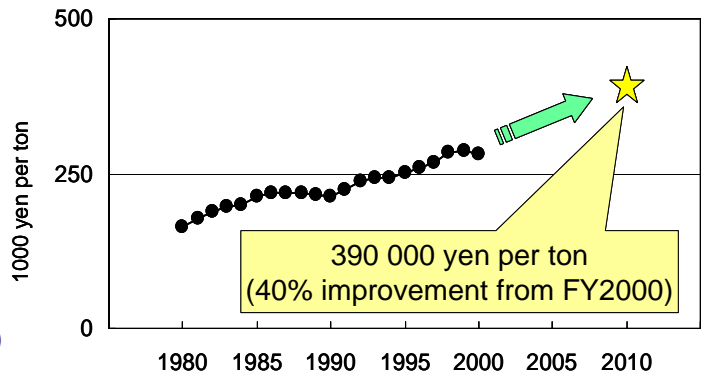
The material flow accounts for FY2001 roughly show:

- 1) Total material input is about 2.1 billion tons.
- 2) Amount of cyclical use (reuse + recycling) is 212 million tons.
- 3) Amount of final disposal (landfill) is 53 million tons.

a) Resource Productivity

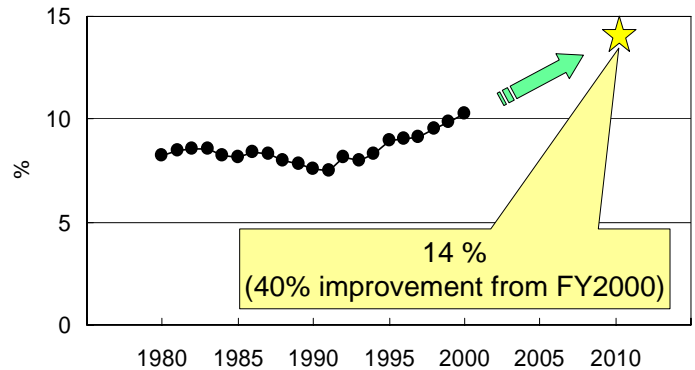
$$\frac{\text{GDP}}{\text{DMI}^*}$$

*DMI: Direct Material Input
(Input of natural resources and the like)



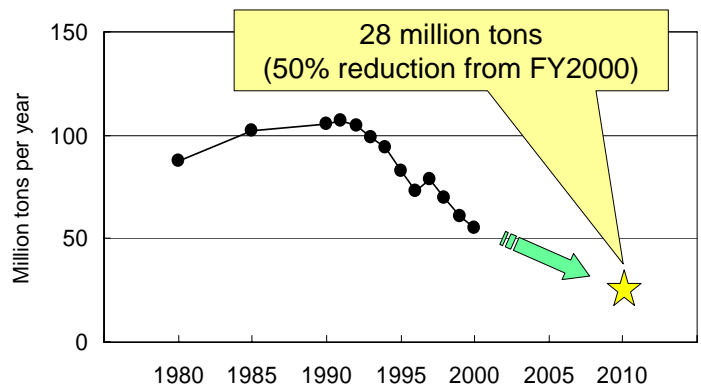
b) Cyclical Use Rate

$$\frac{\text{Amount of cyclical use (reuse + recycling)}}{\text{DMI} + \text{Amount of cyclical use}}$$



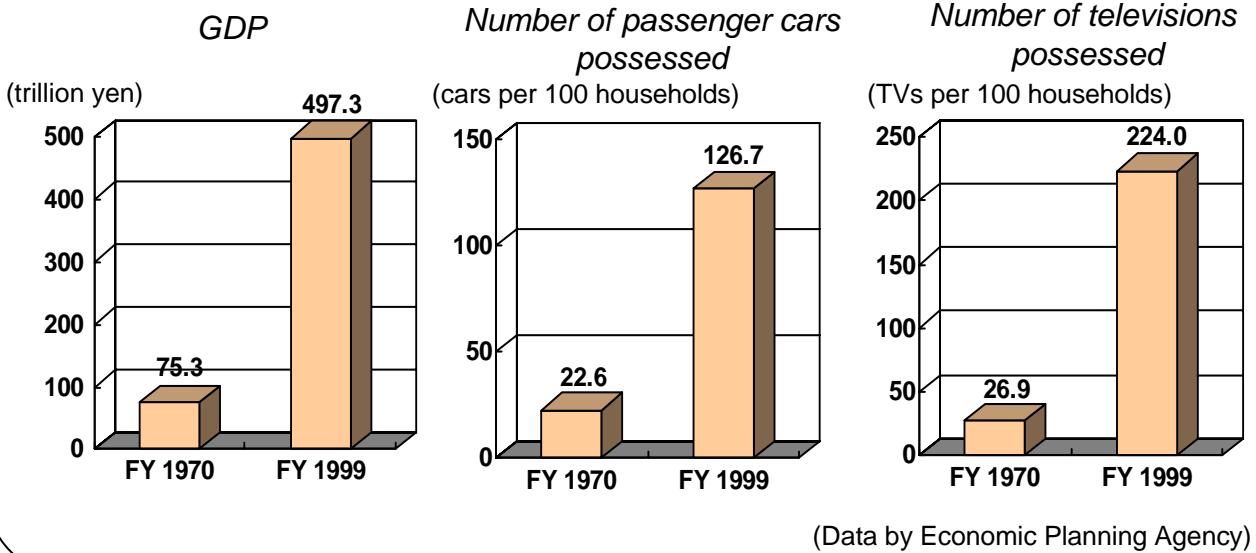
c) Final Disposal Amount

Final disposal amount of waste



Present Situation in Japan

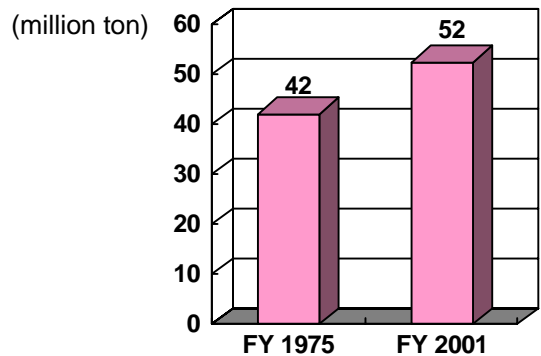
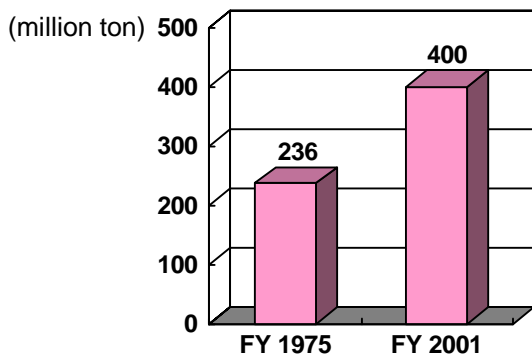
Japan enjoyed a prosperous life in the 20th century, made possible by the system of mass production, mass consumption, and mass disposal.



On account of such a lifestyle, huge amounts of waste have been generated.

The amount of industrial waste discharged

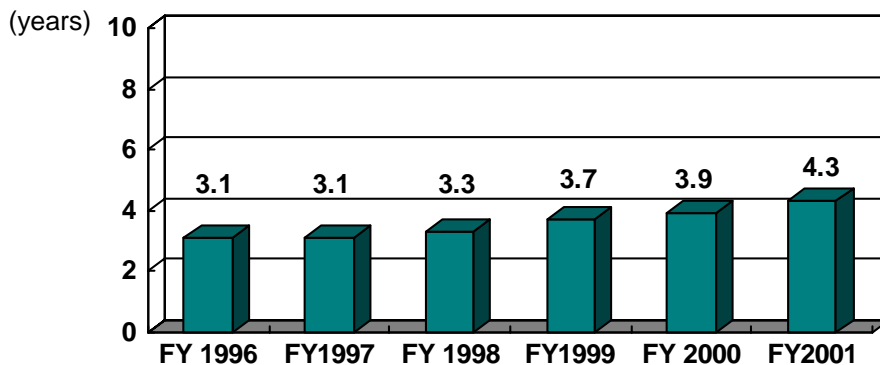
Amount of municipal waste discharged



The remaining capacity of waste disposal sites is insufficient.

Years for which we can dispose of industrial waste at the present rate

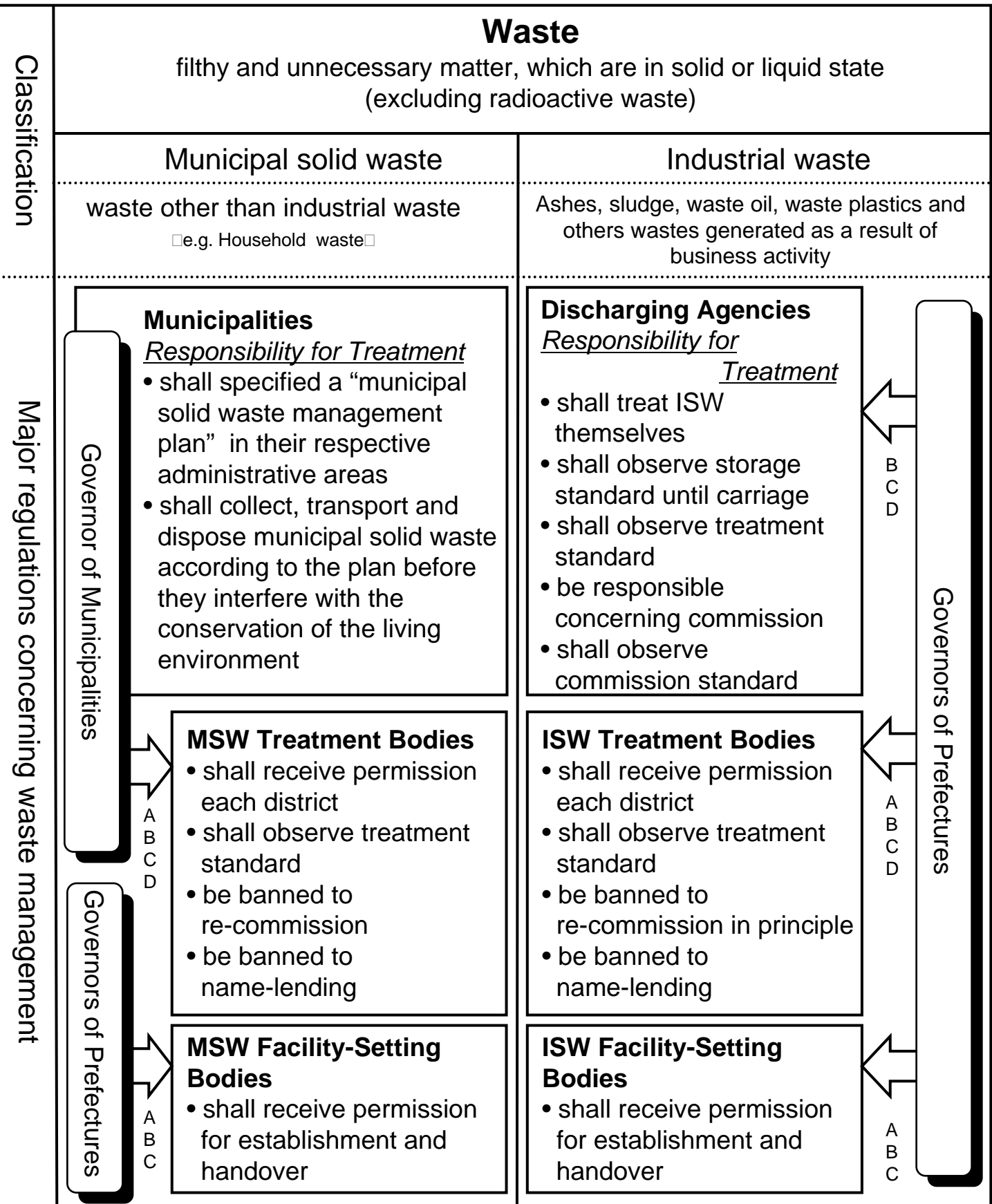
(calculated based on the volume remaining at landfill sites)



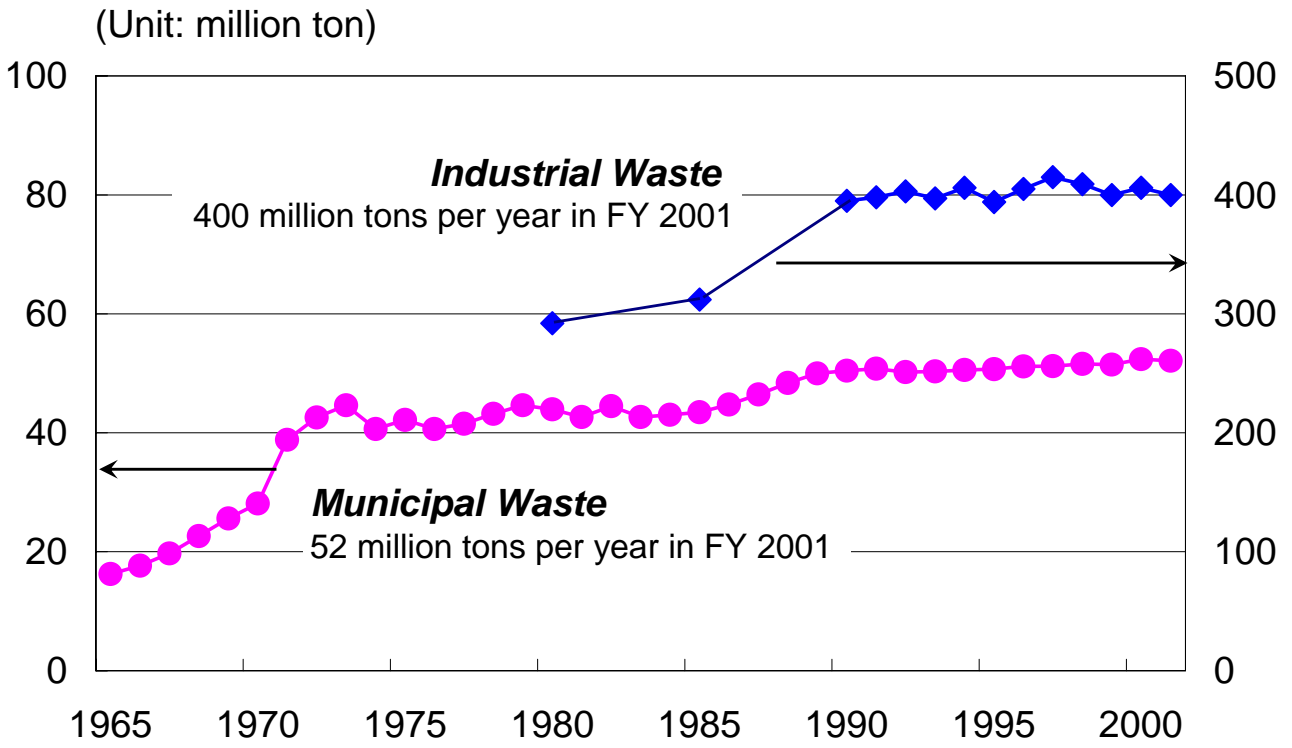
(Data by Ministry of the Environment)

2. Overview of the Waste Management in Japan

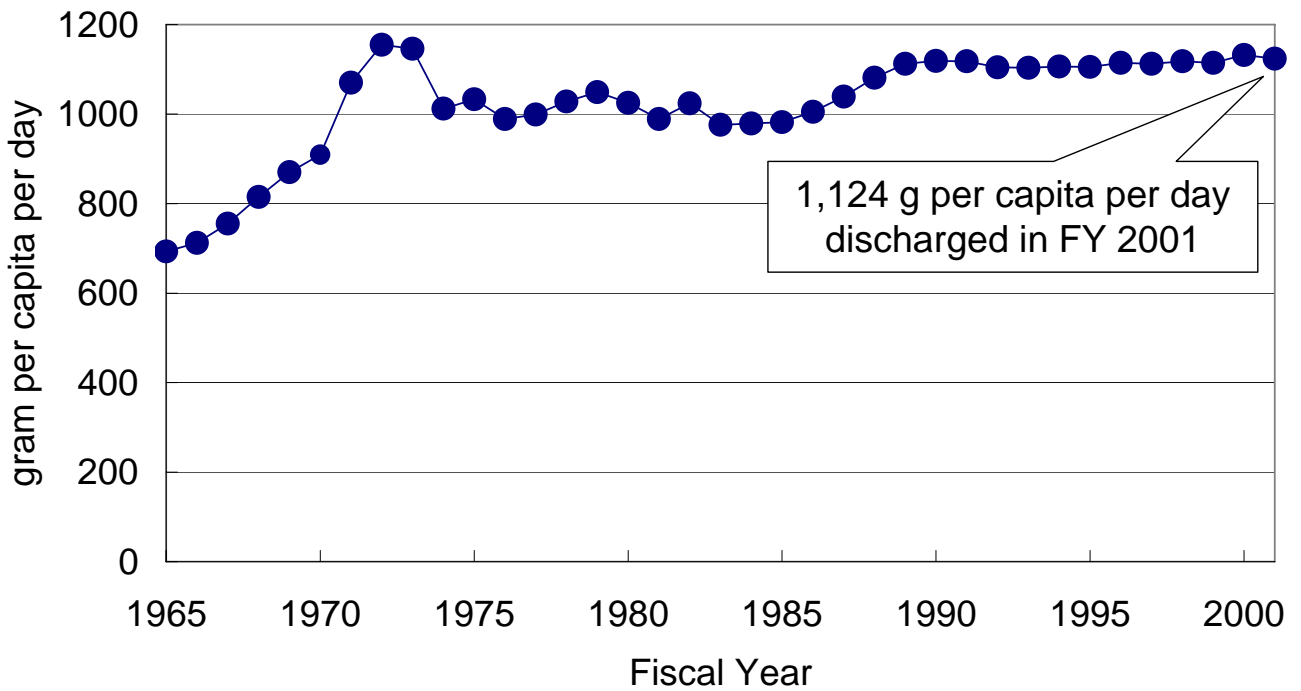
Overview of Waste Management and Public Cleansing Law



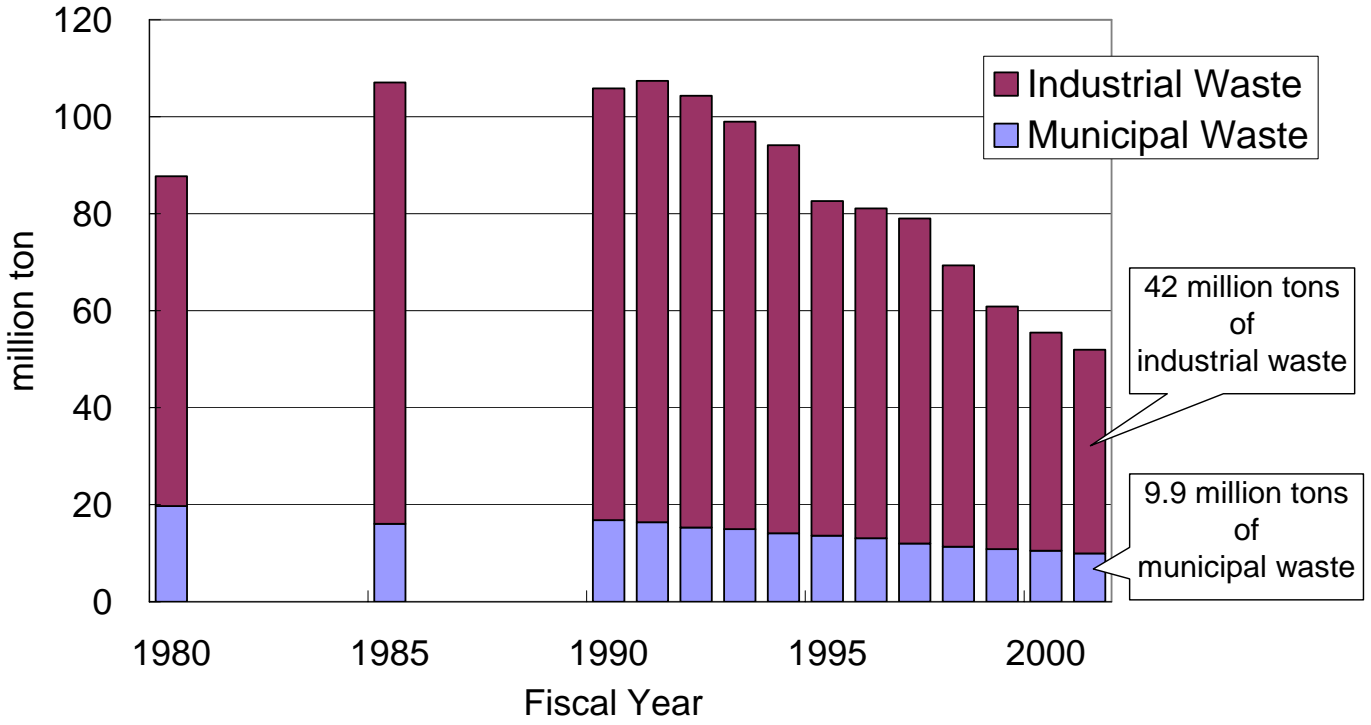
A: permission, B: collection of reports, C: commission for improvement, D: commission for measure



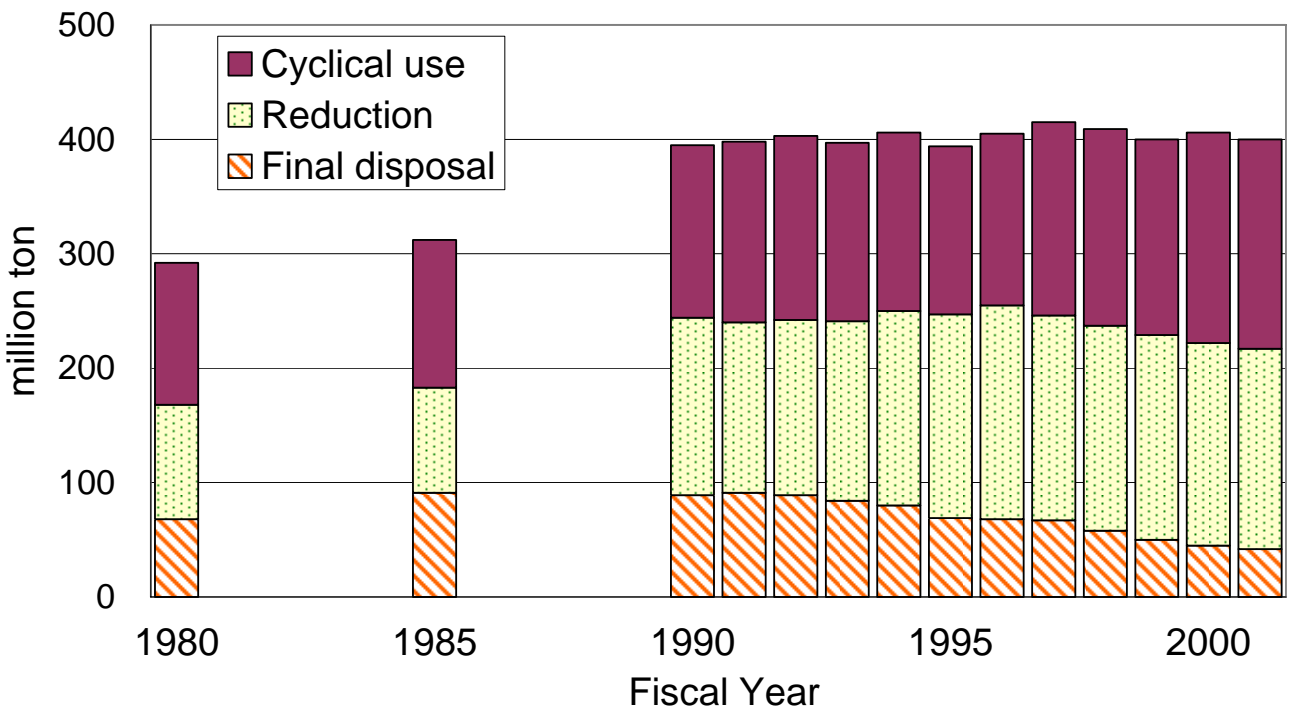
Change in Waste Discharge in Japan



Municipal Waste Discharge per Capita per Day



Change in Final Disposal Amount



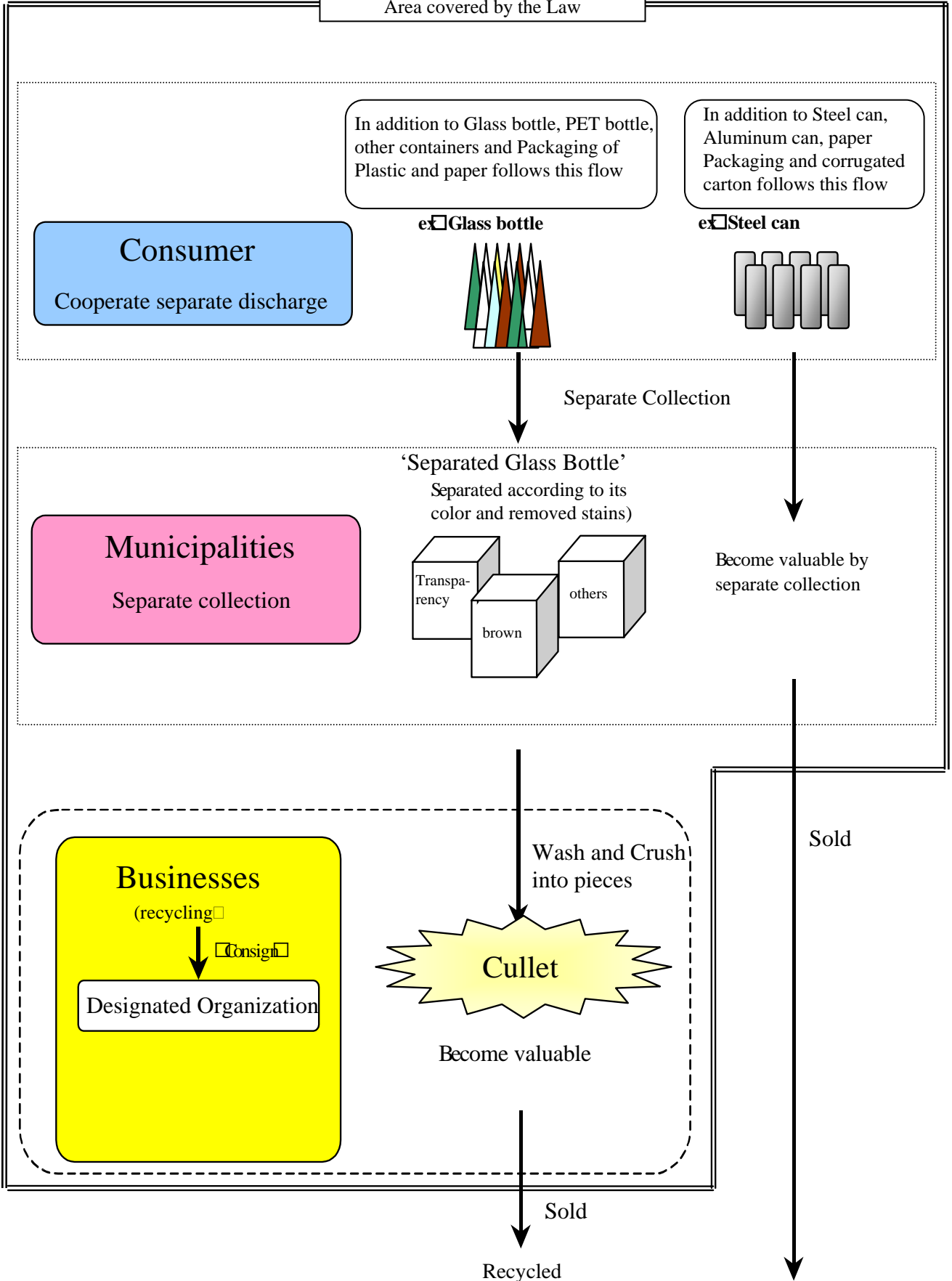
Change in Treatment and Disposal of Industrial Waste

3. Implementation of Recycling Laws

Container and Packaging Recycling Law

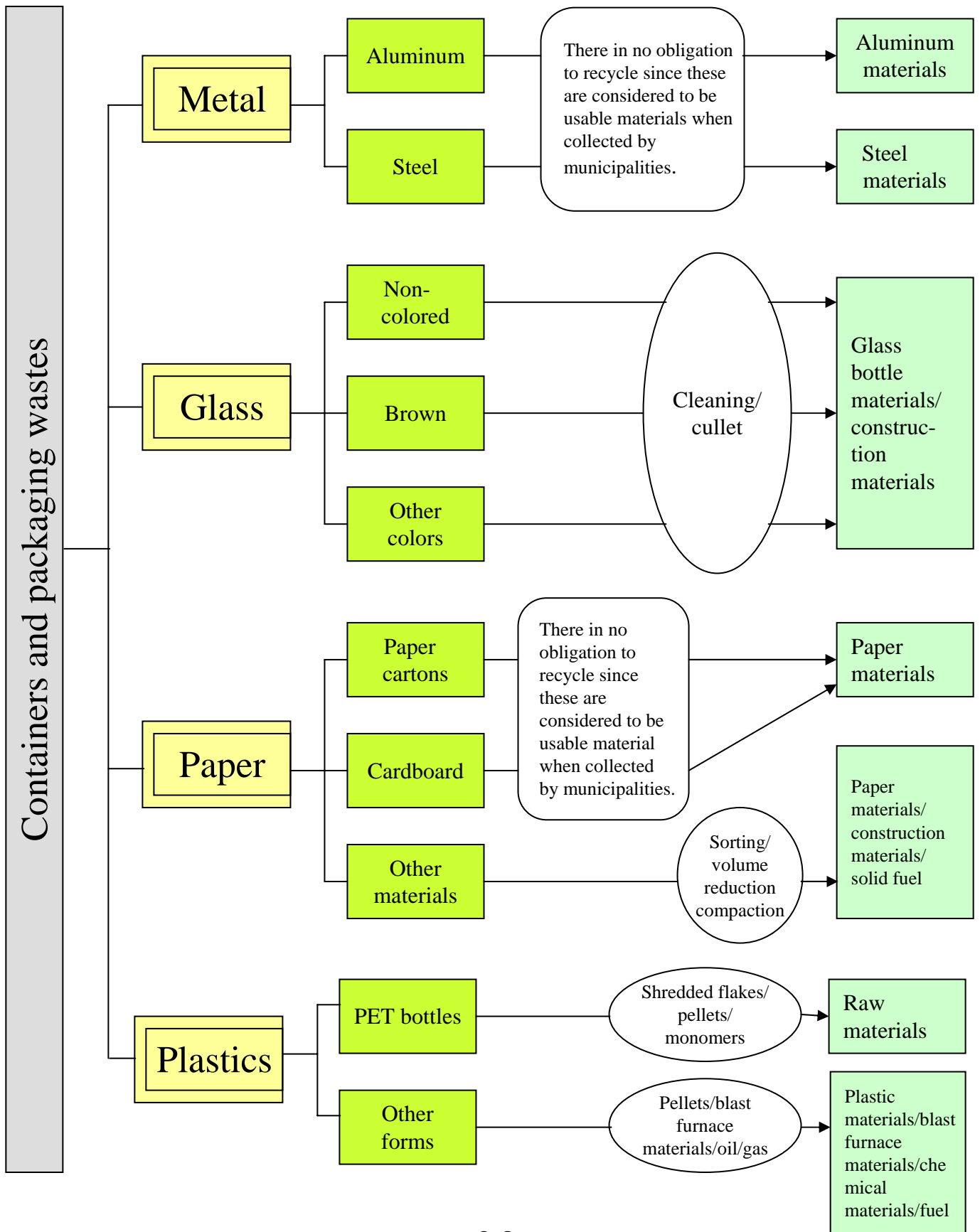
Roles played by those concerned and flow of recycle

Area covered by the Law



Flow of the Recycling of Containers and Packaging

Containers and packaging wastes collected separately are recycled as raw materials in the following way.

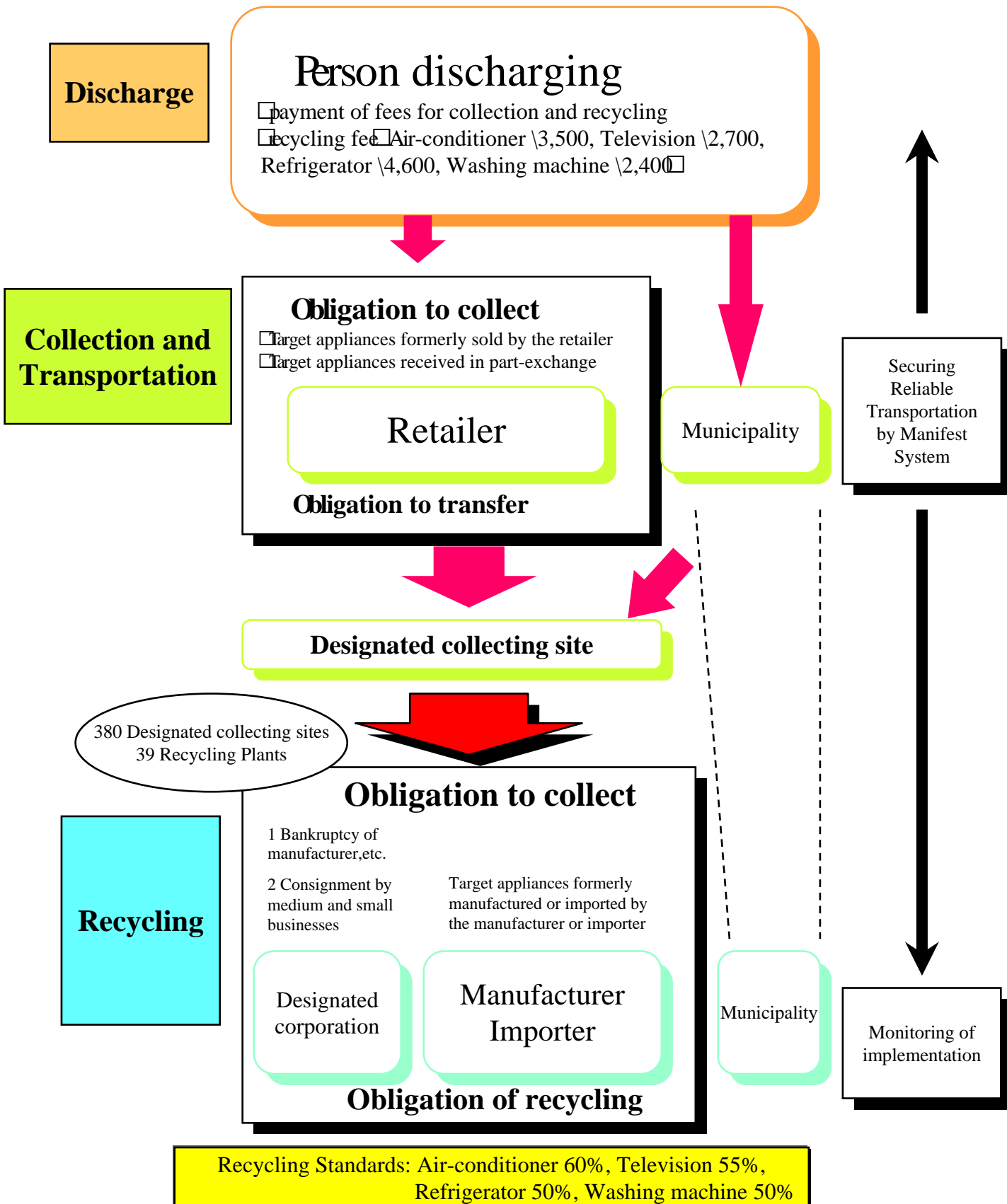


Time course of the amount of containers and packaging for sorted collection and recycling

item (unit: ton)	sorted collection of containers and packaging	recycling amount
transparency glass bottle	FY1997	275,119
	FY1998	303,240
	FY1999	307,237
	FY2000	334,549
	FY2001	339,443
	FY2002	337,888
brown glass bottle	FY1997	228,170
	FY1998	256,227
	FY1999	272,559
	FY2000	294,959
	FY2001	298,785
	FY2002	293,240
other-coloured glass bottle	FY1997	95,190
	FY1998	123,227
	FY1999	134,084
	FY2000	150,139
	FY2001	152,965
	FY2002	156,856
paper packaging and container*	FY2000	26,310
	FY2001	44,675
	FY2002	54,145
	FY1997	19,330
	FY1998	45,192
	FY1999	70,783
PET bottle	FY2000	117,877
	FY2001	155,837
	FY2002	183,427
	FY2000	77,568
	FY2001	180,306
	FY2002	268,640

item (unit: ton)	sorted collection of containers and packaging	recycling amount
steel can	FY1997	443,506
	FY1998	461,347
	FY1999	456,892
	FY2000	476,177
	FY2001	450,229
	FY2002	415,364
aluminum can	FY1997	107,455
	FY1998	117,315
	FY1999	124,690
	FY2000	132,386
	FY2001	137,753
	FY2002	144,101
corrugated carton*	FY2000	372,576
	FY2001	438,598
	FY2002	498,702
	FY1997	6,644
drink box (paper packaging)	FY1998	8,670
	FY1999	9,416
	FY2000	12,071
	FY2001	12,435
	FY2002	15,358
	total (of available data from FY1997 ;excluding "**" items)	FY1997
FY1998		1,315,218
FY1999		1,375,661
FY2000		1,518,158
FY2001		1,547,447
FY2002		1,546,234
total	FY2000	1,994,612
	FY2001	2,211,026
	FY2002	2,367,721

Flow of Home Appliances Recycling

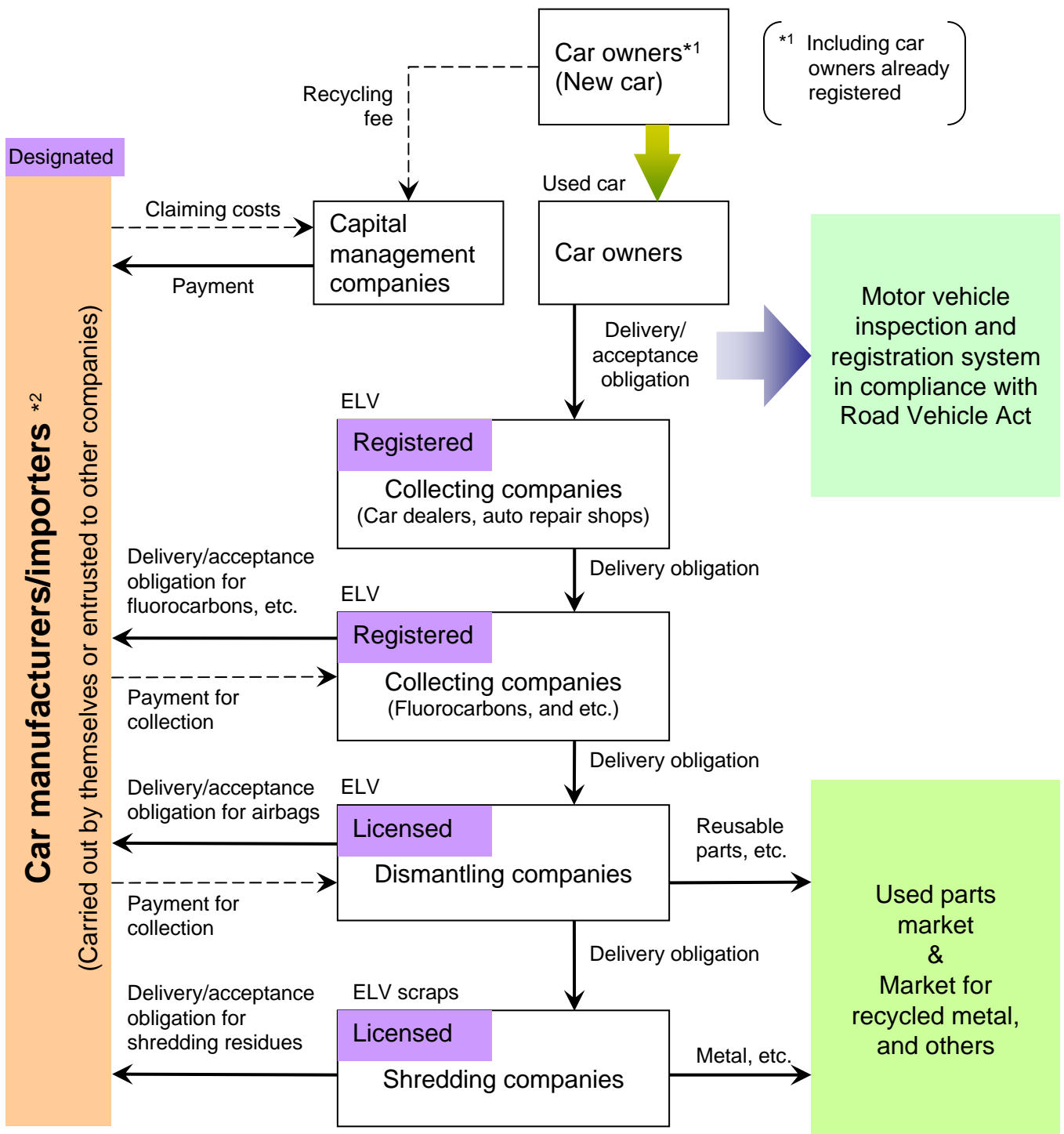


The number and amount of home appliances for collection and recycling

	unit		air-conditioner	television	refrigerator	washing machine	total (4 items)
numbers collected	thousand	FY2001	1,334	3,083	2,191	1,930	8,538
		FY2002	1,636	3,520	2,565	2,426	10,147
numbers recycled	thousand	FY2001	1,301	2,981	2,143	1,882	8,307
		FY2002	1,624	3,515	2,556	2,409	10,104
amounts treated	ton	FY2001	57,634	79,978	127,596	54,041	319,249
		FY2002	72,009	95,134	148,662	71,053	386,858
amounts recycled	ton	FY2001	45,019	58,814	76,359	30,783	210,975
		FY2002	56,739	72,110	91,006	42,967	262,822
recycling rate (recycled/treated)	%	FY2001	78%	73%	59%	56%	
		FY2002	78%	75%	61%	60%	

More than 10 million home appliances (4 items) were collected and recycled in FY 2002.

Outline of the Law Related to the Recycling of End-of-Life Vehicles

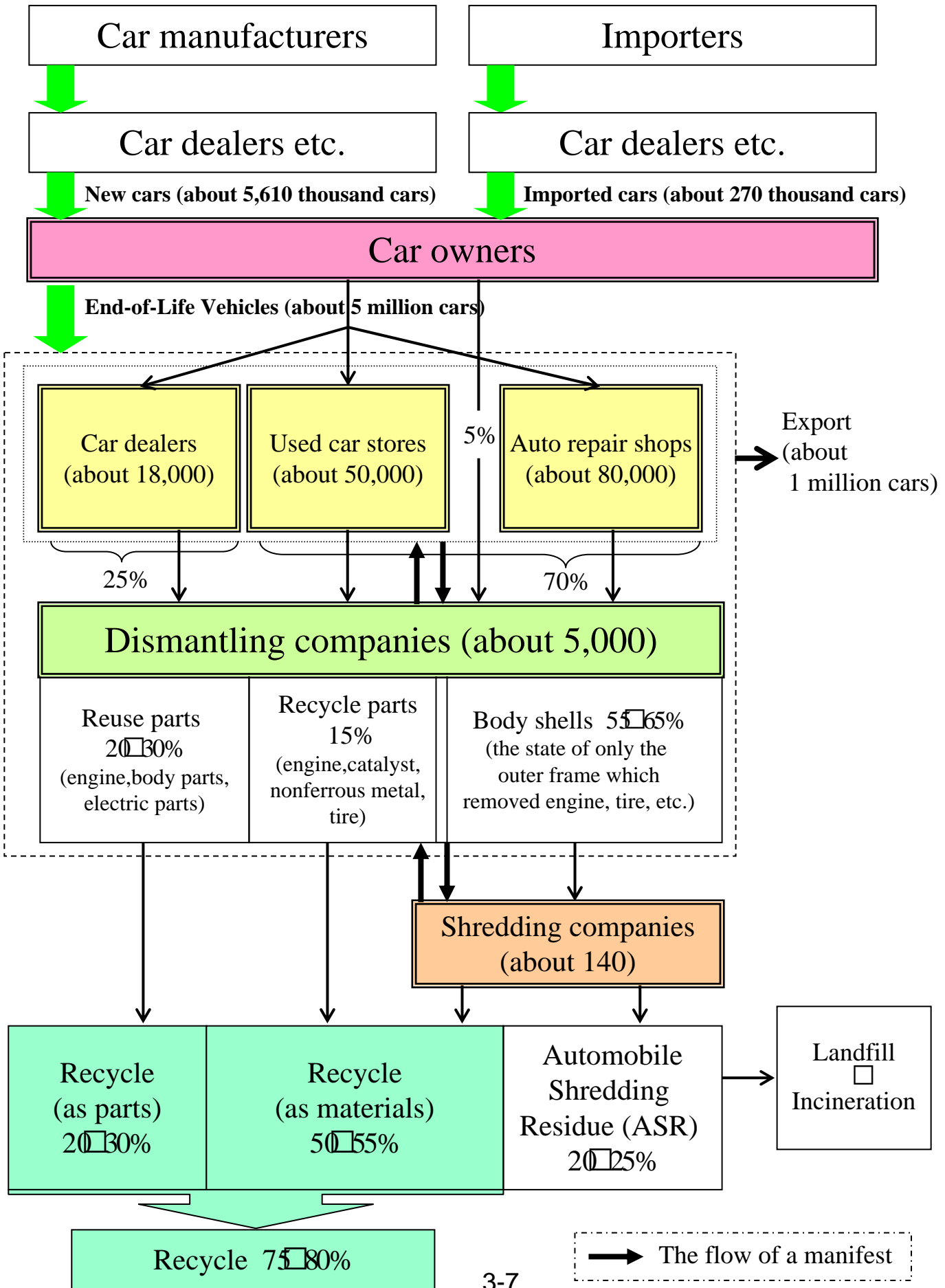


→ ELV (End-of-Life Vehicles)
 - - - - - Payment

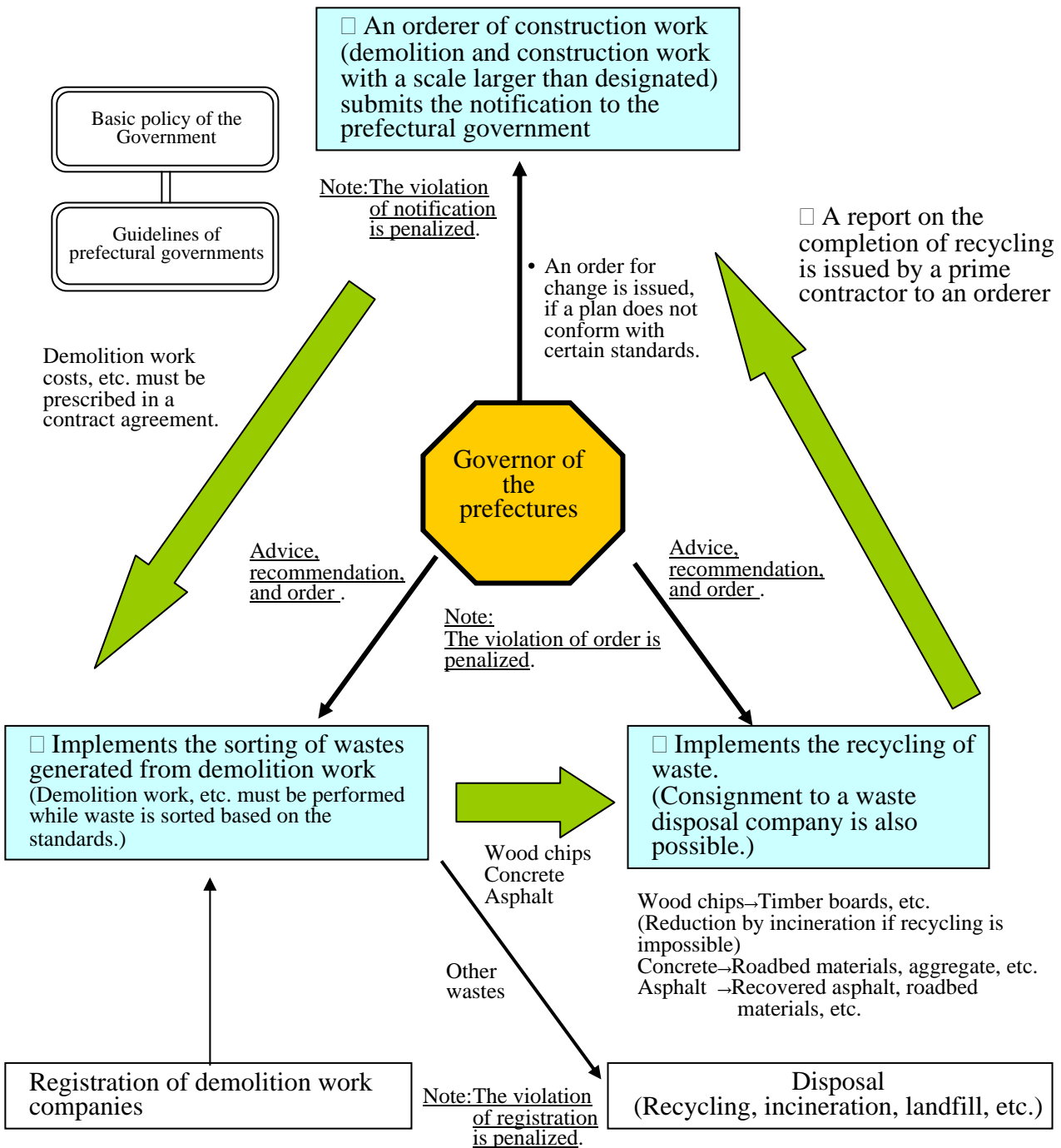
*2 Third parties will be involved only in case of absence of a party responsible for recycling.
 *3 Electric Control (Manifest) system was introduced, and information management available by third parties.

Source: The Industrial Structure Council

The outline of the flow and the recycling rate of the End-of-Life Vehicles in Japan



Construction Material Recycling Law



Law for Promotion of Recycling and Related Activities for the Treatment of Cyclical Food Resources (Food Waste Recycling Law)

I. Purpose of Law

Establishment of
Cycling Society

Prevention of
waste generation

Treatment for
reduction of waste

Recycling of
waste

Recycling and related activities of food resources

II. Basic Policy (the Agriculture Minister, the Environment Minister, etc)

- basic course of promotion of recycling etc.
- target of the amount of recycling (20% of recycling rate in 2006) etc.
- measures to promote recycling etc.
- dissemination of the meaning of recycling etc.

III. Obligation on Parties Concerned

Food-related businesses
(manufacture, distributors,
restaurants, etc)
Waste prevention
Recycling waste

Consumers
Waste prevention
using recycled
product

Government/
Local authorities
Conducting measures to
promote recycling
products

IV. Instructions and Advice to Businesses

A decision criteria for businesses is set up by the government to promote recycling

Action in accordance with
the judgment criteria

Instructions and advice of the
competent minister

Parties who generate larger
amounts than those specified

Advices/announcements

Directives/penalties

V. Measurer to Facilitate Recycling

1) Registration system for recycling businesses

- a) Business that carry out recycling appropriately are registered by the competent minister
- b) Exception to the Waste Management Law, Fertilizer Control Law, and Feed Safety Law

2) Authorization system of the recycling businesses plan

- a) Recycling plans made by food-related businesses are authorized by the competent minister
- b) Exception to the Waste Management Law, Fertilizer Control Law, and Feed Safety Law

Law For Promotion of Effective Utilization of Resources

Recyclable resources :

Articles that are useful and exist among used goods or by-products, and usable as raw material

Reusable parts :

Articles that are usable and exist among the used goods and are usable as the parts or part of the product

Basic Policy

The competent minister shall establish and announce the basic policy in order to comprehensively promote the effective use of resource by utilizing recyclable resources and reusable parts.

Competent Minister, etc.

Ministry of Finance, Ministry of Health, Labor and Welfare, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure and Transport, and Ministry of the Environment

Responsibility

Business Entity

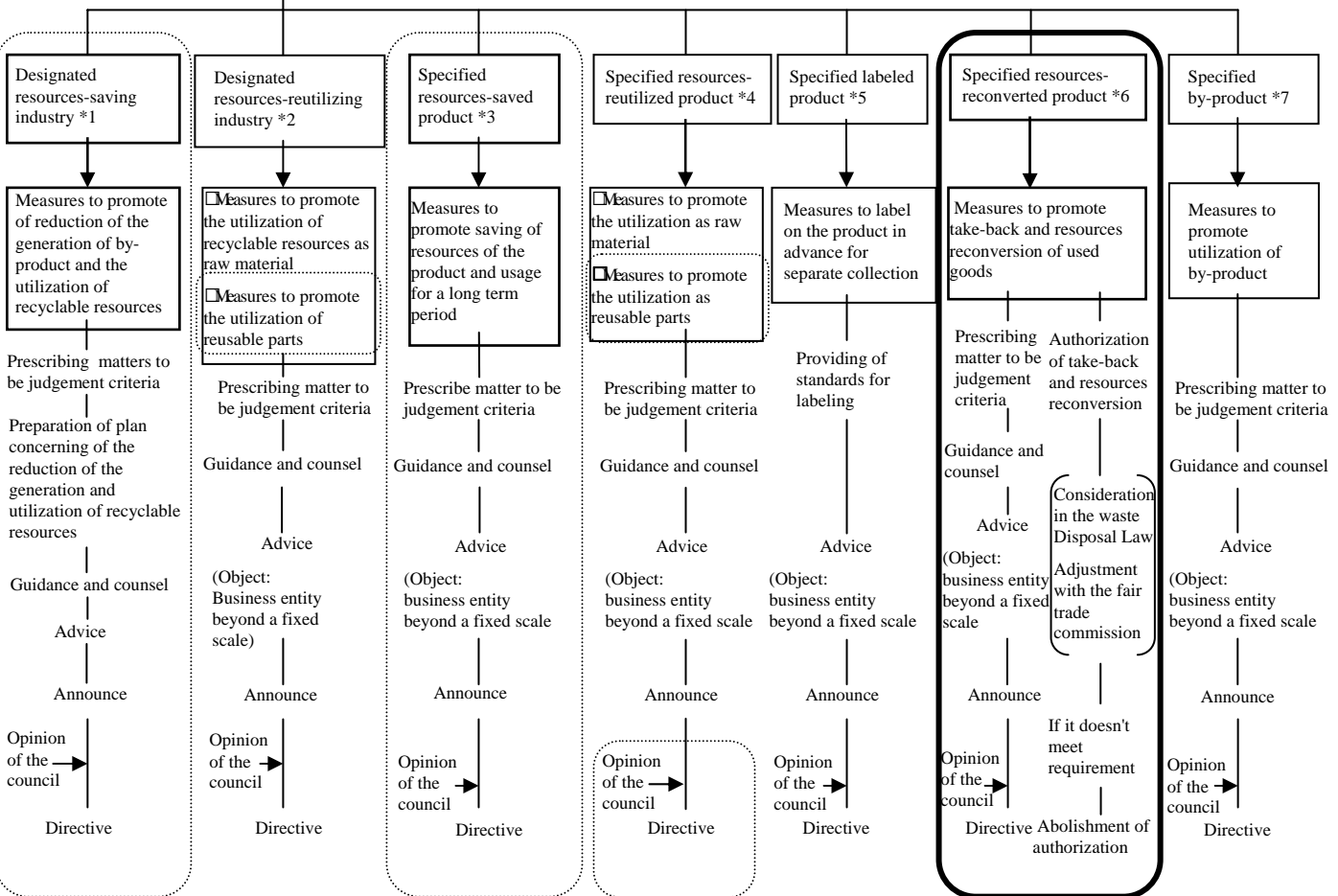
Consumer

Government, Local Authorities

- Rationalize use of raw materials in order to reduce the generation of used goods and by-product
- Utilization of recyclable resources and reusable parts
- Promotion of the utilization of used goods and by-product as recyclable resources and reusable parts

- Usage of the product for a long term period
- Promotion of the utilization of recyclable resources and reusable parts
- Cooperation with the government, local authorities and business entities in implementation of measures

- Securing of funds
- Promotion of the utilization of recyclable resources and reusable parts when procuring articles
- Promotion of science and technology
- Measures to deepen citizen's understanding



Example

*1 Steel, Paper, Chemical and Nonferrous metal industry

*2 paper, glass container, construction and copy industry

*3 car, electric appliance, large furniture, oil and gas appliance and personal computer

*4 personal computer, copy machine, car

*5 steel can, aluminum can, PET bottle, Ni-Cd battery, paper container package and plastic container package

*6 personal computer and Ni-Cd battery

*7 electric and construction industry

Dashed line box, solid line box (ministry of the environment) and under line are amendment matter

Green Purchasing Law

The Law for Promotion of Procurement of Recycled Products by the National Organizations and Local Authorities on its own Initiative (referred to as the Green Purchasing Law) has been established to actively procure environmentally friendly goods –such as recycled goods – by them, and to promote the provision of useful data concerning green purchasing.

The law specifies the types of environmental goods [specific procurement articles, communication/printing paper(recycling paper),official cars(low pollution vehicles),copiers(energy saving types)]to be promoted for procurement as a priority, and takes effect from April 2001

