

Policy and institutional
Framework for disseminating 3R
technologies:
The Case of Home Appliances
Recycling Law in Japan

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Why Policy and Institutional Framework is needed for transfer of 3R technologies? (1)

- Technology is transferred in the form of facilities, equipments or systems.
- Project or business of introducing and operating such facilities, etc. utilizing the technology needs to be viable for the technology to be transferred.
- We have to create the circumstances in which such project or business can be viable.

Why Policy and Institutional Framework is needed for transfer of 3R technologies? (2)

- Environmental problems are cases of “externality” in Economics.
- Benefit and cost of introducing environmental technologies;
often,
For the whole society, benefit \gg cost,
For the introducer, benefit $<$ cost
- Environmental technologies does not disseminate to the socially optimal level under the laissez-faire market system.
→ some kind of policy intervention are needed.

Why Policy and Institutional Framework is needed for transfer of 3R technologies? (3)

- 3R technologies may be introduced without any policy intervention when the benefit is larger than the cost for the introducer.
- However, this is not the case in many situations.
benefits (economizing resource inputs and utilizing recycled resources) are often smaller than costs (eg. cost for collection, transportation and treatment of recyclables; and introduction of facilities, etc.) for the introducer.
- Introduction of 3R technologies must be difficult even further when cheap landfilling or illegal dumping is allowed as alternatives.
- Policy and institutional framework for disseminating 3R technologies is needed.

Policy and Institutional Framework for disseminating 3R technologies (1)

- Regulatory approach which requires introduction of 3R technologies
- Market based instruments which provides incentive for introduction of 3R technologies
- Voluntary measures
- Provision of Information

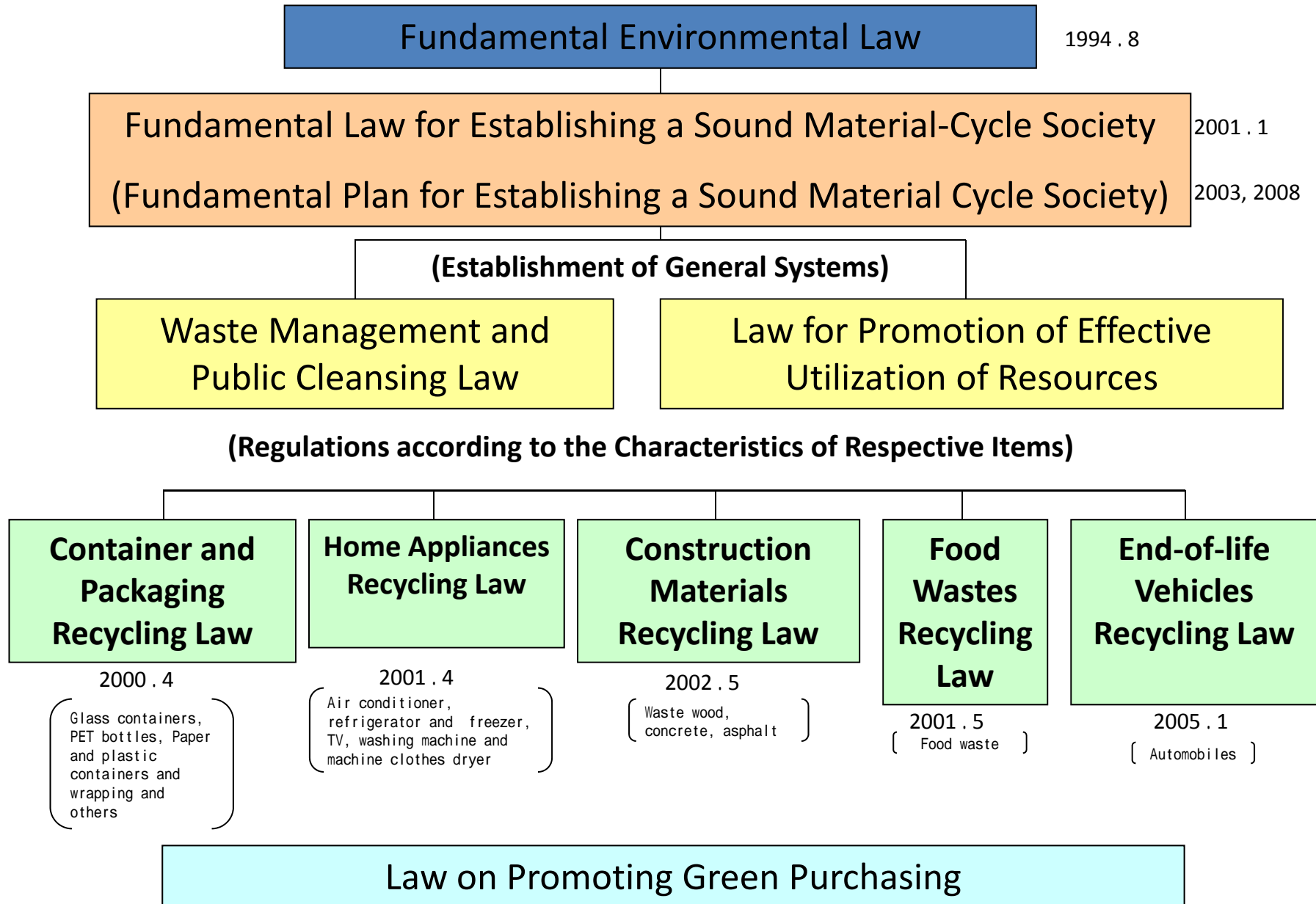
Policy and Institutional Framework for disseminating 3R technologies (2)

- Recycling is a multi-stage process involving various entities:

manufacture of target products → use → discharge of the used products → collection and transportation → dismantling, shredding, segregation → recycling of substances → use of recycled substances

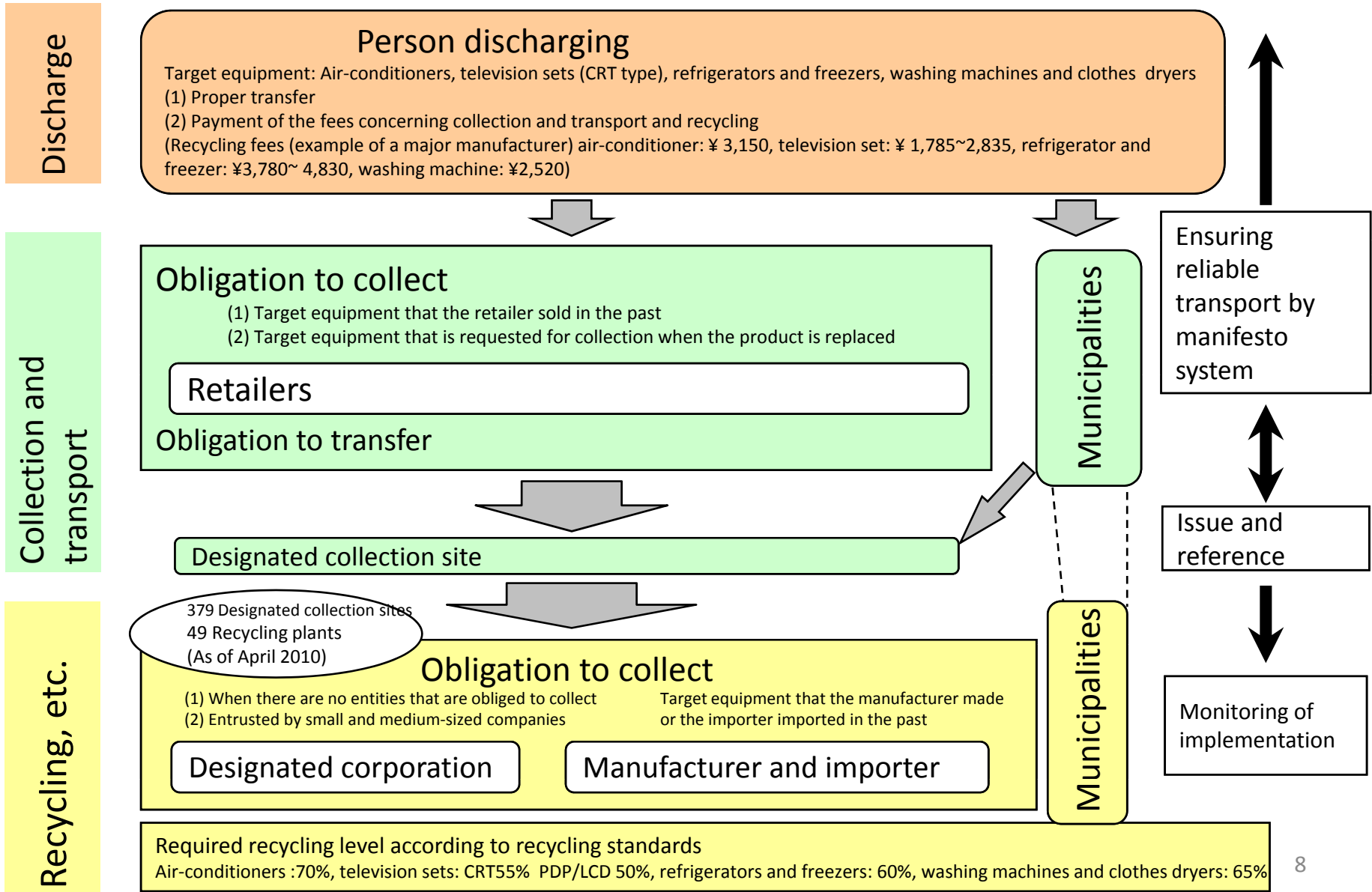
- It is important to specify roles and responsibility and cost sharing among various entities such as manufacturer and user(=discharger) of the target products, recyclers, municipalities etc.

Legislative Framework to Establish a Sound Material-Cycle Society



Mechanism of the Home Appliances Recycling Law

(Promulgated in June 1998 and fully implemented in April 2001)



Why was the Home Appliances Recycling Law introduced?

- Shortage of Landfill site
 - Most of waste of used home appliances were landfilled.
- The importance of recycling was recognized by the Public.
- Growing size and complexity of material and structure of home appliances
 - Difficult for municipalities to treat them properly.
- Limited revenue from selling recovered materials
 - Little incentive for recycling by private sector

Desirable Characteristics for Recycling System of Home Appliances

- Low cost to implement the system
- No free riders exist.
All responsible entities are required to recycle.
- Entities required to recycle can recover the cost of recycling securely and smoothly.

System under the Home Appliances Recycling Law (1)

Roles of retailers of home appliances

- Retailers normally had recovered the used home appliances when they delivered the new home appliances to users.
- Therefore, retailers were considered suitable to collect and transport used home appliances.

Under the law,

→ Retailers are required to collect the used specified home appliances and transfer them to manufactures, etc., except when the used specified home appliances are reused.

System under the Home Appliances Recycling Law (2)

Role of manufacturers and importers of home appliances

- Manufacturers and Importers of home appliances, which knows the materials and structures of their products most, are considered suitable to recycle the products
- Duty of recycling gives manufacturers, etc. incentive to design their products easy to recycle.

Under the law,

→ Manufacturers, etc. are required to take back and recycle the used specified home appliances which they manufactured, etc.

System under the Home Appliances Recycling Law (3)

Specified products to be recycled

Factors considered for selection

- Difficulty for municipalities to recycle
 - High priority for recycling
 - Possibility of Improvement of recycling by changing design
 - Retailers are suitable for collecting the used products when they deliver new products
- Air conditioners, TV sets, refrigerators and freezers, washing machines and clothes dryers are selected as “specified products” for mandatory recycling

System under the Home Appliances Recycling Law (4)

Recycling required for manufacturers, etc.

- Definition of “Recycling, etc.”

Reuse of parts, Recycle as materials, Recycle as fuel

- Standards for recycling, etc.

Manufacturer’s are required to reuse parts or recycle as materials more than the standards below

- Air conditioners 70%, TV sets 55%, refrigerators and freezers 60%, washing machines and clothes dryers 65% in weight

System under the Home Appliances Recycling Law (5)

Payment of the cost

- Manufacturers can demand charge equivalent to the rational cost of recycling, etc. when they take back the used products.
 - Retailers can demand charge equivalent to the rational cost of collection, transportation and recycling, etc. when they collect the used products.
- Dischargers(= users of the products) pay the rational cost of collection, transportation and recycling, etc. when they discharge the used products.

System under the Home Appliances Recycling Law (6)

Payment of the cost

- Manufacturers announce their charge of recycling, etc. of the used products.

Example of the charge of recycling:

air conditioner:¥ 2,100, TV set:¥1,785 ~ 2,835,

refrigerators and freezers:¥3,780 ~ 4,830,

washing machines and clothes dryers:¥2,520

- Retailers announce their charge of collection and transportation of the used products.

Example of the charge of collection and transportation:

¥2,000 ~ 3,000

System under the Home Appliances Recycling Law (7)

Extended Producer's Responsibility in the Law

- Definition of EPR in OECD's Guidance Manual

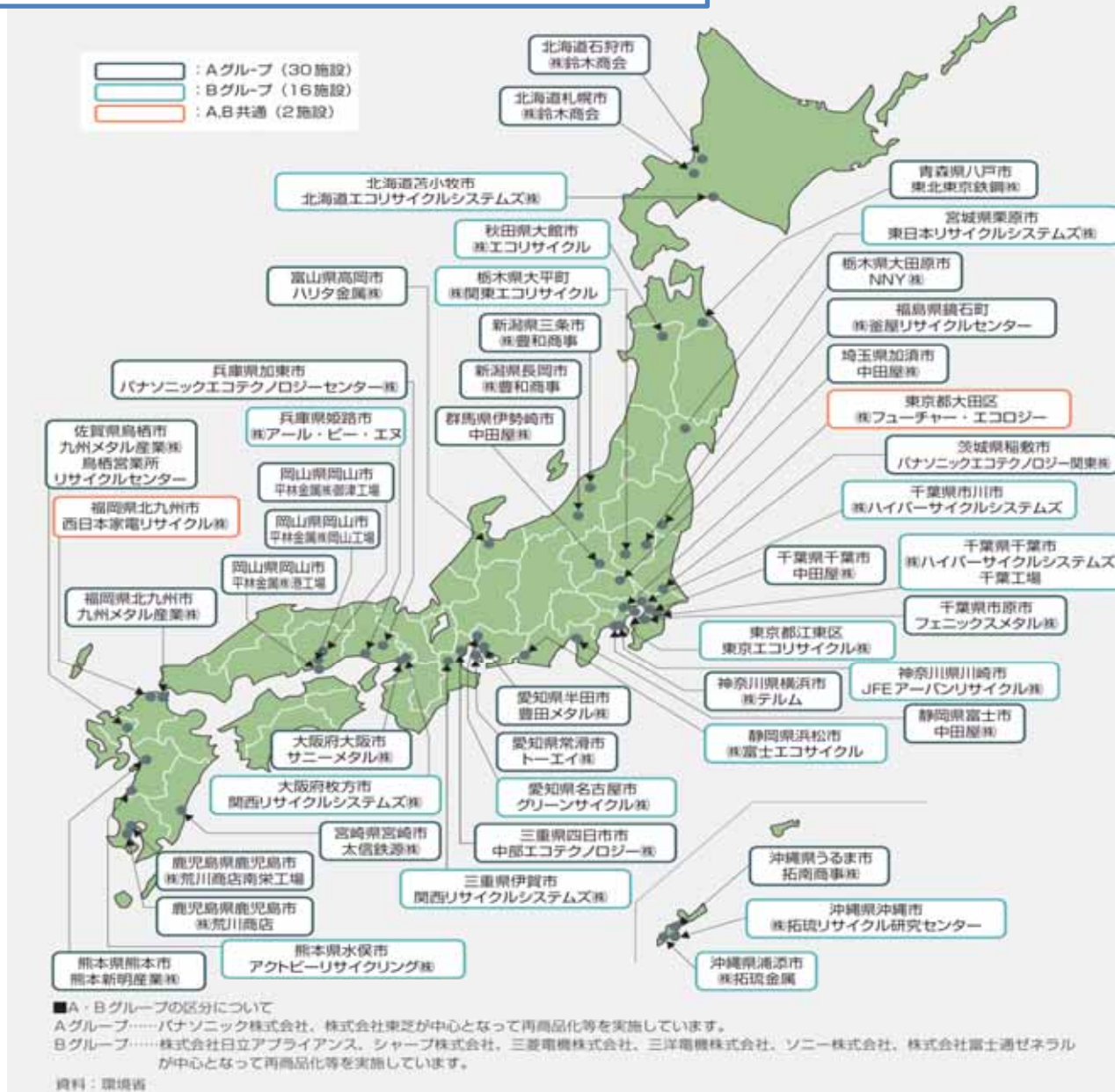
“an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle”

In the Home Appliances Recycling Law, EPR is introduced in the form that manufacturers take physical responsibility by recycling of the products.

EPR is considered to promote “design for environment” of specified products.

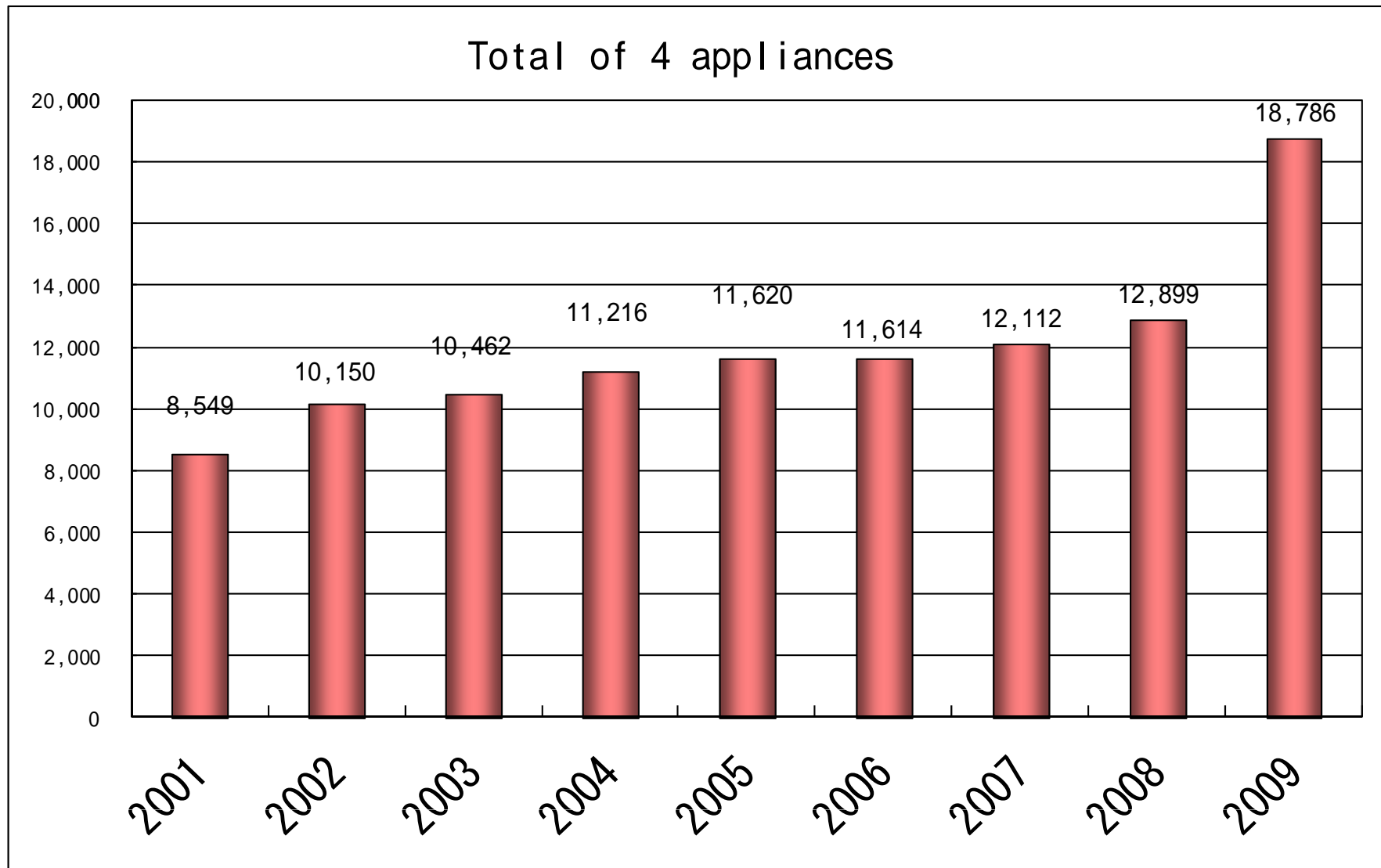
Recycling Plants of Home Appliances in Japan

(平成22年3月現在)



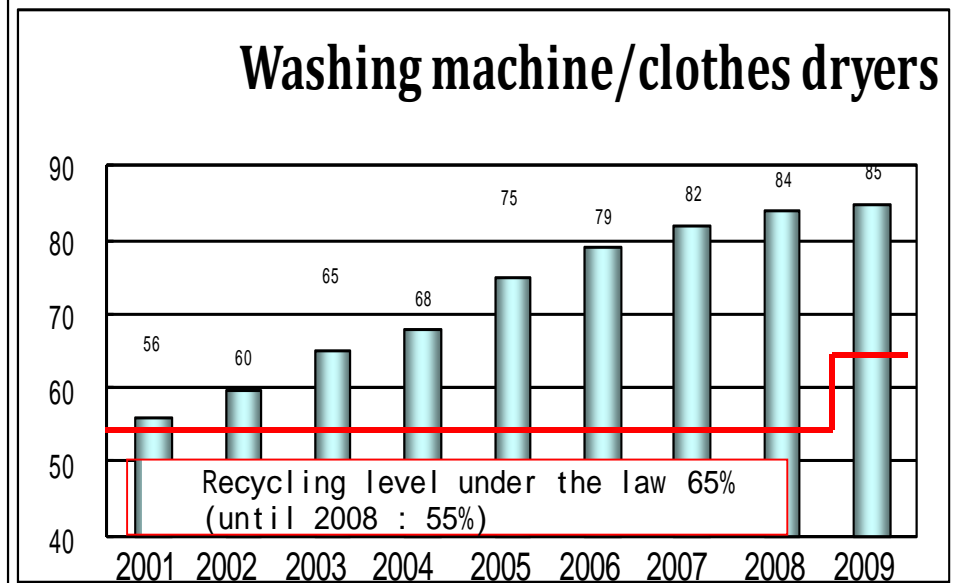
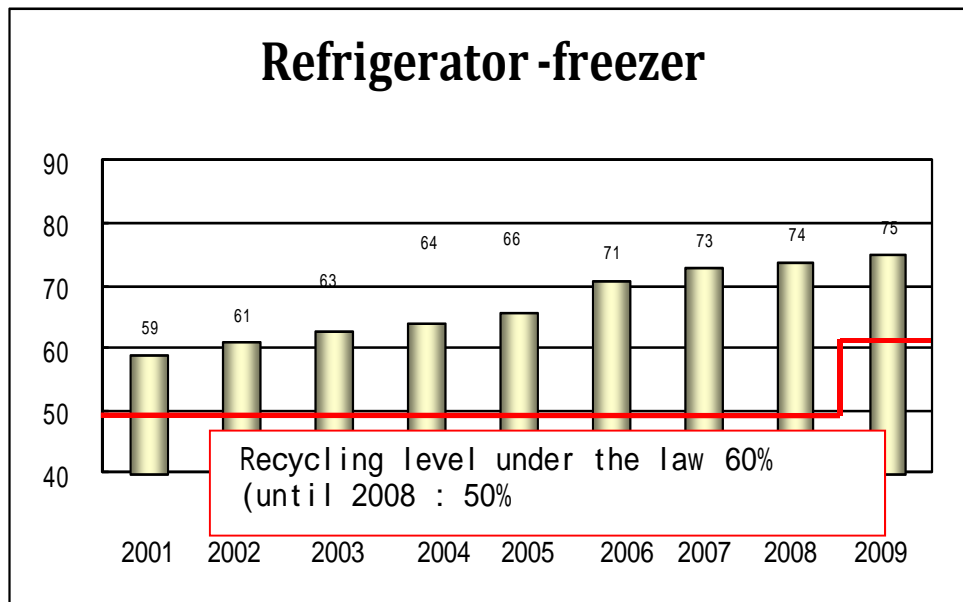
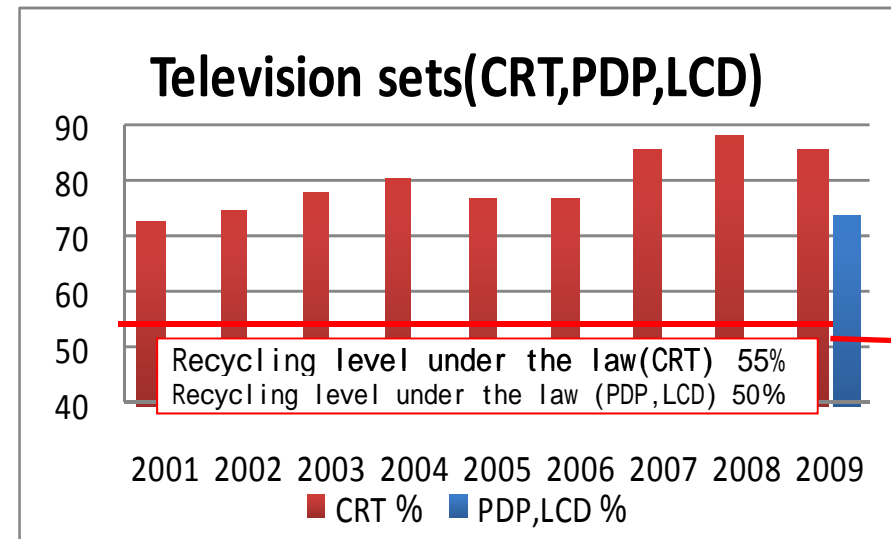
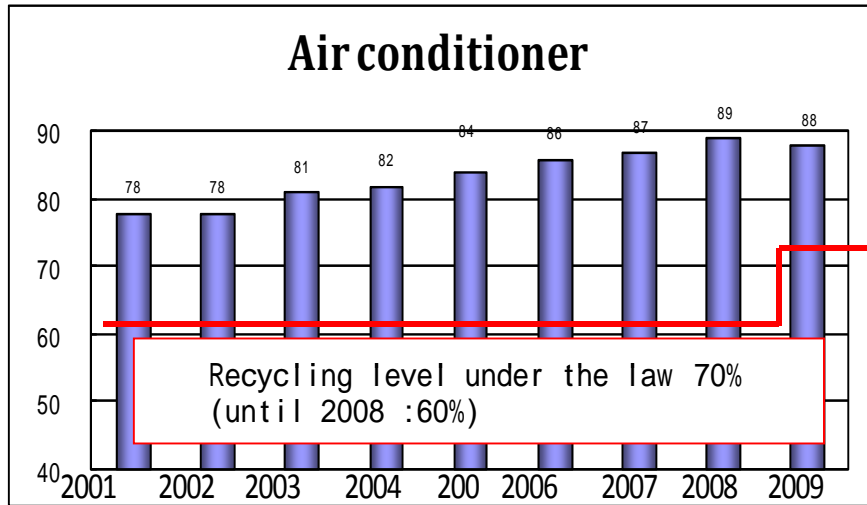
Trend in the number of waste home appliances collected

(1) Number of units collected at designated collection sites in Japan

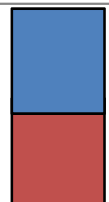
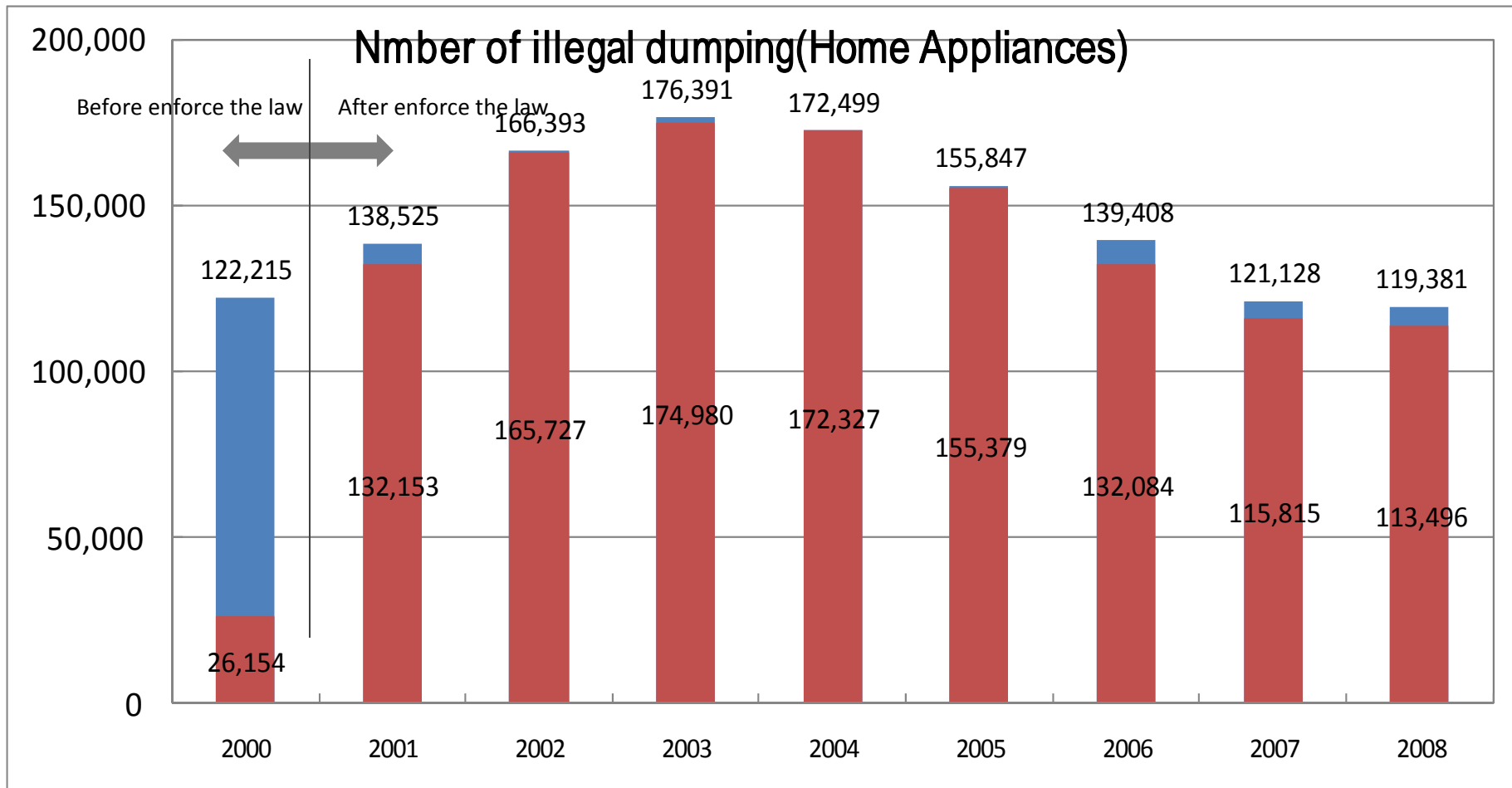


Source: Material of Ministry of the Environment, and Ministry of Economy, Trade and Industry

Trend in the Home Appliances recycling rate



Status of illegal dumping



estimated figure (Think of population cover ratio)

Source: Ministry of the Environment

Conclusion

- In order to promote transfer of 3R technologies, policy and institutional framework is necessary so that projects or businesses utilizing the technology can be viable.
- In the policy and institutional framework, responsibilities and cost sharing of relevant entities should be specified clearly.
- Policy and institutional framework should be established based on the careful consideration of waste characteristics, social and economic conditions, infrastructure for waste treatment, etc.