Extended Producer Responsibility: Learning From Japanese Experience

Recycling Council of British Columbia

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Yasuhiko Ogushi

Note to audience

This presentation is based on Yasuhiko Ogushi's personal research and has nothing to do with the work he does at BC Hydro. The opinions stated in this presentation is Yasuhiko Ogushi's personal opinions and do not represent BC Hydro's.

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Presentation Overview

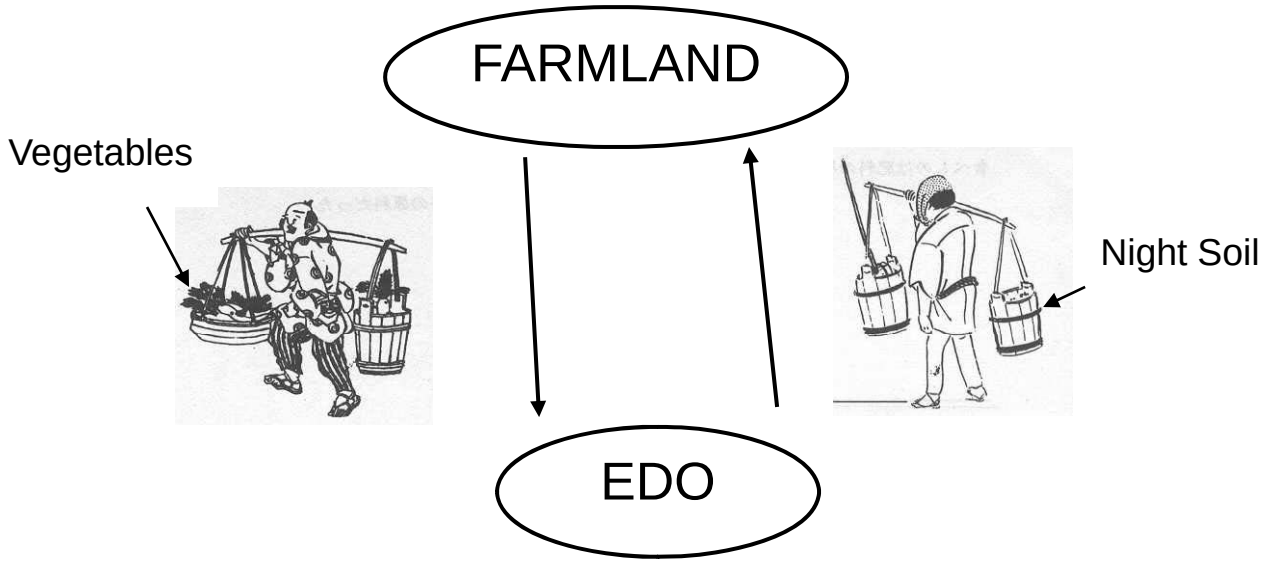
- Background/history
- Overview of Japanese EPR laws
- Assessing efficacy of Japanese EPR laws
- Lessons learned

Sustainable Economy in Edo period (1603-1868) (1)

- Population of Japan: 31-32 million in the 1720s through the end of Edo period
- National isolation policy; very limited international trade; no material, energy, and food import/export
- Advanced organic-energy based economy
- Sophisticated ecological practices
- Thorough recycling

Sustainable Economy in Edo period (2)

Ecological practices: nutrient cycle around Edo



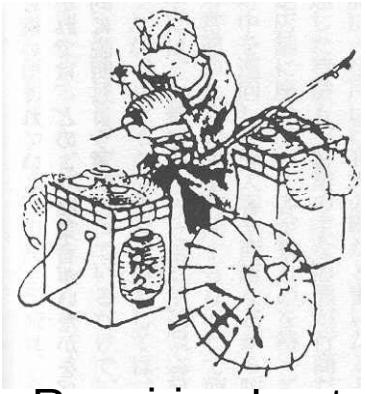
c.f. “The Great Stink” in London in 1858.

Paris was also full of odour and infectious diseases

Source: Ishikawa, Eisuke (1997) *大江戸リサイクル事情 (The great Edo recycling affairs)* Tokyo: Kodansha.

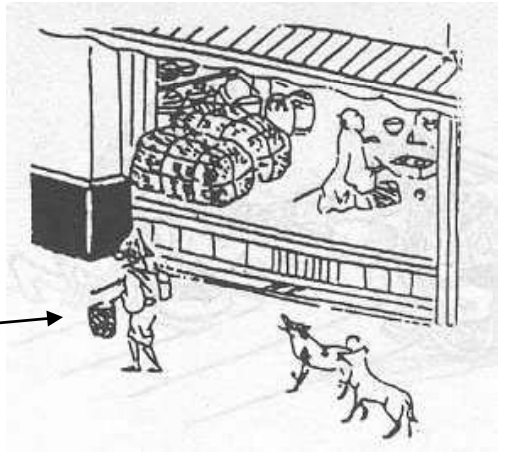
Sustainable Economy in Edo period (3)

Thorough recycling

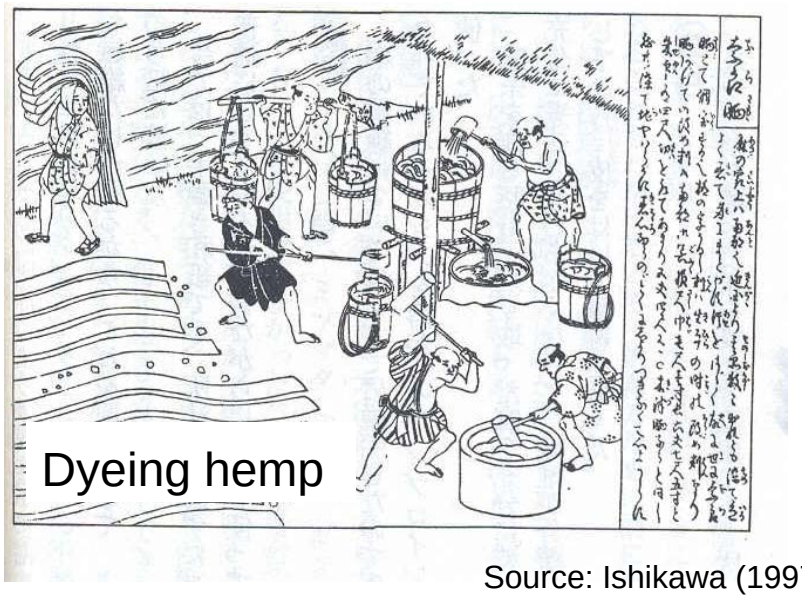


Repairing Lanterns

Picking up paper on streets



Ash merchant



Dyeing hemp

Source: Ishikawa (1997)

Overview of Japanese waste management laws (1)

- Key drivers
  - Scarce land areas for landfill
  - Large-scale illegal disposal in the past
  - Energy and material security
  - Develop new environmental business

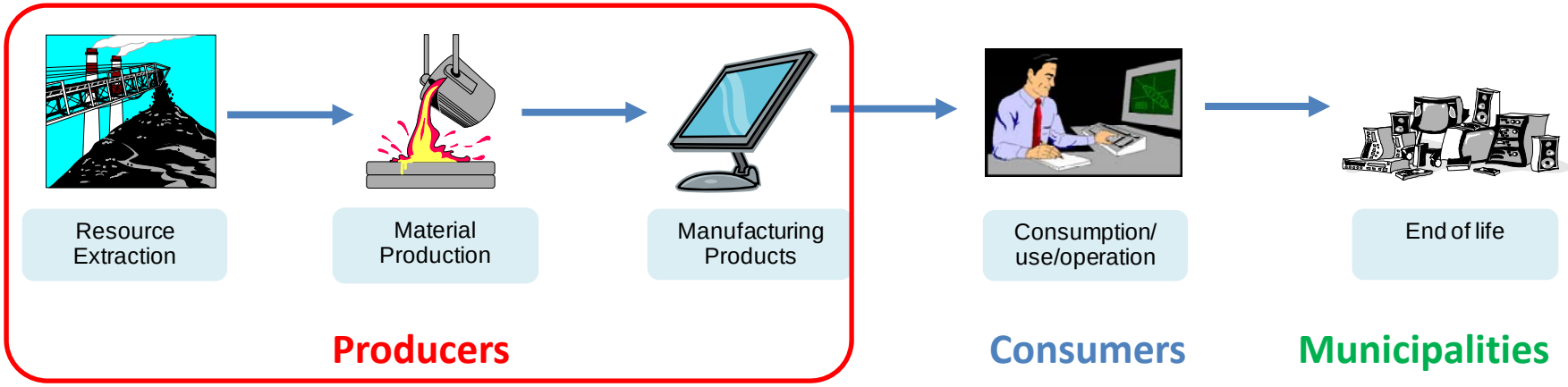
Photo: Teshima Citizen's Forum
www.teshima.ne.jp

Overview of Japanese waste management laws (2)

- Goal: “Sound material cycle society”
  - Reduce generation of waste
  - Effective use of resources
  - Reduce consumption of resources
- Principles
  - Waste management hierarchy: reduce, reuse, recycle, energy recovery, disposal
  - EPR
  - Shared responsibility

What is EPR?

1. Shift the responsibility for end-of-life products (physically or financially, or both) upstream to the producer away from municipalities



2. Provide incentives for producers to incorporate environmental considerations into product design

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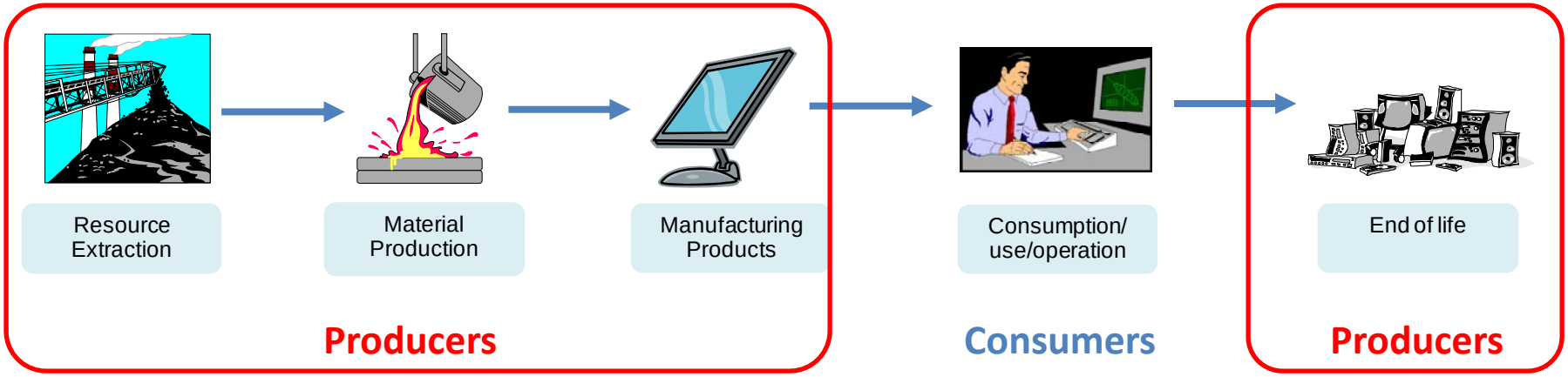

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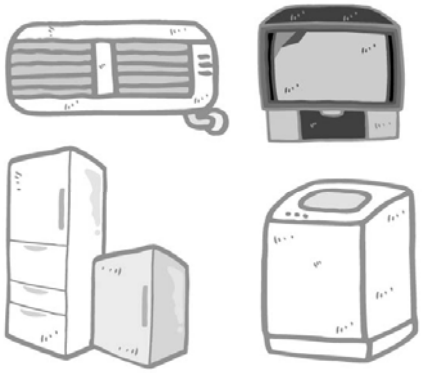
Shared Responsibility

The Home Appliance Recycling Law



Consumers

- Pass over EOL products to retailers
- Pay the expense for collection, transportation, and recovery

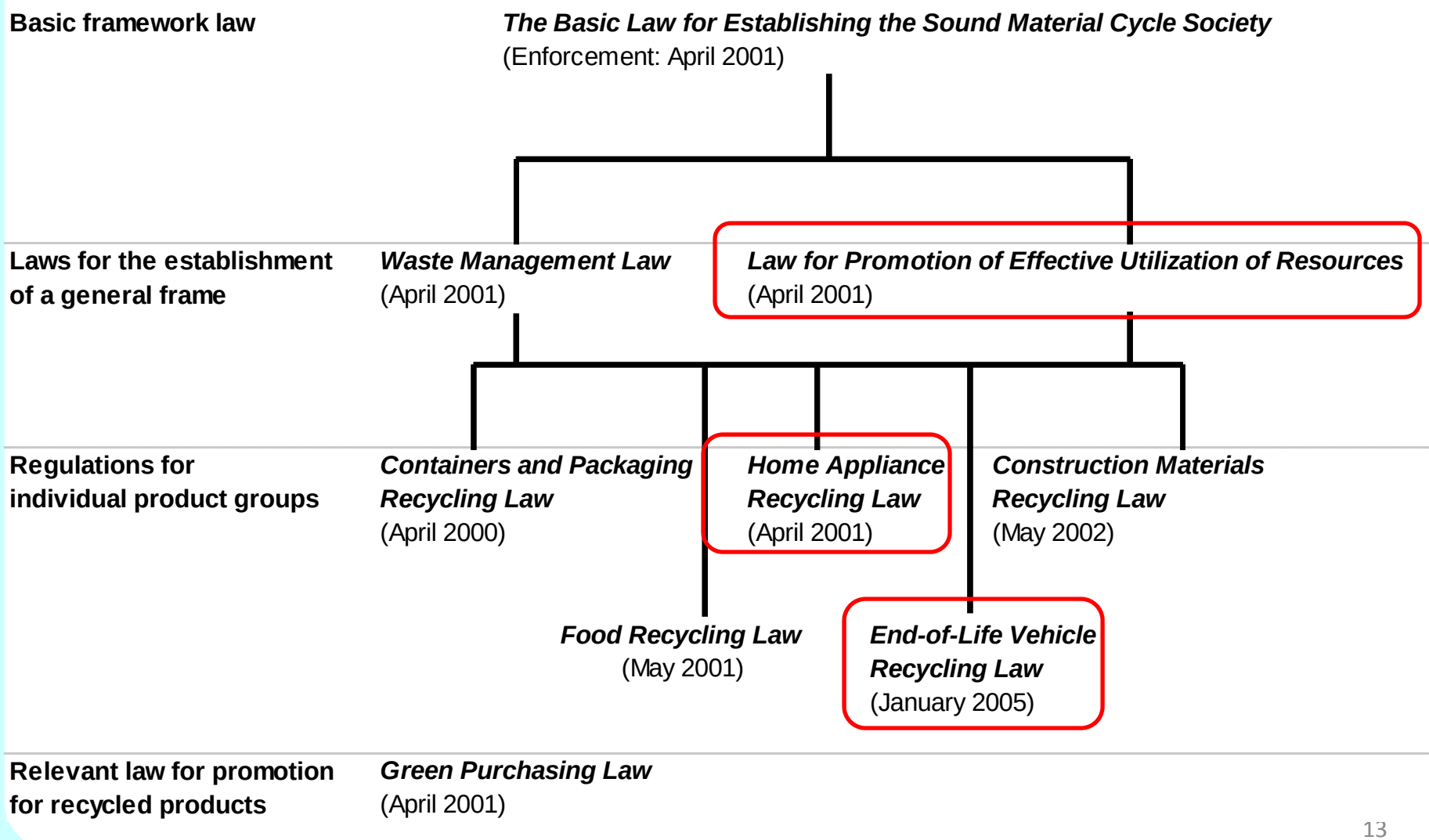
Retailers (and some municipalities)

- Collect EOL products from consumers and pass them over to producers

Producers (and importers)

- Receive EOL products from retailers/municipalities
- Recycle EOL products in accordance with the standards

Japanese waste management laws



Japanese waste management laws

Subject of recovery	Law	Year enforced
Computers Monitors	Law for Promotion of Effective Utilization of Resources*	2001
Air conditioners Refrigerators (including freezers) Televisions Washing machine	Home Appliance Recycling Law	2001
End-of-life vehicles	End-of-Life Vehicle Recycling Law	2005

*covers other items too

Assessing efficacy of Japanese EPR

- Recovery rates
- Collection efficiencies
- Specific issues

Recovery rates

Recovery rate = (recycled mass) / (collected mass of products)

* Recycled mass includes reuse (not including second hand market) and energy recovery

Applicable Law	Applicable products	Recovery rates		
		Actual	Fiscal year	Target/Standard
Home Appliance Recycling Law	Air Conditioners	86%	2006	60%
	TVs (CRT)	77%	2006	55%
	Refrigerators/freezers	71%	2006	50%
	Washing machine	79%	2006	50%
Law for the Promotion of Effective Utilization of Resources	Desktop PCs	76%	2006	50%
	Laptop PCs	56%	2006	20%
	CRT monitors	75%	2006	55%
	LCD monitors	70%	2006	55%
ELV Recycling Law	End-of-life vehicles	ASR recovery 69% Median of 19 producers and importers	2006	ASR recovery 30% in FY'05-09 50% in FY'10-14 70% in FY'15-

Source: Ministry of Economy, Trade and Industry; PC3R Centre

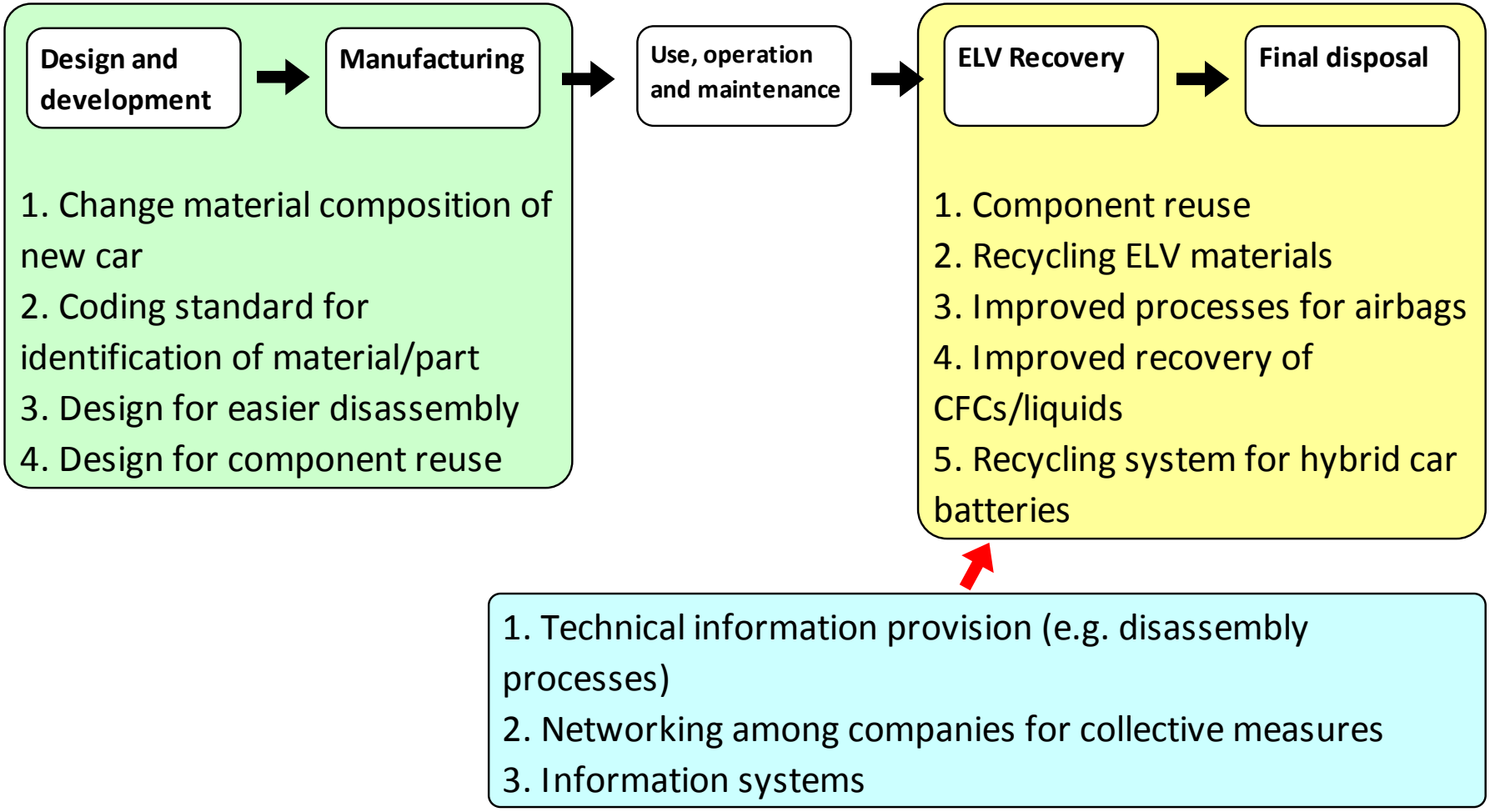
ASR: Automobile Shredder Residue

Technological Innovation (1)

Photo: Hyper Cycle Systems, Chiba, Japan www.h-rc.co.jp/

Technological Innovation (2)

Example: technological innovation in ELV recovery



Collection Efficiency (1)

Not being able to “close the loop”

- Computers:
  - <50% in FY2005 (from home)
  - Remaining units likely to flow into second-hand market or disposed of as e-waste

Greenpeace Japan: www.greenpeace.or.jp

Collection Efficiency (2)

- Computers : Increased flow into the second-hand market

- Refurbished PC: ?

Collection Efficiency (3)

- Home appliances:
  - ~50% in FY2005
  - ~10 million units remain unaccounted
  - Detected illegal disposal: 155,000 units in FY2005
- End-of-life vehicles:
  - Before the law: 5 million ELVs/year, 1 million exported
  - 3 million (~60%) in FY2005 “a missing million”
  - 3.5 million (~70%) in FY2006, 1.4 million exported

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

Lessons learned (1)

- Japanese EPR laws have increased material recovery from end-of-life consumer products
- EPR laws promoted R&D in upstream and downstream of product cycle
- Shared responsibility generally works well
- EPR laws was not likely to trigger the boost of new business models such as leasing appliance and remanufactured (refurbished) products

Lessons learned (2)

- Paying at disposal – no mechanisms for reducing illegal disposals (appliances)
- A loophole in the ELV Recycling Law?: an owner can cancel a car registration without paying the recycling fee and hand the car over to third parties
- Concern: export of second-hand products without knowing they are properly disposed overseas

Reference

- A full research paper is available for download at:

  Environmental Science and Technology, volume 41, issue 13, page 4502-4508, 2007
  http://pubs.acs.org/subscribe/journals/esthag/41/i13/html/070107feature_ogushi.html

Assessing
Extended Producer Responsibility
LAWS *in* JAPAN

A major computer chain store sells secondhand computers, computer parts, and digital equipment (e.g., digital cameras, DVD players) along with new products in Shinjuku, Tokyo.

YASUHIKO OGUSHI

Take-back legislation provides an incentive for producers to incorporate environmental considerations into product design and to shift the responsibility for end-of-life products away from municipalities.

Production and consumption of mass-manufactured goods have been the driving forces of Japan's economy during the past several decades. In recent years, however, Japanese society has run into numerous environmental constraints: increasingly scarce landfill sites, concerns about disposal of toxic wastes, hazardous emissions from waste-management facilities, and high dependence on imports of raw materials. Public concern about environmental quality and waste-management practices has also been raised by several high-profile controversies. For example, anxiety over dioxin and other hazardous emissions from waste incinerators that are a primary method of municipal solid-waste disposal led to the adoption of the Law Concerning Special Measures against Dioxins in 1999. This legislation called for a 90% reduction in dioxin emissions by 2003 (*1*). The issue of waste disposal became increasingly prominent on the Japanese political agenda in the mid-to-late 1990s and culminated in the adoption of new laws aimed at safer and more effective waste management.

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Thank you for your attention

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