



# Insights from Asia Pacific Region - the example of Japan-

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(Large WEEE)
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# Japanese Packaging Recycling Act

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## □ Achievements

1. Participation of many municipalities and citizens in recycling
2. Increased recycling capacity
3. Development of recycling technologies
4. Increased recycling
5. Promoted waste prevention and DfE

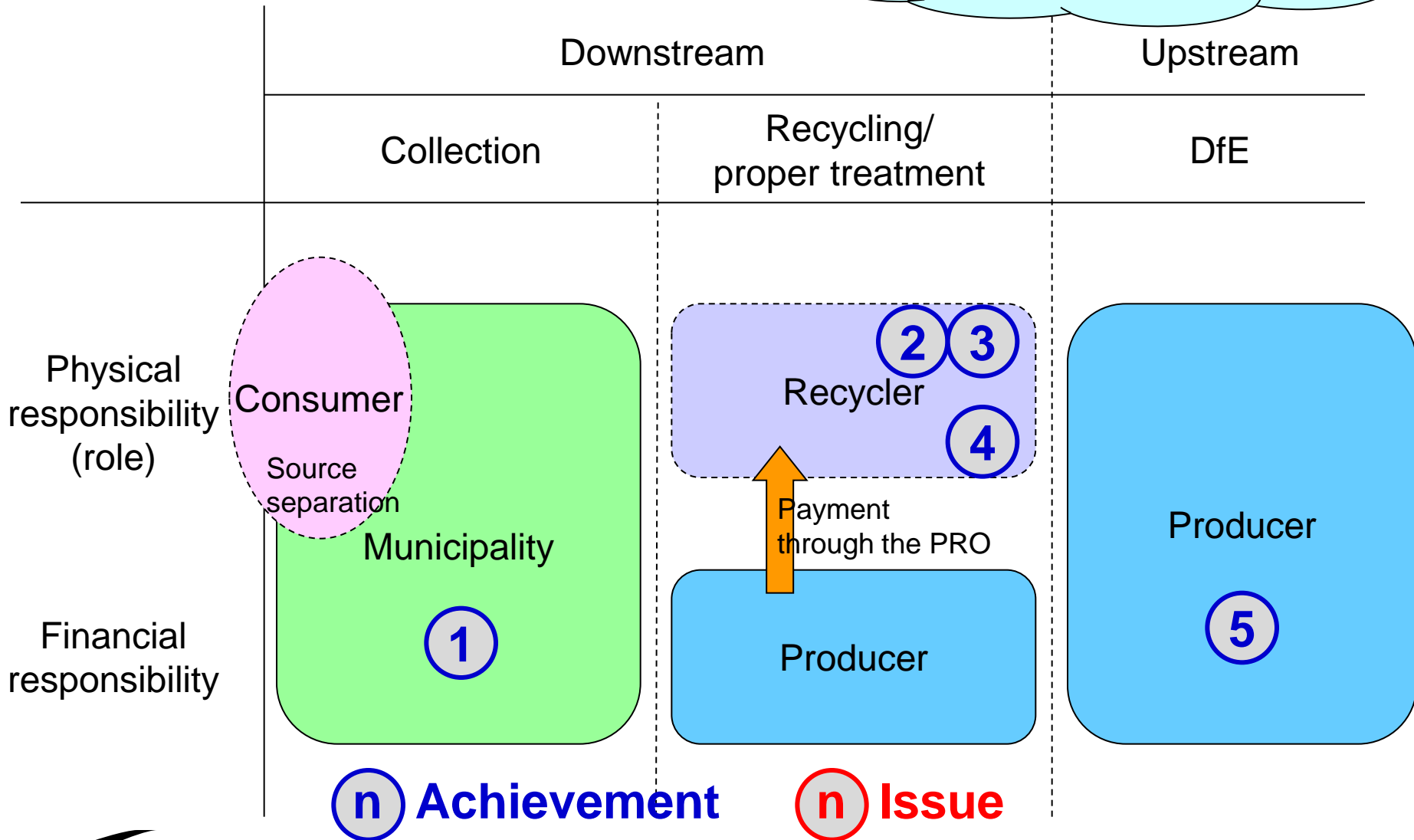
## □ Issues

1. High cost
2. Shared responsibility encourages partial optimization (?)
3. No collection target (A lack of shared vision)
4. Competition between EPR schemes and the market
5. Insufficient waste prevention (?)



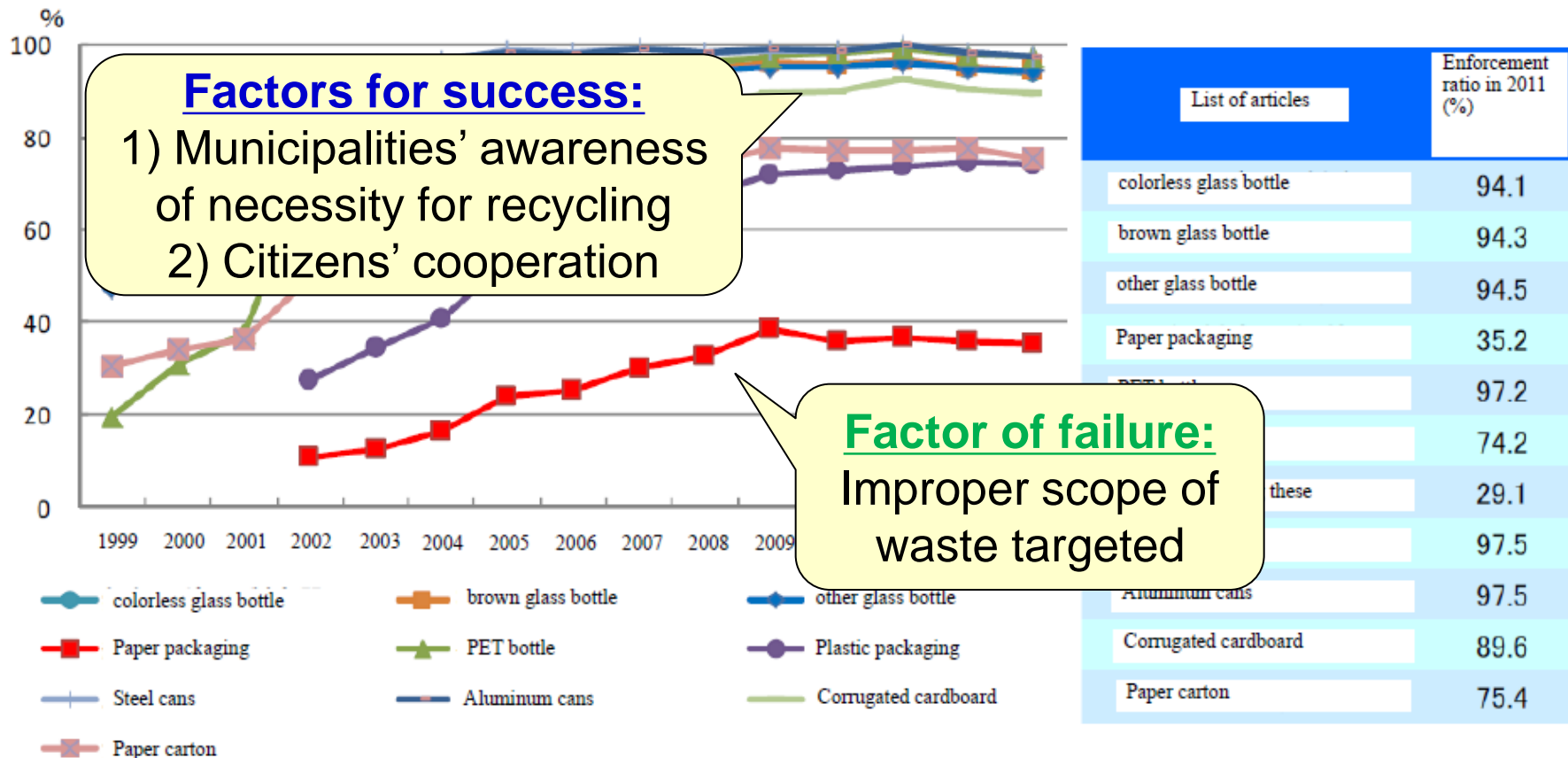
# Japanese Packaging Recycling Act (PRO scheme)

Shared responsibility



# Achievement 1

## Increased participation of municipalities in recycling of packaging waste



# Achievements 2 and 4

## 2: Increased capacity of recycling facilities

(10<sup>3</sup> ton)

	FY 1997	FY 2003	FY 2014
Total of the four items	548	1,826	2,528
PET bottles	18	292	419
Plastic packaging	-	591	1,346

GN  
PE  
Pla  
Paper packaging

**Factor for success:**

A clear sign to the market

## 4: Increased recycling of packaging wastes

(10<sup>3</sup> ton)

	FY 1997	FY 2003	FY 2011
Total of all packaging	732	2,150	2,783
Plastic packaging	-	385	686



# Achievement 5

(10<sup>3</sup> tonnes)

Waste prevention by producers

	Voluntary target for 2015 (relative to 2004)	Reduction rate in 2011	Cumulative reduction from 2006
Glass bottles	2.8% reduction for average weight per a bottle	2.0%	117
PET bottles	10% reduction for designated PET bottles	10.5%	239
Paper packaging	8% reduction in total	6.9%	504
Plastic packaging	13% reduction	10.4%	52.5
Plastic bottles	4% reduction for average weight per a bottle	4.7%	95
Aluminum cans	3% reduction for average weight per a bottle	3.0%	42.5
Paper cartons	3% reduction for 500mL paper cartons	0.3%	41ton
Cardboard	1.5% reduction for weight per 1m <sup>2</sup>	2.5%	675

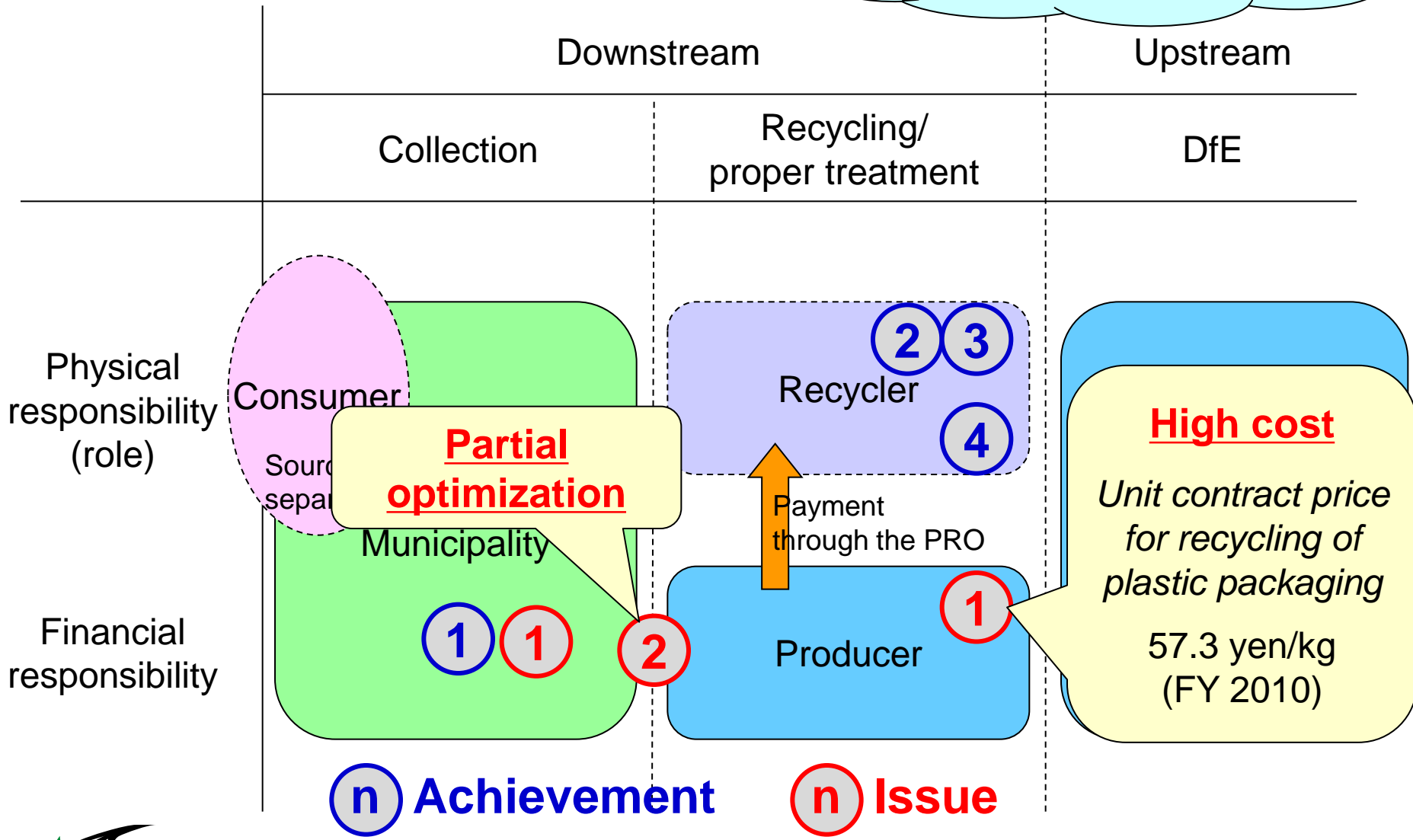
**Factor for success:**

- 1) CSR (voluntary)?
- 2) Financial responsibility?



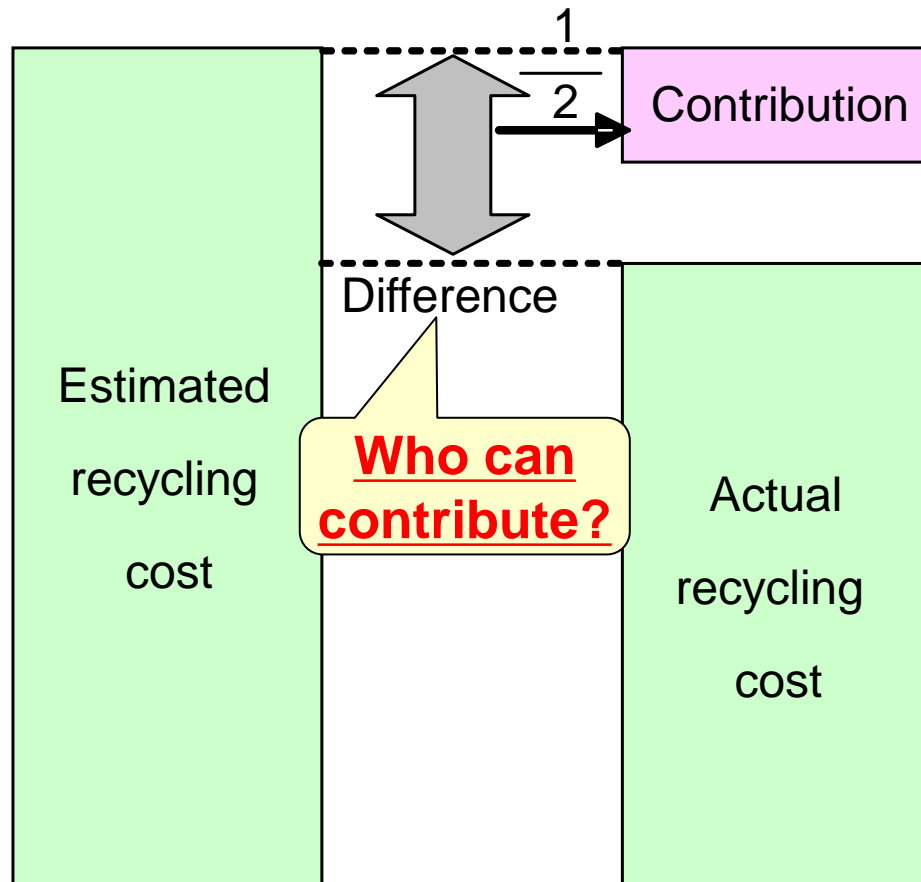
# Japanese Packaging Recycling Act (PRO scheme)

**Shared responsibility**





# The contributory commission system for cost reduction



Distributed to municipalities

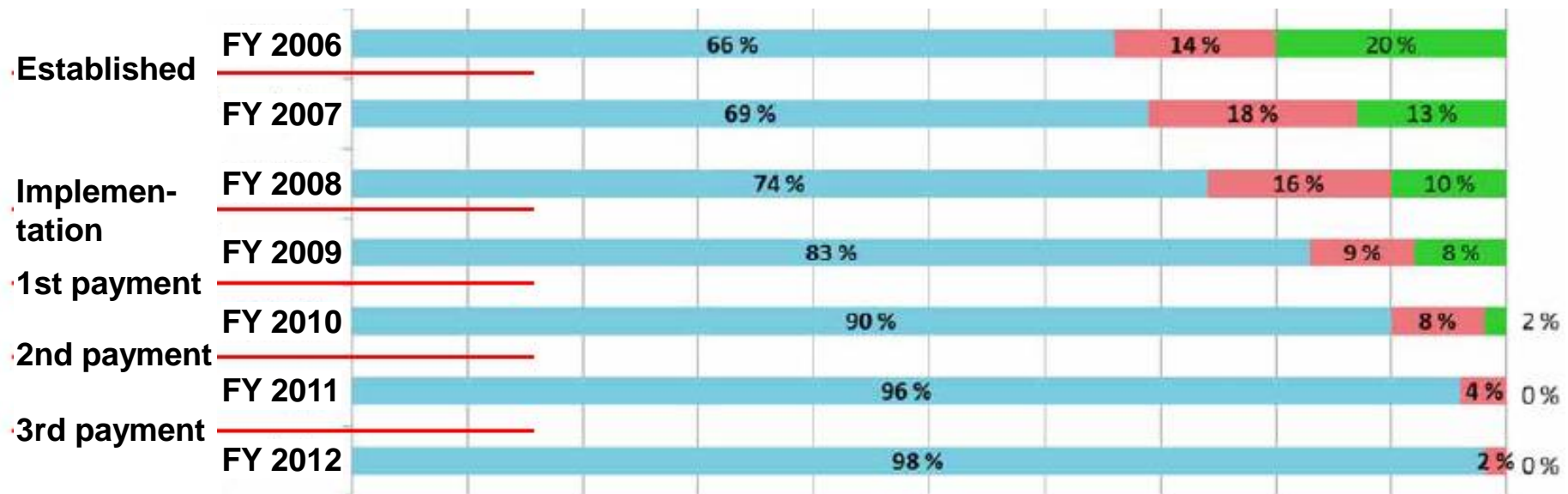
9-10 B yen (FY 2008-10)  
1.9-2.4 B yen (FY 2011-12)

Paid by producers



Source: Yamakawa (2014); The figures of the contribution are from a website of the Japan Containers and Packaging Recycling Association (accessed 2014.2.9)

# Quality of waste plastic packaging from municipalities after the introduction of the contributory commission system

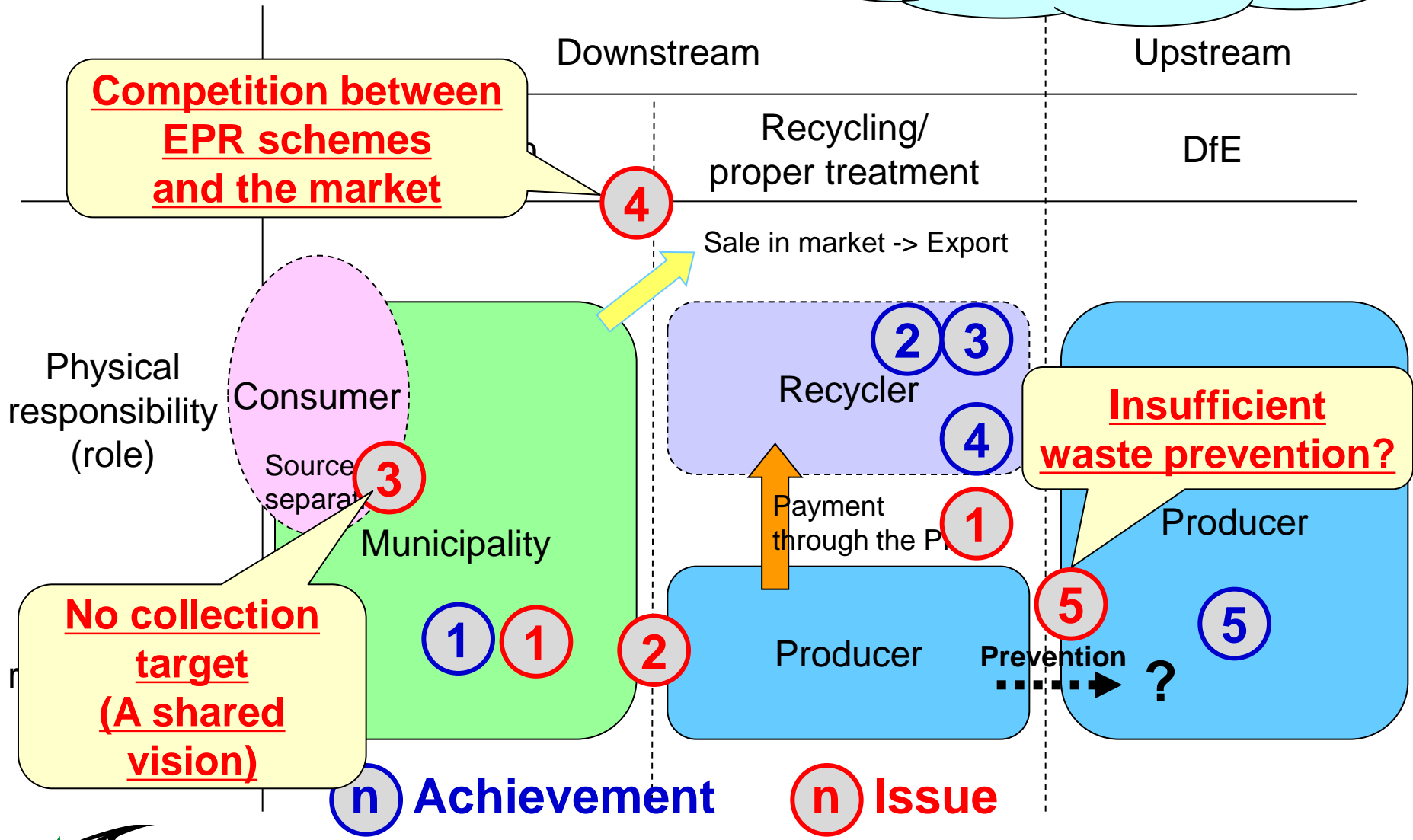


	A rank	B rank	D rank
Packaging content	>90%	85% -90%	<85%



# Japanese Packaging Recycling Act (PRO scheme)

**Shared responsibility**



# Japanese Large WEEE Recycling Act

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## □ Achievements

1. Difficult-to-treat waste ended up in the hands of producers
2. Increased amount of recycling
3. Development of recycling technologies
4. Promoted dissemination of Information for DfE and personnel exchange

## □ Issues

1. Inconvenient systems for consumers
2. Improper treatment in non-producer routes and insufficient coverage

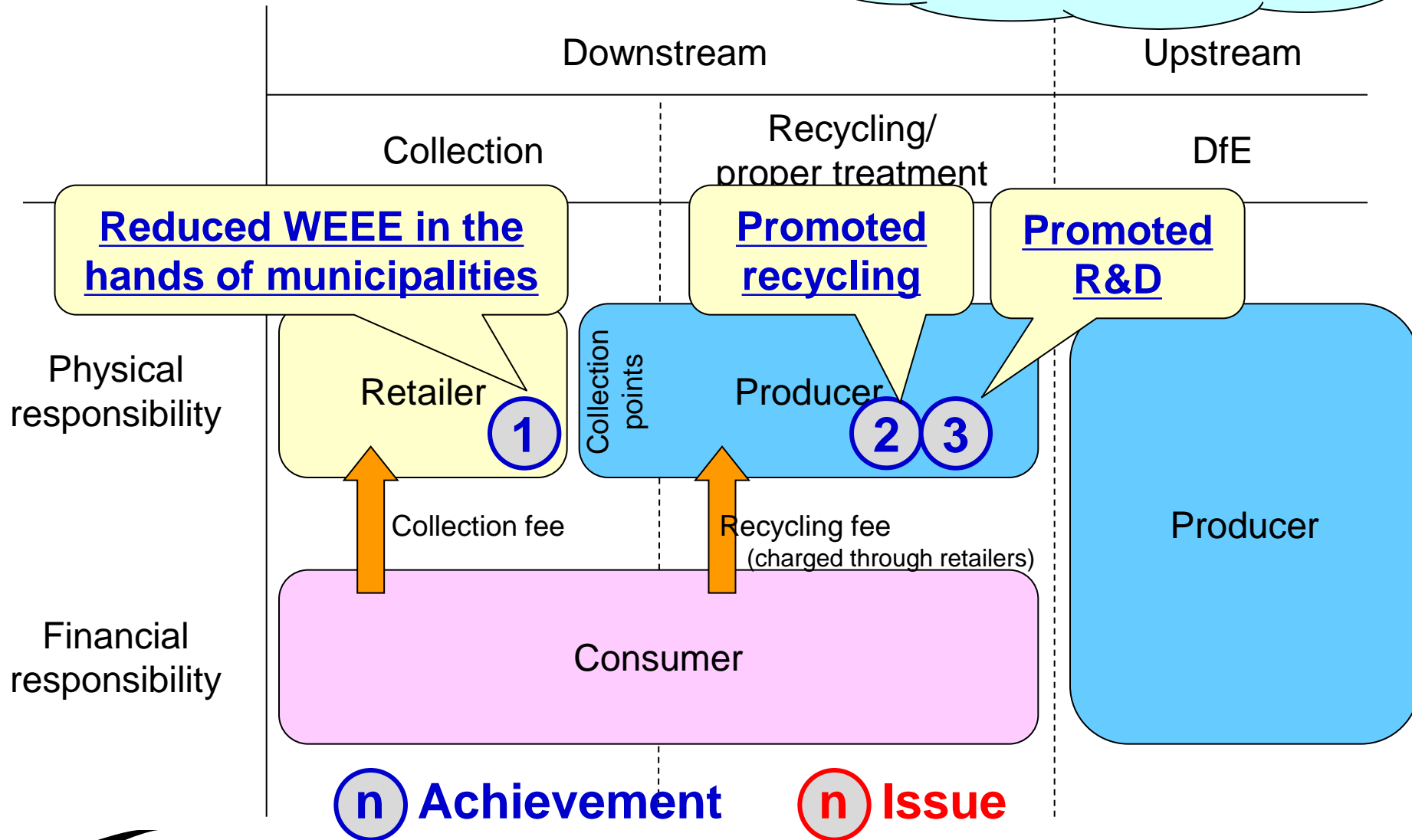
Applying ADF has been discussed, ....

Setting a collection target is being discussed

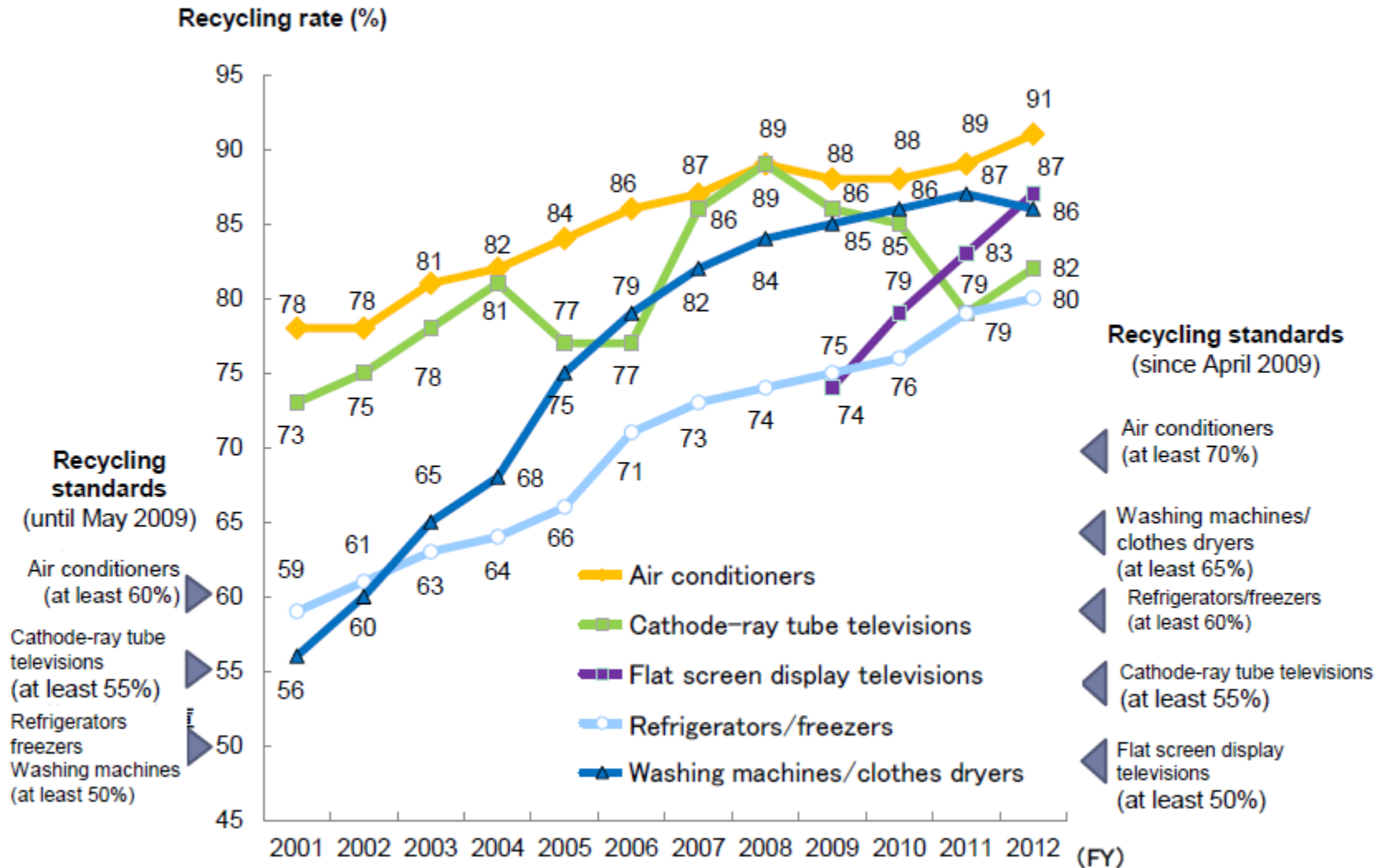


# Japanese Large WEEE Recycling Act

**Physical responsibility**

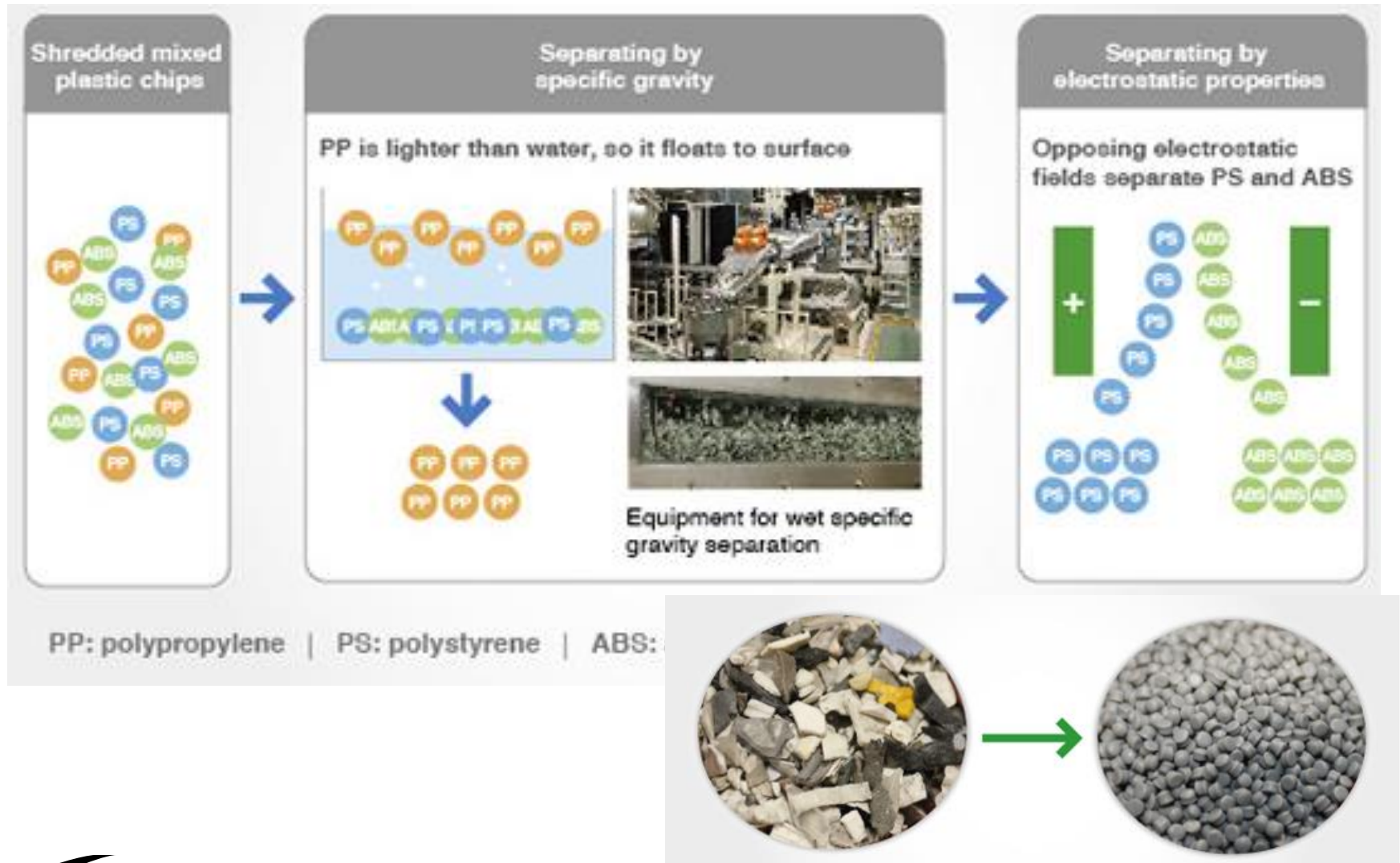


# Achievement 2 Increased recycling rate

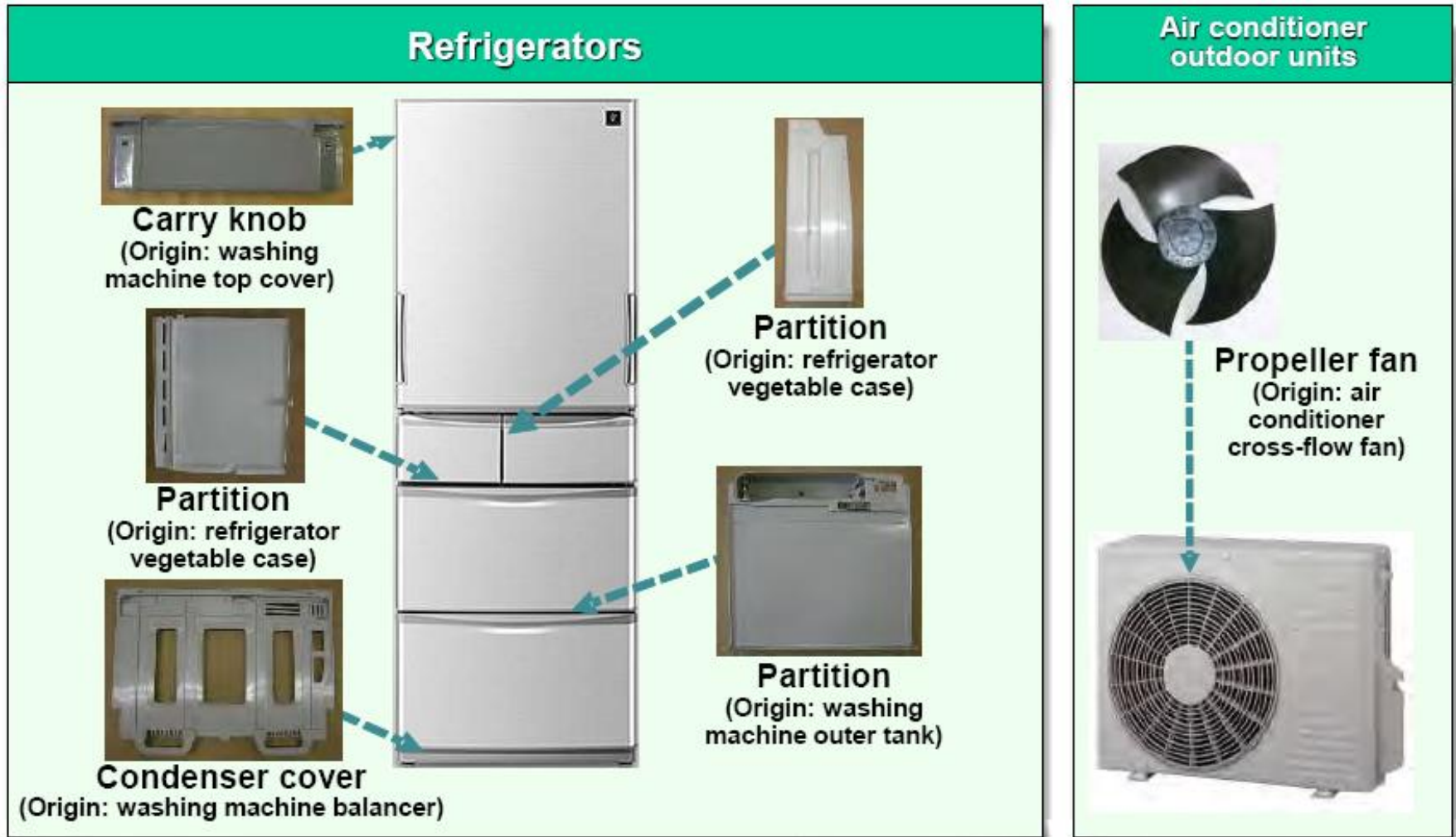


Source: AEHA (2014) Environmentally Conscious Design for Electric Home Appliances in Japan

# Achievement 3: R&D for separation of plastics

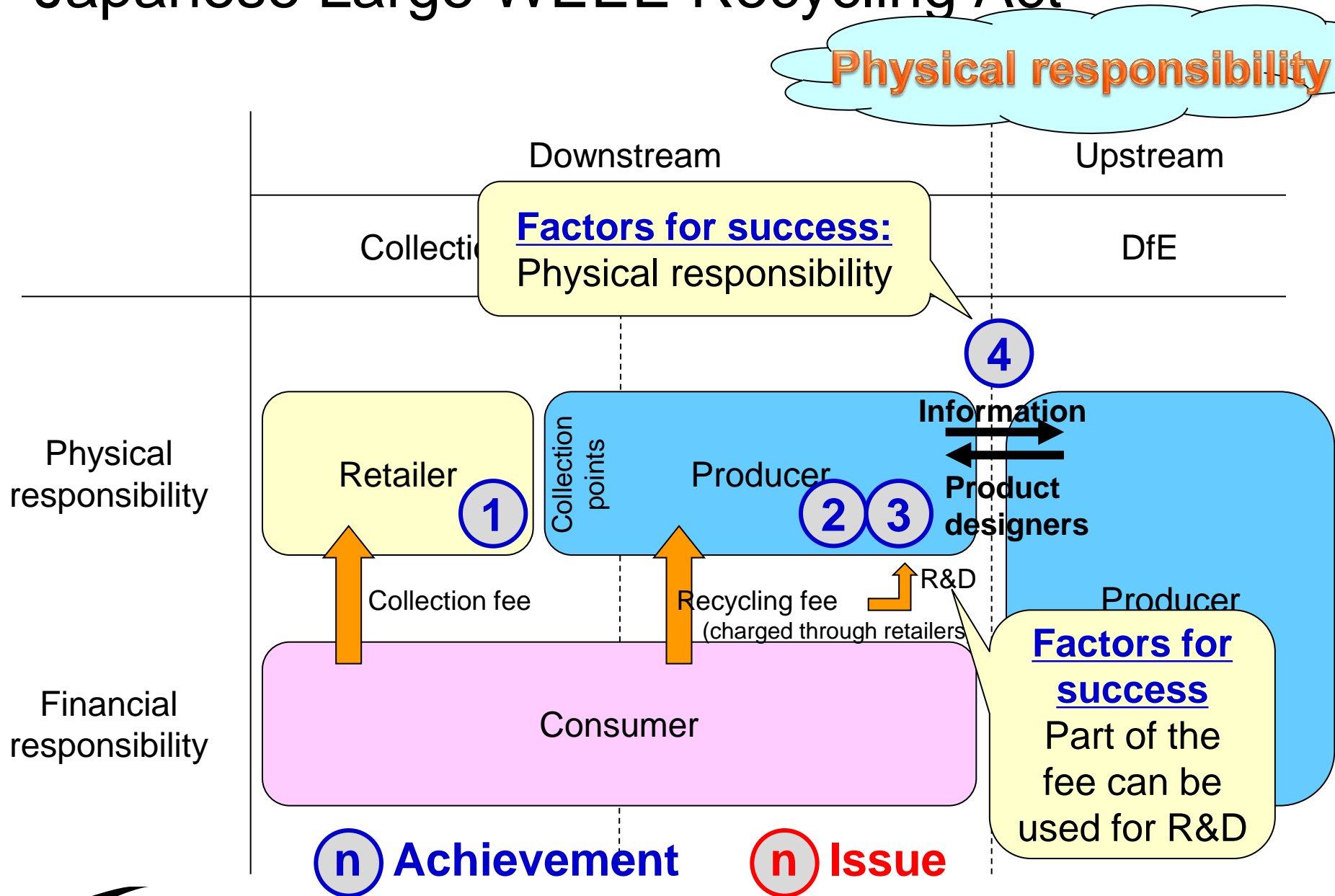


# Achievement 3: R&D for closed-loop recycling of plastics used for large WEEE





# Japanese Large WEEE Recycling Act



# Achievement 4: Promoted DfE of large WEEE

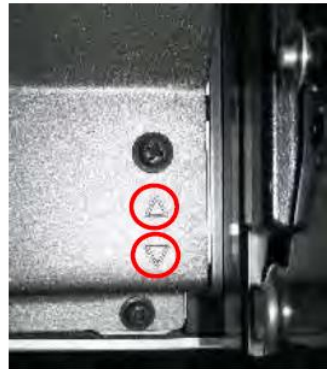
## Efforts by manufacturers




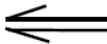


Recycling workshop



Designers get hands-on training in dismantling



Back cover of a plasma television

Recycling symbol
   Removal screw
 Fitting position

Problem (requirement)	Solution (improvement)
	



>PS-HI FR(17)<

Indicator: >PS-HI FR(17)<

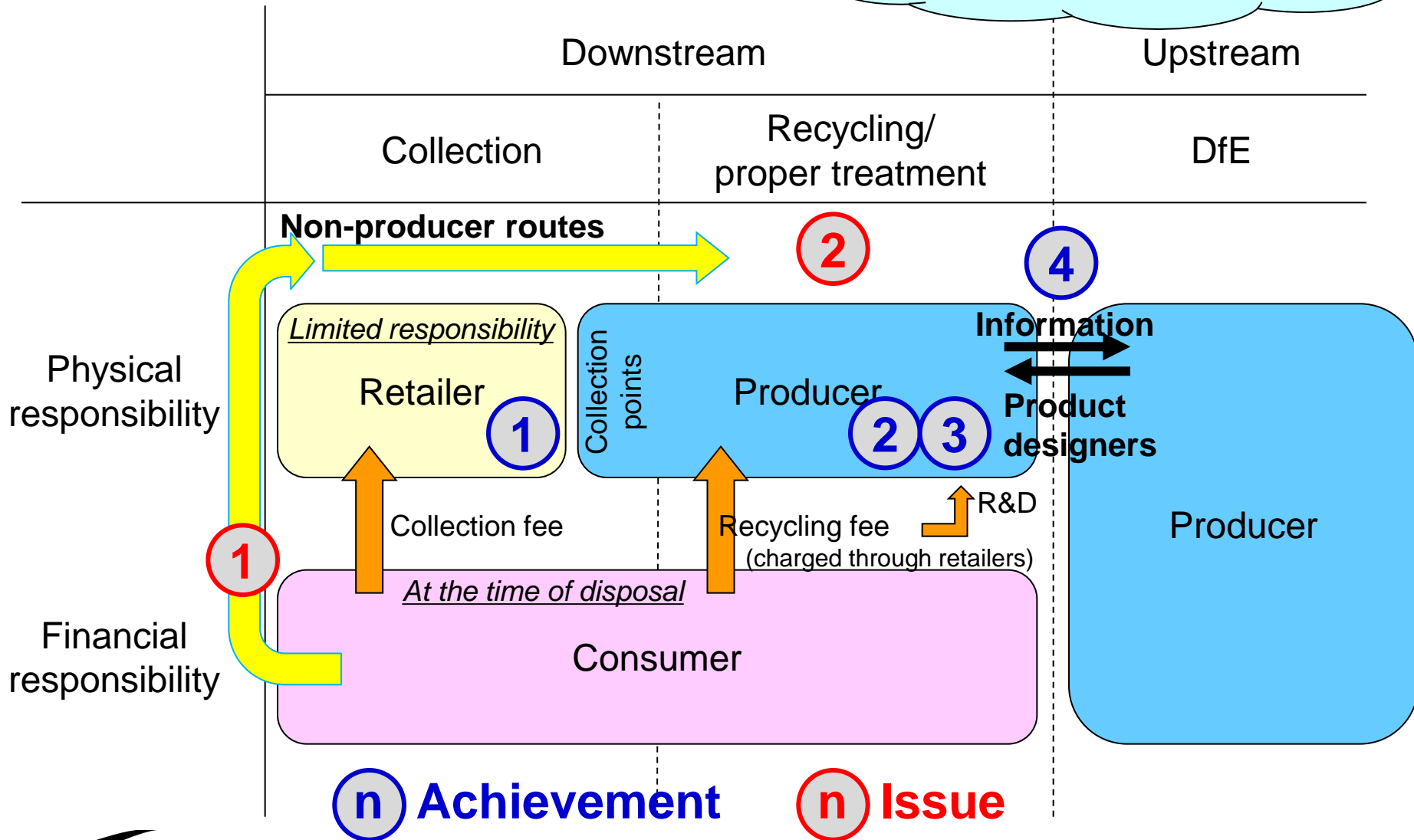
Meaning:  
High-impact polystyrene (PS-HI)  
containing a flame retardant with a  
combination of aromatic bromine  
compound and antimony compound  
(FR(17))



Source: AEHA (2014) Environmentally Conscious Design for Electric Home Appliances in Japan

# Japanese Large WEEE Recycling Act

**Physical responsibility**



# Lessons learned from Japan (1)

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- ❑ Needs to fill the gap between different perceptions on EPR
  - Terminology in Japanese: “seki-nin” = responsibility, liability
    - ❑ Be cautious when talking in other languages
  - To make distinction between ideal mechanisms and real mechanisms of EPR policies
- ❑ Financial responsibility may drive stakeholders to cost reduction only
  - To have multiple options available and/or to have incentives for the other actions should come with financial responsibility.
- ❑ Physical responsibility is useful to gain information in waste (downstream) management.
- ❑ To reconsider all stakeholder’s capabilities
  - Who has higher capability in collection?



# Lessons learned from Japan (2)

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- ❑ A shared goal is necessary for shared responsibility ...
  - Shared responsibility  $\neq$  allocation of responsibilities
  - to avoid partial optimization and stakeholders' indifference to the overall system
  - so that stakeholders can collaborate in a proper way
- ❑ To identify priority aims in a country
  - EPR-based recycling policy = EPR + waste management policy + industrial policy ...
  - Guiding principles on EPR need to be adjusted with other principles.
- ❑ Competition between EPR schemes and the market
  - EPR policies for waste  $\neq$  EPR policies for recyclables



# References for EPR policies in Japan

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- Three case studies (2014)
  - Packaging (Yamakawa)
  - Large WEEE (Hotta, Santo, and Tasaki)
  - Battery (compact rechargeable) (Tasaki)

(<http://www.oecd.org/environment/waste/gfenv-extendedproducerresponsibility-june2014.htm>)
  
- Hosoda (2004) in *Economic Aspects of Extended Producer Responsibility*, OECD publication.
  
- METI (2010) Towards a 3R-Oriented, Sustainable Society: Legislation and Trends 2010. 96p.  
(<http://www.meti.go.jp/policy/recycle/main/english/pamphlets/index.html>)