Insights from Asia Pacific Region - the example of Japan-

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Japanese Packaging Recycling Act

- **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 (?)

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Japanese Packaging Recycling Act (PRO scheme)

Downstream

Collection

Recycling/
proper treatment

Upstream

DfE

Physical responsibility (role)

Consumer

Source separation

Municipality

Recycler

Producer

Payment through the PRO

Financial responsibility

Consumer

Municipality

Recycler

Producer

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Achievement 1

Increased participation of municipalities in recycling of packaging waste

Factors for success:
1) Municipalities’ awareness of necessity for recycling
2) Citizens’ cooperation

Factor of failure:
Improper scope of waste targeted

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
## Achievements 2 and 4

### 2: Increased capacity of recycling facilities

<table>
<thead>
<tr>
<th></th>
<th>FY 1997</th>
<th>FY 2003</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of the four items</td>
<td>548</td>
<td>1,826</td>
<td>2,528</td>
</tr>
<tr>
<td>PET bottles</td>
<td>18</td>
<td>292</td>
<td>419</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>-</td>
<td>591</td>
<td>1,346</td>
</tr>
</tbody>
</table>

### 4: Increased recycling of packaging wastes

<table>
<thead>
<tr>
<th></th>
<th>FY 1997</th>
<th>FY 2003</th>
<th>FY 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of all packaging</td>
<td>732</td>
<td>2,150</td>
<td>2,783</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>-</td>
<td>385</td>
<td>686</td>
</tr>
</tbody>
</table>

**Factor for success:** A clear sign to the market

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
**Achievement 5**

**Waste prevention by producers**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass bottles</td>
<td>2.8% reduction for average weight per a bottle</td>
<td>2.0%</td>
<td>117</td>
</tr>
<tr>
<td>PET bottles</td>
<td>10% reduction for designated PET bottles</td>
<td>10.5%</td>
<td>239</td>
</tr>
<tr>
<td>Paper packaging</td>
<td>8% reduction in total</td>
<td>6.9%</td>
<td>504</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>13% reduction</td>
<td>10.4%</td>
<td>52.5</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>4% reduction for average weight per a bottle</td>
<td>4.7%</td>
<td>95</td>
</tr>
<tr>
<td>Aluminum cans</td>
<td>3% reduction for average weight per a bottle</td>
<td>3.0%</td>
<td>42.5</td>
</tr>
<tr>
<td>Paper cartons</td>
<td>3% reduction for 500mL paper cartons</td>
<td>0.3%</td>
<td>41ton</td>
</tr>
<tr>
<td>Cardboard</td>
<td>1.5% reduction for weight per 1m²</td>
<td>2.5%</td>
<td>675</td>
</tr>
</tbody>
</table>

**Factor for success:**

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

Japanese Packaging Recycling Act (PRO scheme)

<table>
<thead>
<tr>
<th>Downstream</th>
<th>Upstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection</td>
<td>Recycling/ proper treatment</td>
</tr>
</tbody>
</table>

**Physical responsibility (role)**

- **Consumer**
- **Municipality**
- **Recycler**
- **Producer**

**Financial responsibility**

- **Source separation**

**Partial optimization**

**Issue**

- High cost
  - Unit contract price for recycling of plastic packaging
  - 57.3 yen/kg (FY 2010)

**Achievement**

1. Partial optimization
2. Recyclers
3. Payment through the PRO

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
The contributory commission system for cost reduction

<table>
<thead>
<tr>
<th>Estimated recycling cost</th>
<th>Difference</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid by producers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distributed to municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-10 B yen (FY 2008-10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9-2.4 B yen (FY 2011-12)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Who can contribute?

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Implementation</th>
<th>A rank</th>
<th>B rank</th>
<th>D rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2006</td>
<td></td>
<td>66%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>FY 2007</td>
<td></td>
<td>69%</td>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td>FY 2008</td>
<td></td>
<td>74%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>FY 2009</td>
<td></td>
<td>83%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>FY 2010</td>
<td></td>
<td>90%</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>FY 2011</td>
<td></td>
<td>96%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>FY 2012</td>
<td></td>
<td>98%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Japanese Packaging Recycling Act (PRO scheme)

- **Downstream**
  - Recycling/ proper treatment
  - Sale in market -> Export

- **Upstream**
  - DfE

- **Physical responsibility (role)**
  - Consumer
    - Source separation
  - Municipality
  - Recycler
  - Producer

- **Competition between EPR schemes and the market**
  - No collection target (A shared vision)

- **Achievement**
  - 1

- **Issue**
  - 2
  - 3
  - 4
  - Insufficient waste prevention?

- **Source:** Tasaki (2014.6.17) Presentation at the OECD Global Forum
Japanese Large WEEE Recycling Act

- **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

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Japanese Large WEEE Recycling Act

Physical responsibility

Physical responsibility

Reduced WEEE in the hands of municipalities

Collector points

Promoted recycling

Promoted R&D

Collection

Recycling/ proper treatment

DfE

Retailer

Consumer

Producer

Collection fee

Recycling fee (charged through retailers)

Financial responsibility

Achievement

Issue

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
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

Source: AEHA (2014) Environmentally Conscious Design for Electric Home Appliances in Japan
Japanese Large WEEE Recycling Act

Factors for success: Physical responsibility

Factors for success:
- Part of the fee can be used for R&D

Physical responsibility

Retailer

Collection fee

Collection points

Producer

Recycling fee (charged through retailers)

Producer

R&D

Consumer

Achievement

Issue

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Achievement 4: Promoted DfE of large WEEE

Efforts by manufacturers

Recycling workshop

Designers get hands-on training in dismantling

<table>
<thead>
<tr>
<th>Problem (requirement)</th>
<th>Solution (improvement)</th>
</tr>
</thead>
</table>

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

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Lessons learned from Japan (1)

- 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?

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
Lessons learned from Japan (2)

- A shared goal is necessary for shared responsibility …
  - Shared responsibility ≠ 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 ≠ EPR policies for recyclables

Source: Tasaki (2014.6.17) Presentation at the OECD Global Forum
References for EPR policies in Japan

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