METI
Ministry of Economy, Trade and Industry

Circular Economy in Japan

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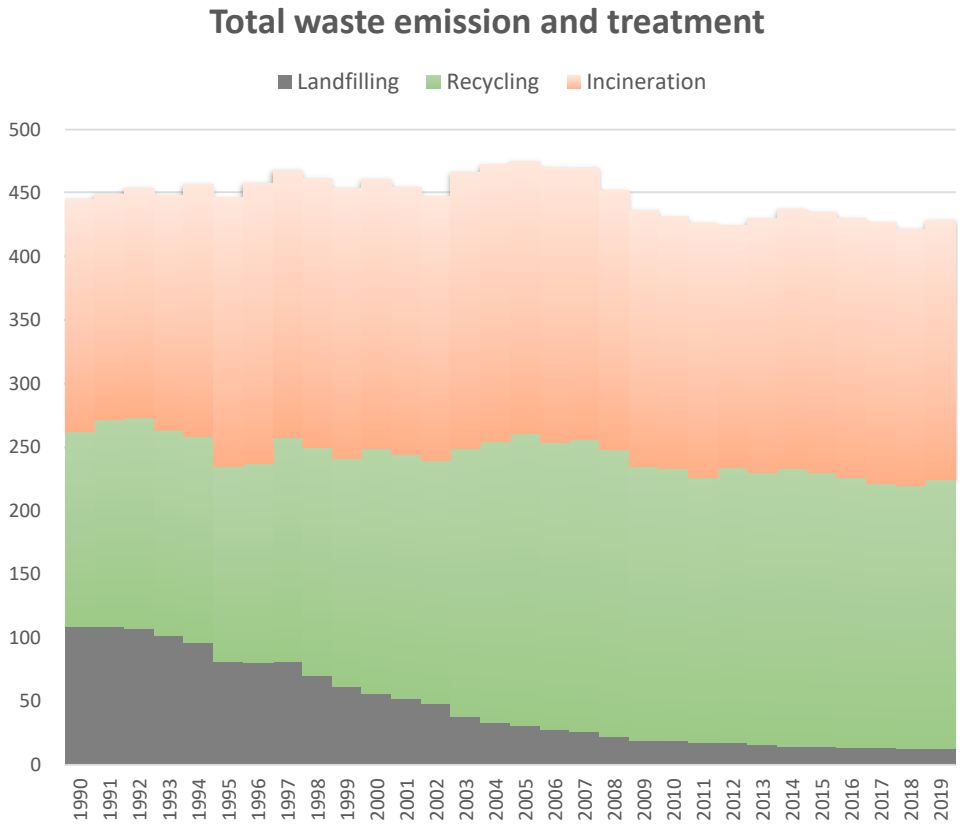
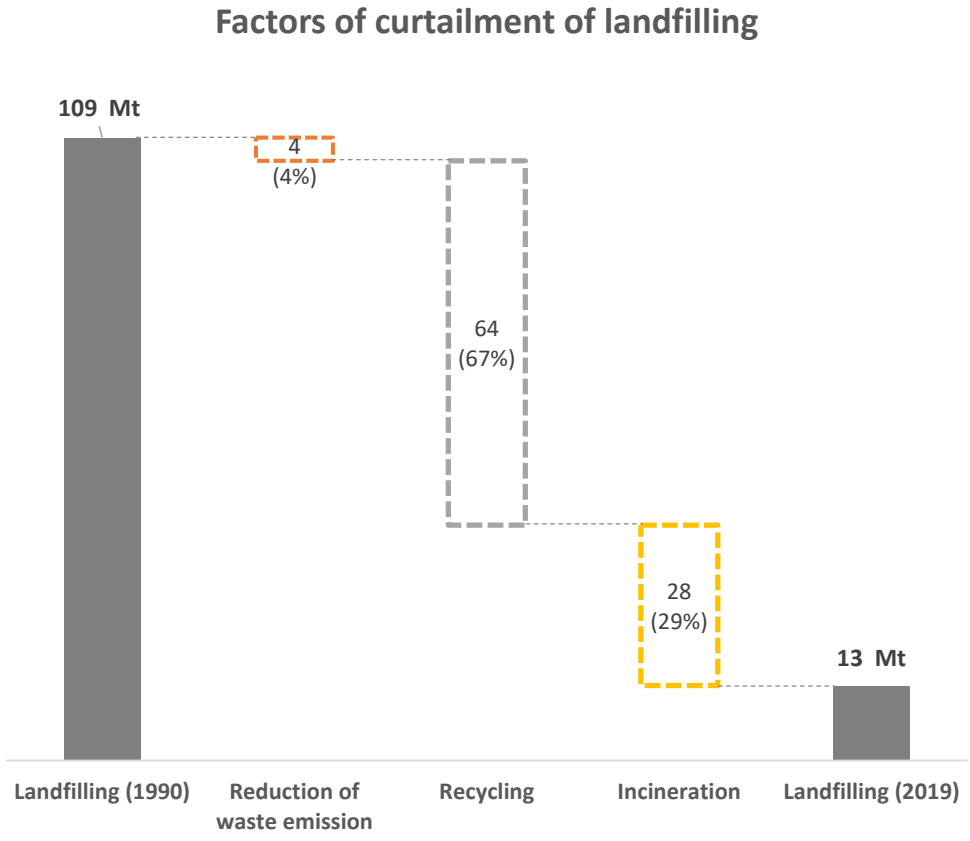
Policy History of CE in Japan

- "Circular Economy Vision 1999" (released in July 1999)
  - Advocating "3R" principles
  - Main agenda was "appropriate waste-management" to minimize landfilling*

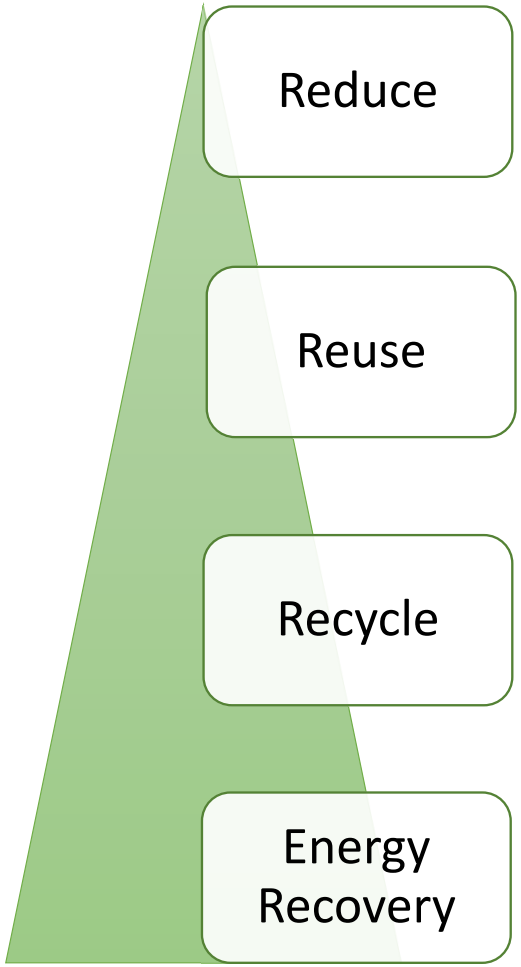
    * Capacity for landfilling : municipal waste (1999; 9 years, 2017; 22 years) , industrial waste (1999; 3 years, 2017;17 years)
- Legislation
  - Fundamental Law (2001); setting waste-hierarchy
  - Effective Resource Use Law (2001); requiring Design for Environment (DfE) to 69 items
  - Respective Recycle Laws
    - ✓ Containers & Packaging ; glass, papers, plastics
    - ✓ Home appliances (2001) ; 4 items (refrigerators, TVs, air conditioners, washing machines)
    - ✓ End of Life Vehicle (2005)
    - ✓ Others ; foods from business (2001), buildings (2002), small home appliances (2013)

Achievement





Main KPI for CE

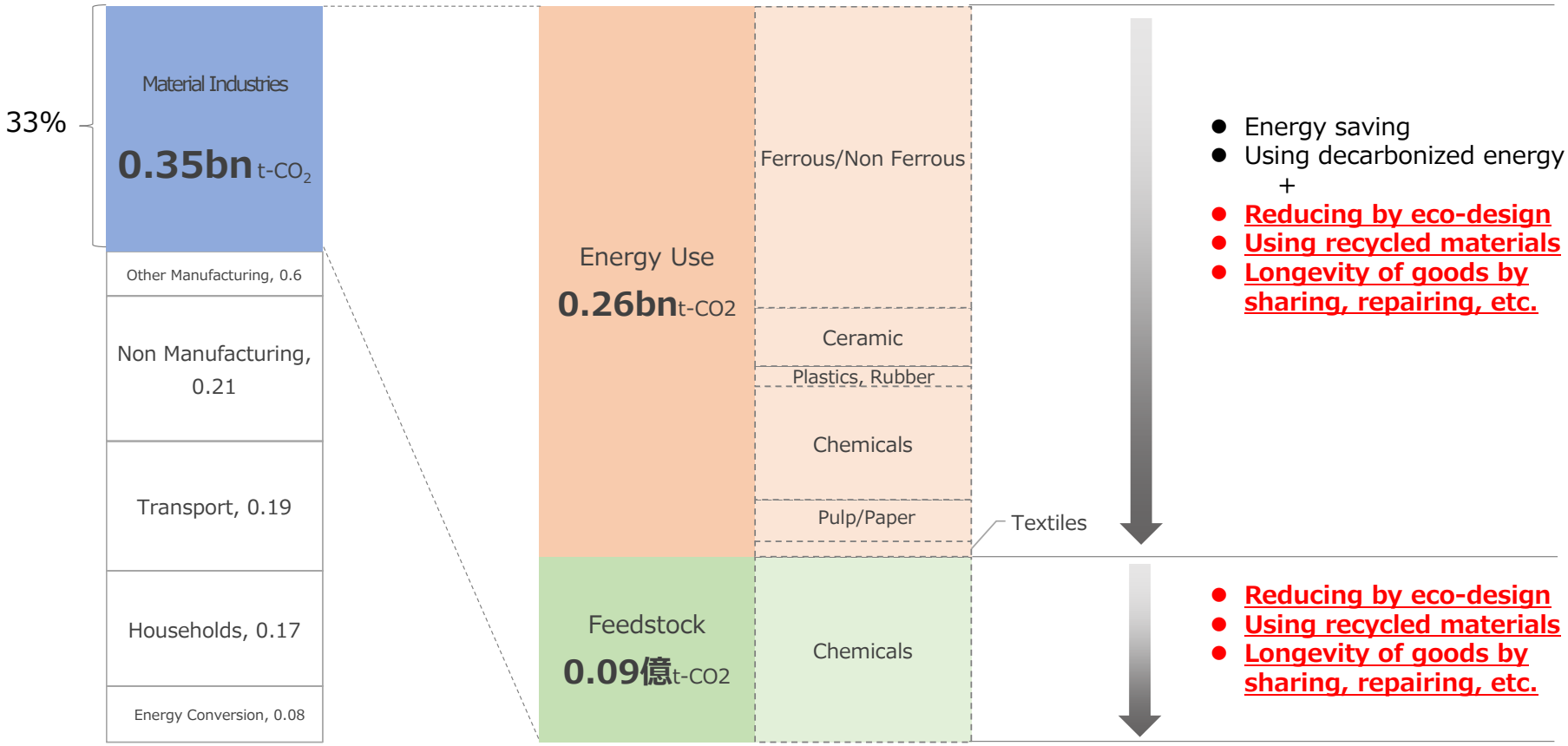


		Japan	EU27
Reduce	Domestic Material Consumption per GDP (t/Mio$)	**259**	298
Reuse	GDP share of Repairing/Maintenance Industries	**3.5%**	Germany 2.9% France 3.8%
Recycle	Waste Recycling Rate	**43%**	40%
	Recycled Material Use Rate	**16%**	12%
Energy Recovery	Incineration	**13%**	0.5%

Next agenda

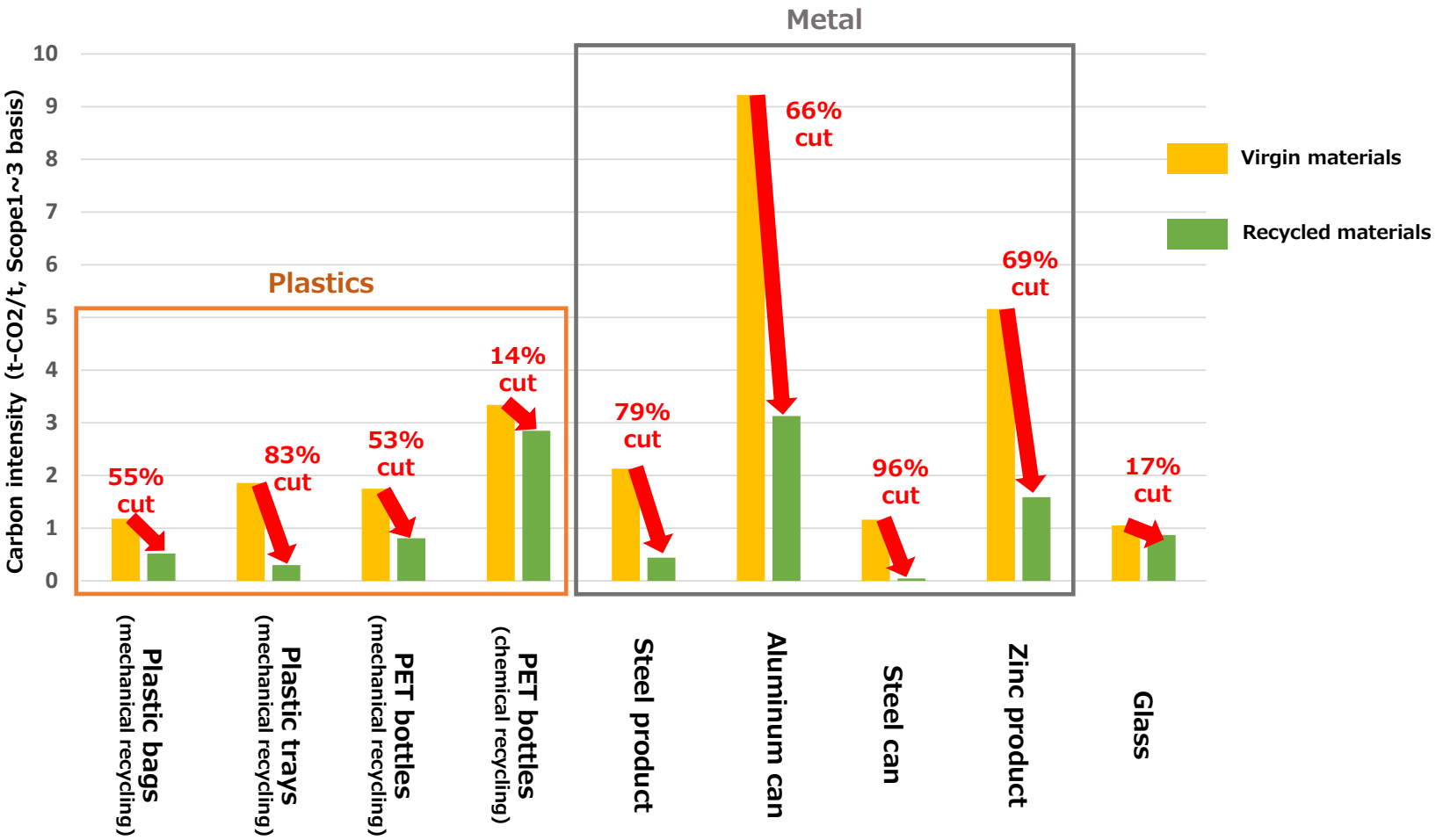
- From “Quantity” to “Quality”
  - Recycling dramatically contributed to cutting final dumping
  - Main approach of recycling was not “closed loop” but “cascading”
  - To cut off the usage of virgin resources which leads to climate change problem or resource dependency on third countries, we should try to pick up “closed loop rate” of problematic materials.
- From “Downstream” to “Upstream” by Re-commerce
- From “Partial optimization” to “Total optimization” by Digital tech

Origins of CO2 in Japan



(Unit : Billion t-CO_2)

Low carbon intensity of recycled materials



Critical minerals and CE

		Economic Security Law	Role of Circular Economy
Rare metal	**Rare earth**	● Designation of “Specific important materials” ● Finance to private entities exploring and mining ● Public/private reserving	● Urban mining ✓ Easy segregation and sorting by Design for Circulation ✓ R&D of recycling technologies ✓ Extending coverage of recycling law to rare-metal rich products (batteries etc.)
	Platinum group		
	Others (Nickel, Cobalt, Lithium, Mangan, etc.)		

		Reserve to production ratio ※1	Recycled material use rate in Japan※2	Main application (Urban mining)
Base metal	**Iron**	69 years	15%	Automobiles, buildings, industrial machinery
	Copper	34 years	25%	Electric wire, electronic devices、motors
	Silver	21 years	14%	Electronic devices, PVs
	Lead	19 years	18%	Batteries
	Zinc	16 years	3%	Plating, die-casting
	Gold	16 years	44%	Electronic devices, jewelry, medical use
	Tin	15 years	54%	Solder, tin plate, lead frame

※1 “Mineral Commodity Summaries 2023” (U.S. Geological Survey) ※2 “Material flow of mineral resources” (JOGMEC)

Policy frontier

<table>
<tr><th>Agenda</th><th>Approach</th><th>Measures</th></tr>
<tr><td rowspan="2">CO2 curtailment</td><td rowspan="2">Reduce/Reuse</td><td>● Fostering secondhand market (Re-commerce)
● Boosting Longevity services (Repairing, Remanufacturing)</td></tr>
<tr><td rowspan="3">● Standardizing “Design for Circulation”
– Easy segregation
– Durability
– Material saving
– Front runner certification
– Adding items (PVs, textiles, lithium batteries, etc.)</td></tr>
<tr><td>Resource autonomy</td><td rowspan="2">Recycle</td></tr>
<tr><td></td><td>● Quantitative targeting of recycled material use rate on critical minerals and high carbon intensity material</td></tr>
<tr><td>Visibility (Circularity, carbon footprint)</td><td>Digitalization</td><td>● Data traceability by building digital platform (e.g. Digital Product Passport)</td></tr>
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New policy package; CE Transmission (3 gears)

"Strategy of Resource-Autonomous Circular Economy for Growth" (released in March 2023)

Gear 1. Regulations/Rules	Gear 2. CE Toolkit	Gear 3. CE Partnership

- **Beef up "3R+Renewable"**
  - ✓ Expanding the coverage of "Design for Circulation" (DfC) to Battery, PV, Clothes etc.
  - ✓ Setting quantitative/qualitative target of circulation
  - ✓ De-regulation of municipal licenses for border crossing waste collection
- **Collaboration with overseas**
  - ✓ Cooperation of recovering critical minerals with like-minded Indo-pacific countries
  - ✓ Standardization (ISO)
  - ✓ Data free flow within trustworthy countries

- **Financing for CE investment**
  - ✓ R&D, PoC
  - ✓ Capital investment
  - ✓ Fostering "Re-commerce" industry
- **Financing for CE Digitization**
  - ✓ Designing architecture for data exchange
  - ✓ System investment
- **Financing for Standardization**
  - ✓ Design for Circulation
- **Supporting Startups**

- **Setting Target**
  - ✓ Recycled material use rate
  - ✓ Reducing/Reusing
- **Standardization**
  - ✓ Design for Circulation
  - ✓ Data exchange rules
- **Initiating local projects**
- **Education**
  - ✓ Youth
  - ✓ Business principles

G7 Ministers' Meeting on Climate, Energy and Environment @Sapporo (Apr. 15, 2023)

- Ministers Communique (relating to CE)
  - Circular Economy and Resource Efficiency
    - ✓ Addressing the triple crisis : Climate change, biodiversity loss and pollution
    - ✓ Collaboration under the G7 Alliance on Resource Efficiency
    - ✓ Circular Economy and Resource Efficiency Principle
    - ✓ Promoting transparency on circularity along entire value chains
    - ✓ International cooperation
  - Five-Point Plan for Critical Minerals Security
    - ✓ Recycle More and Share Capabilities

      "Recognizing the need to promote recycling of critical minerals at the global level, we will consider the establishment of initiatives, using available fora such as the MSP, to facilitate the environmentally sound management of e-Waste (electrical and electronic waste) and recycling among developing countries and like-minded countries with advanced, environmentally sound facilities, including smelting facilities.

      We recognize that a similar approach to recycling of e-Waste as mentioned above can be applied to the future recycling of used lithium-ion batteries and neodymium magnets, which will be discarded in huge quantities due to the scrapping of EVs, etc.

      We also reaffirm that the importance of establishing domestic recycle chains with the best available technologies (BAT) and fostering recycling capacities for recyclable materials such as e-Waste and used Lithium-ion batteries and neodymium magnets, based on the industrial situation of each country.

Ideas for cooperation with EU

- Standardization of “Design for Circulation”
  - Sharing best practices of eco-design for convergence as international standards (ISO)
- Preparing an environment for actual “Data Free Flow with Trust”
  - Creating use cases of data exchange for CE and set standards regarding interoperability and data sovereignty