

France-Japan Joint Forum

How to cope with ecological and digital transformations –
Entrepreneurship and organizational creativity –

**Japan-specific problems
to social and legal barriers
standing in the way of compatibility
between Circular Economy and Digital Transformation**

Kazunori Kitagawa
Japan Productivity Center/
Lecturer of Sophia University
Email: k.kitagawa@jpc-consulting.jp



日本生産性本部
JAPAN PRODUCTIVITY CENTER

Outline of this Presentation

I Historical Review of Legal System for Waste in Europe and Japan

II Main Differences of Legal Provisions related to Waste Management between Japan and Europe

III Actual Differences between Japan and Europe caused by the Differences in Waste Systems

IV Comparison of Japan and Europe on Digital Effects to be expected in Waste Management

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Presenter Introduction



KITAGAWA, Kazunori

Japan Productivity Center
Chief Of Eco-Management Center /
Lecturer of Sophia University Graduate School

Biography

For more 20 years, engaged in research and consulting related to the environmental policy of the Government and companies.

Member of Industry Circular Economy Vision Study Group (FY2018-FY2019) of the Ministry of Economy, Trade, NEDO Technical Committee Member, ISO TC323 Circular Economy WG1 Expert and its Domestic Committee Member. Major publications include "Circular Economy: Circular Economy Transforms Business" Keiso Shobo, "Plastic Environmental Technology" Joho Kiko, "Encyclopedia of Material Recycling Technology" Nihon Kogyo Shuppan, "Plastic Chemical Recycling Technology" MC Publishing.

I Historical Review of Legal System for Waste in Europe and Japan

Historical Review of the EU's Resource Circulation Policy

Basic Trends: Partial Optimization to Total Optimization Internalizing the External Economy

Political Concepts	Extended Producer Responsibility (EPR)	Integrated Product Policy (IPP)
Term	1990–	1998–
Basic Ideas	<ul style="list-style-type: none"> ➤ End-of-life products should be returned to the manufacturing inlet to close the resource loop ➤ Internalization of external economy for waste disposal by municipalities 	<ul style="list-style-type: none"> ➤ EPR threatens EU Single Market Principle ➤ EPR is effective only in harmony with Integrated Product Policy ➤ Integrate Patchwork Recycling for Overall Optimization
Legislations enacted	<ul style="list-style-type: none"> ➤ Packaging Directive ➤ Waste from Electric and Electrical Equipment ➤ End-of-Life Vehicle Directive etc. 	<ul style="list-style-type: none"> ➤ RoHS (Restriction of Hazardous Substances) ➤ REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals)

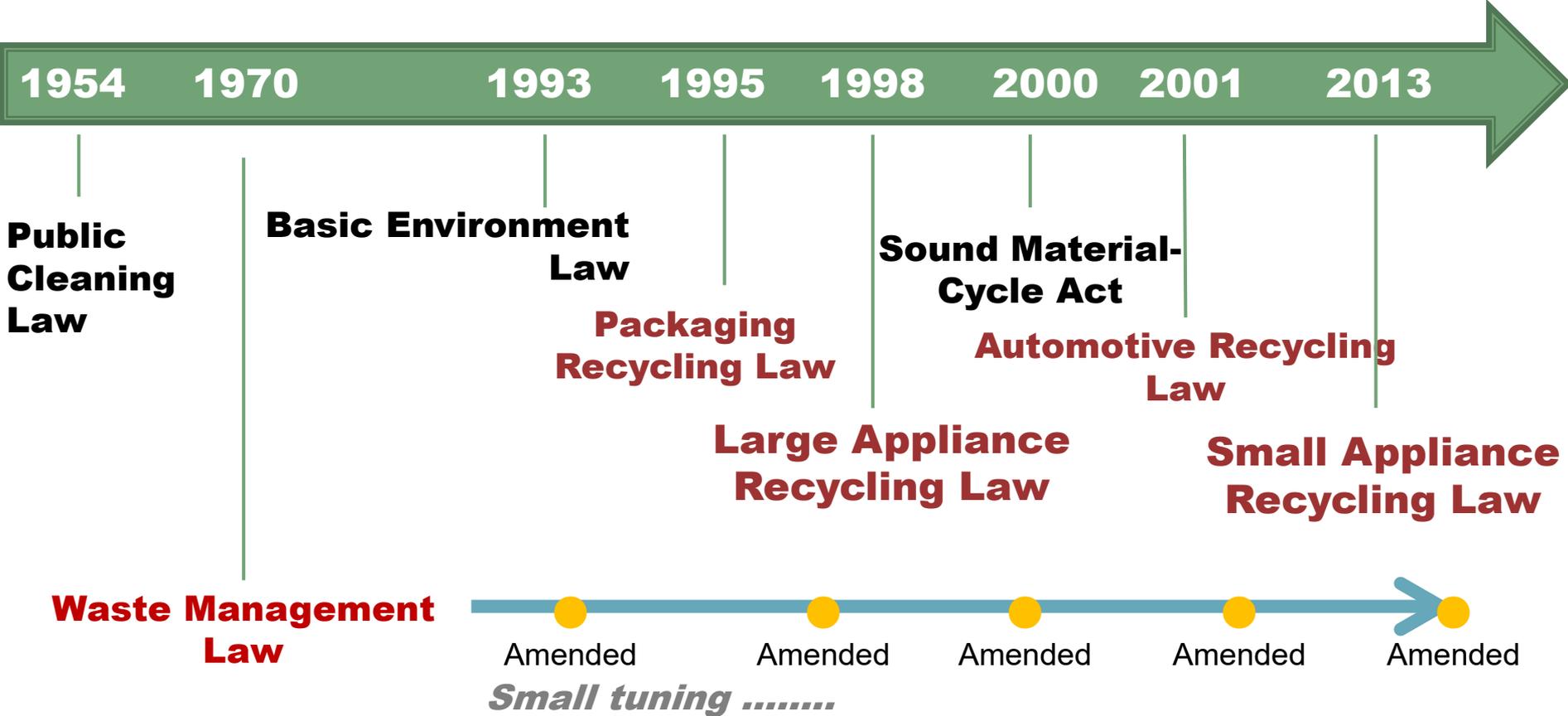
Enactment of Main Waste Legislation in EU

Time	Legislation
Jul/1975	Waste Frame Work Directive 75/442/EEC
Dec/1991	Hazardous Waste Directive 91/689/EEC
Apr/1999	Landfill Directive 1999/31/EC
Dec/2000	Incineration Directive 2000/76/EC
Oct/2008	Amended Waste Frame Work Directive 2008/98/EC

Basic Concept of Extended Producer Responsibility

Production/ Distribution	Consumption	Waste Collection/ Treatment
Pollution Prevention Safety Management	Product Durability Safety in Product Use Supply of Spare Parts etc.	Take Back Products Recycling Products Financing Recycling
<p>Traditional Responsibility of Producers</p> 		<p>Municipal Responsibility</p> 
<p>'Extended' Producer Responsibility</p> 		

Historical Review of Waste Management in Japan



Differences of the Histories of Legal System Development on Waste Management between Europe and Japan

Europe

Old
W
F
D

Hazardous Waste D.

Landfill Directive

Incineration Directive

New
W
F
D

The Basic Drive to Recycling is set up in the New WFD collectively. Individual EPR legislation for each product stipulates mainly the requirements for recyclability that supports and encourages smooth recycling. WFD requires all waste should be recycled.

Europe segregated the disposal and hazardous waste from the basic waste legislation
Japan segregate recyclable waste from the basic law.

Japan

W
aste
M
anage
ment
L
aw

Package Recy.
Law

Large Appliance
Recy. Law

Auto Recy.
Law

Small Appliance
Recy Law

No driving forces to recycling in the Waste Management Law. Drives to Recycling exist only in the individual recycling laws. Recycling is implemented separately by each product category and if the used products didn't enter the legal coverage they become out of control of recycling laws.

Why Japan's Waste Management Law does not prioritize recycling

- The Objectives of the Japan's Waste Management Law:
 - 1.Reducing waste emissions
 2. Preserving the living environment and ensuring public health
- To fulfill the above objectives, it places particular emphasis on the following two matters.
 - 1.Thorough eradication of illegal dumping
 2. Implementing strict processing criteria.
- For this reason, this law requires proper disposal of waste rather than recycling.
- Therefore, there is no provision for prioritizing reuse and recycling over disposal in waste treatment.
- Since it is difficult to recycle post-consumer products as long as those fall within the scope of the Waste Management Law, individual recycling laws were created to exclude them from the strict restrictions of the law.

In Japan, Waste Management Law is the Biggest Barrier to Recycling

Recycling is left to external actors

Automotive Recycling Law



**No way to survive
if you fall under the
Waste Management Law**



Small Appliance Recycling Law Only from Households



Recycling Guard

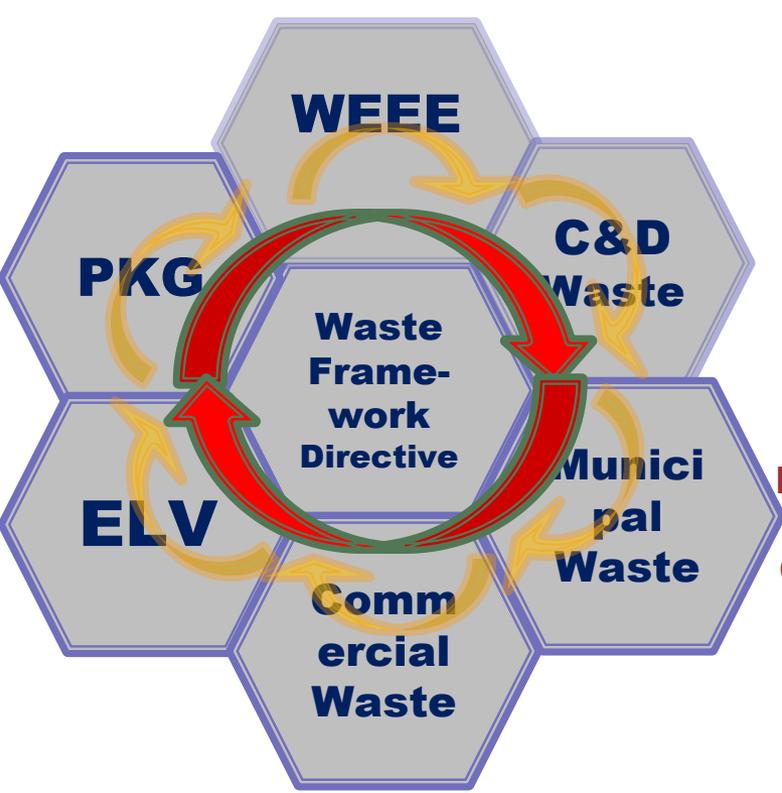
Packaging Recycling Law Only from Households

An illustration of three plastic bottles (one orange, one blue, one green) and a red superhero character with a yellow 'V' on its chest and blue visor. The character is pointing towards the bottles.

Large Appliance Recycling Law Only from Households

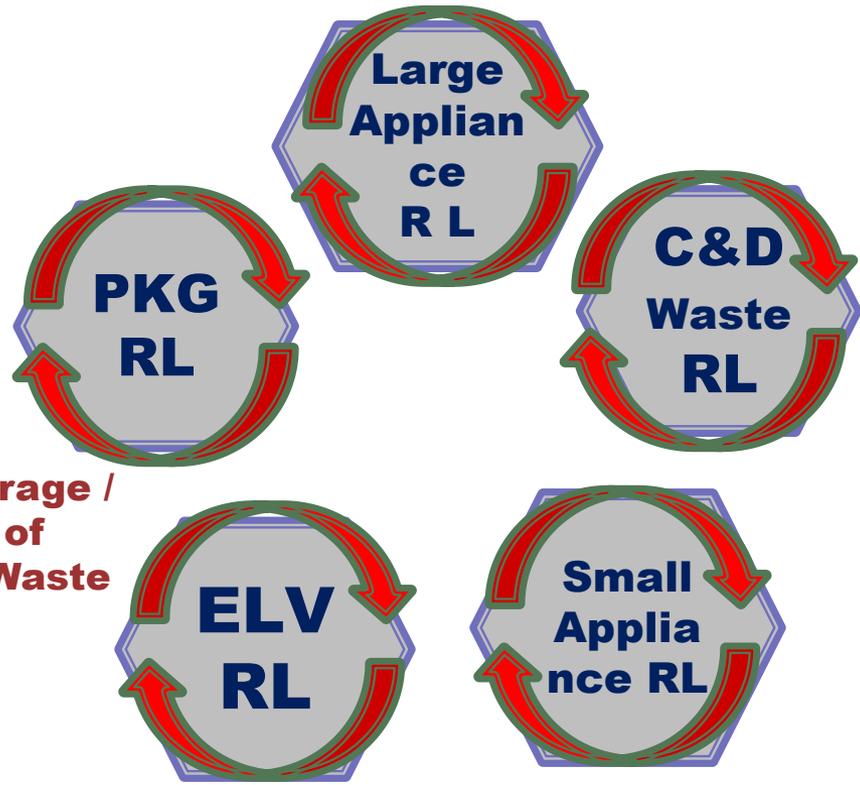


Individual EPR Laws of Europe taking roles to work basically to assist recycling driving by Waste Framework Directive



Europe

>
**Legal Coverage /
Volume of
Collected Waste**



Japan

- However Japanese Individual Recycling Laws implement the completely independent recycling system separately by each product category.
- And these system can be established and implemented only by producer responsibility. Japanese waste systems can only aim for 'partial optimization' by waste category.

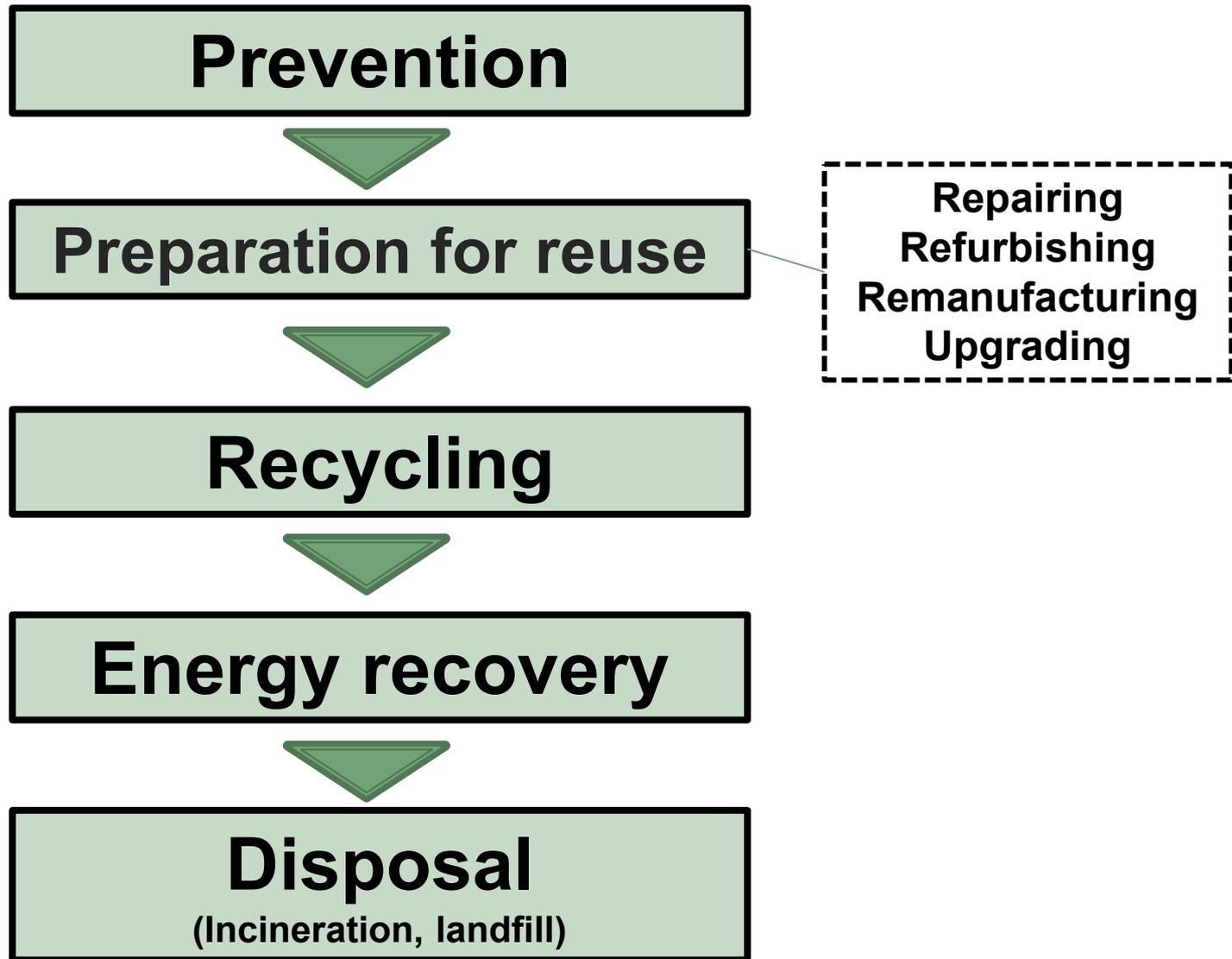
II Main Differences of Legal Provisions related to Waste Management between Japan and Europe

Comparison of Legal Systems for Waste Management between Japan and EU (1)

Waste Treatment Hierarchy

Japanese Waste Legislation	European Waste Legislation
<ul style="list-style-type: none">➤ Waste Management Law does not stipulate any priority of recycling and it does not enforce sorting process to collected waste from households as well. Most of waste collected by municipality from households is put into incinerators without sorting.➤ On the other hand, nowadays, private waste treatment companies implement sorting process to business waste because they are required to recycle by the waste producers (=their customers).	<ul style="list-style-type: none">➤ European waste law prohibits to incinerate or landfill waste materials if they were recyclable.➤ Therefore they enforce to implement sorting process before energy recovery or landfill.➤ Basically, disposal is permitted after sorting processes.

Hierarchy of Waste Treatment in the Waste Framework Directive in Europe



Comparison of Legal Systems for Waste Management between Japan and EU (2)

Relationship between Waste Definition and Economic Value of Waste

Japanese Waste Legislation

- Basic definition of waste is non-sellable things. If anybody buy it even though for only one yen it could be recognized as non-waste. Therefore the same thing is sometimes a product, sometimes waste depending on its economical value at the time and the place.
- Even though hazardous used products, like spent lead-acid batteries could become non-waste if any body bought them for more than one yen. The scope of waste are narrower than Europe and it is difficult for Government to apply them Waste Management Law if they were hazardous but valuable.

European Waste Legislation

- The definition of waste is basically independent on its economical value.
- And all the things enter the waste treatment operations such as preparation of reuse, recycling, recovery and disposal (incineration and landfill).
- Therefore they apply the same stipulations of Waste Law to the same thing regardless its value, positive or negative.

Comparison of Legal Systems for Waste Management between Japan and EU (3)

Possibility to Implement Intermediation Service

Japanese Waste Legislation	European Waste Legislation
<ul style="list-style-type: none">➤ It is impossible to implement intermediation service for waste management.➤ Because Waste Management Law prohibits to implement intermediation and re-entrustment on waste collection and treatment.	<ul style="list-style-type: none">➤ European waste legislation allows business activities of intermediation service for waste collection & treatment.➤ Major waste management companies like Veolia and Suez implement involve intermediation services in waste collection and recycling.➤ These services are often referred to as “Compliance Scheme” because those business models involved in partnerships and collaborations with various stakeholders in the waste management industry, including producers, local authorities, recycling facilities, and other service providers.

Comparison of Legal Systems for Waste Management between Japan and EU (4)

Potential Areas where Waste can be Collected

Japanese Waste Legislation	European Waste Legislation
<ul style="list-style-type: none"> ➤ General Waste: Within City, Town or Village ➤ Industrial Waste: Within Prefecture ➤ Almost impossible to collect waste beyond the local administrative boundaries. 	<ul style="list-style-type: none"> ➤ If the non-hazardous waste was collected for recycling purpose, basically it could move freely beyond the boundaries inside the MS. Therefore it is easy to set the collection area to let the efficiency become maximized. ➤ However regarding hazardous waste and disposal waste, it should be monitored and controlled strictly by local authorities.

Comparison of Legal Systems for Waste Management between Japan and EU (5)

Permission of Recycling Business

Japanese Waste Legislation

- Basically, permission issued by local authority is needed based on Waste Management Law even though for recycling of non-hazardous waste.
- However, if the economic value is positive, recyclers which recycle post-consumer products containing hazardous substances (e.g. used lead-acid batteries) do not need to obtain a official permission. This is because materials with positive economic value are not waste.

European Waste Legislation

- No permission is needed for shipment, sorting and processing of non-hazardous waste for recycling.
- Regarding hazardous waste, acquirements of permission from local authorities are needed even though for recycling.

Ⅲ Actual Differences between Japan and Europe caused by the Differences in Waste Systems

Japan's definition of waste and the unsalvageable fate of "waste"



**Plus Value
= Resource**



**Reuse/
Recycling**



**Minus Value
= Waste**



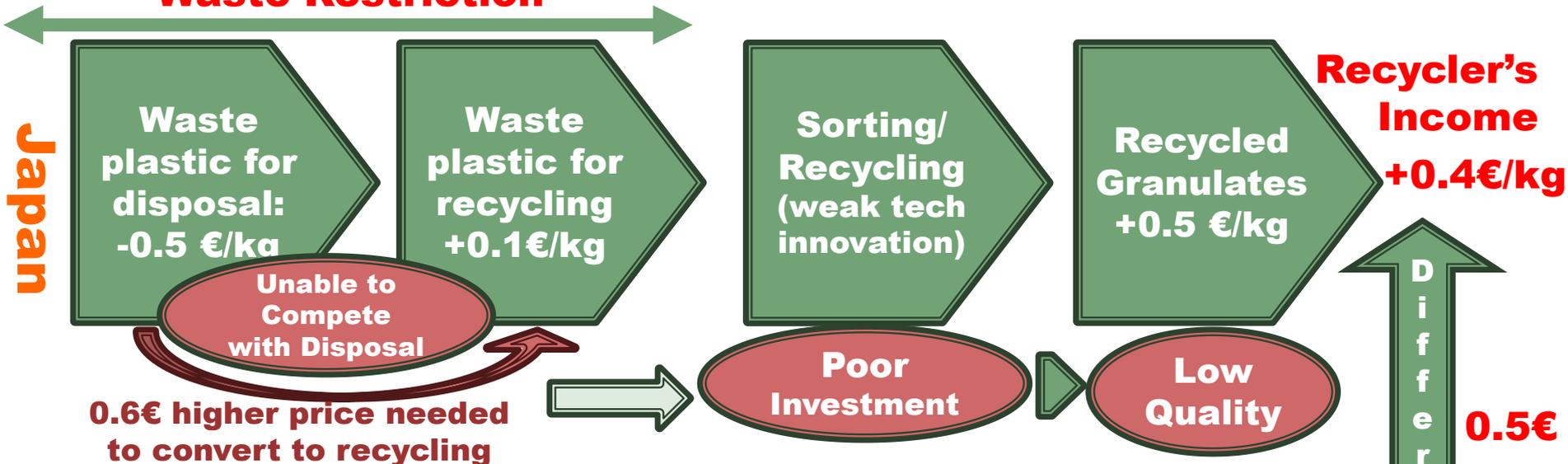
Disposal
(Incineration / landfill)

Reuse and Recycling
should be better for
the both cases

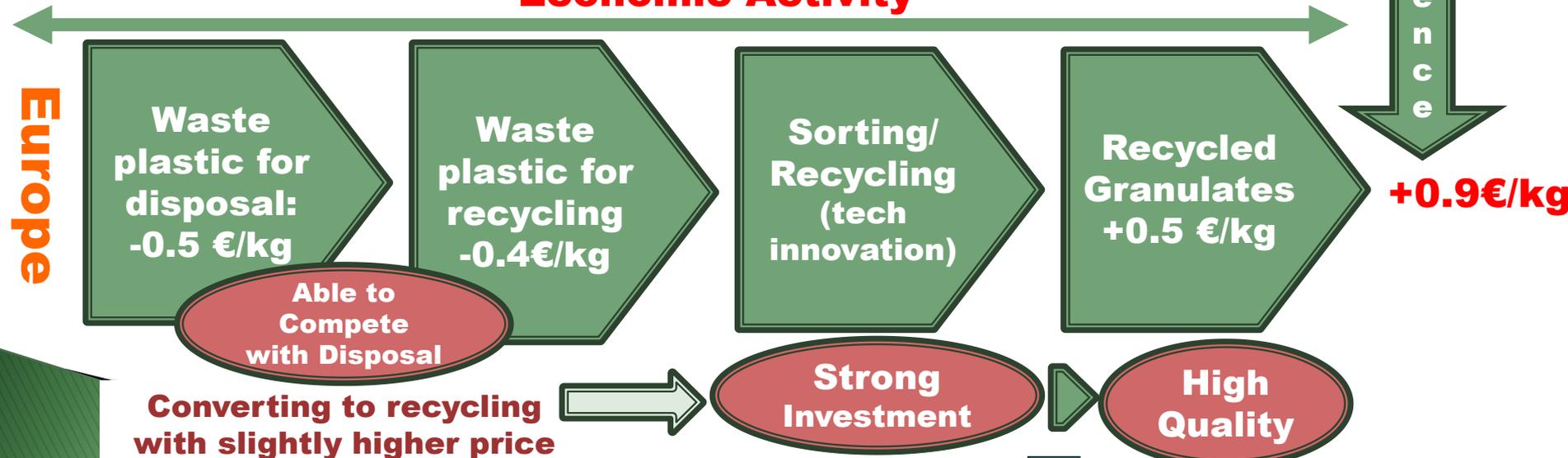


Negative Value of Waste creates opposite effects between Japan and Europe for Recyclers

Waste Restriction



Economic Activity



IV Comparison of Japan and Europe on Potential Effects by Digital in Waste Management

The Differences of Expectable Effects by Digitalization in Waste Management between in Japan and in Europe

Digital Effects	Japan	Europe
Optimization of Logistics and Destinations	<p>Low [HH Waste] Cannot be changed digitally as only the local government can decide</p> <p>Midi [Business Waste] Waste companies can change the collection routes but they must treat waste only by their own facilities in same pref.</p>	<p>High [Most of Non-H Waste] Private waste management companies are allowed to connect collection points, shipping trucks and treatment facilities across a wide area in real time to optimize collection routes and destinations in a timely manner</p>
Improving production efficiency through economies of scale	<p>Low [HH Waste] Regulatory business, unrelated to economic principles. Basically disposal.</p> <p>Midi [Business Waste] Business scale expandable if permits obtained from multiple prefectures</p>	<p>High [Most of Non-H Waste] Recycling is prioritized and sorting is basic option. Sorting is an equipment industry producing economic value, expanding the scale contributes to reducing production costs.</p>
Improving profits through recycling	<p>Low [HH Waste] Regulated business, less economic returns. The basic option is disposal; conversion to recycling is not possible</p> <p>Midi [Business Waste] Recycling is possible based on a contract with the waste generators. The digital effect is limited due to scale.</p>	<p>High [Most of Non-H Waste] The higher the recycling rate and the better quality of recycled materials, the more profitable the recycling business will be. Digital functions the ecosystem of recycling to promote this positive cycle and contributes to the development of this industry.</p>

Comparison of the potential of digital platforms for waste management

Comparison	Japan	Europe
Institutional Foundation	Waste management law: Prohibit of re-entrustment and intermediation	Waste Framework Directive: Approval system for intermediation / No restrictions on collection and treatment of non-hazardous waste for recycling
Ecosystem Effectiveness	 <p>Due to ban on intermediation and re-entrustment, waste treatment must be completed within a single company, ecosystems for multiple companies working together will be dysfunctional.</p>	 <p>Major waste management companies have established as "compliance schemes" that include ecosystems that include waste generators, authorities, recycling and disposal facilities, material traders, etc., and this networking can be streamlined digitally.</p>
Scope of Collaboration	 <p>Covers in-house facilities and equipment and local governments</p>	 <p>The waste management companies allocate each waste to its own facilities or to the specialized facilities of external partners.</p>
Enhancement of Innovation	 <p>Innovation is stagnant because waste routes are fixed and partnership works are not progressing.</p>	 <p>Investments in technology for the specific waste recovery will contribute to increasing waste received, thereby promoting technological innovation.</p>

Conclusion

If not for digital effects, digital investment won't proceed

Reforms to institutional infrastructure to support the effects are essential

Institutional Factors	Consequential Effects (expected)
1. Area where collection is permitted	<ul style="list-style-type: none">▪ Possibility to pursue economies of scale▪ Possibility of investing in technological innovation
2. Regulated and economic activities	<ul style="list-style-type: none">▪ Possibility to convert substances labeled as waste to recycling▪ Motivation of recyclers to improve recycling rate and the quality of recycled materials for their profits
3. Possibility of intermediation / re-entrustment	<ul style="list-style-type: none">▪ Networking of local governments, waste generators, recyclers, treatment facilities, and users of recycled materials and renewable energy▪ Functional possibilities of digital ecosystem▪ Technological innovation based on division of labor by linking each company's areas of expertise▪ Feasibility of a compliance scheme capable of controlling the entire waste system

Conclusion

If not for digital effects, digital investment won't proceed

Reforms to institutional infrastructure to support the effects are essential

- ▶ Digitalization has the potential to enable compliance and governance of waste management that differs from traditional ways.
- ▶ It is desirable to create a new law, such as the Digital Waste Management Law, which would allow intermediation and re-entrustment by establishing special permitting conditions for digital waste management platforms.
- ▶ Otherwise, digital innovation in waste management of Japan is likely to be extremely limited.
- ▶ Some officials working in the related Ministry say that pressure from the West would be the most effective to change this law.
- ▶ So please help us make our claims a reality.

**Thank you very much
for your kind attention!**

**You may ask any question to email
address: k.kitagawa@jpc-consulting.jp**