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**Economie circulaire & gestion des déchets ménagers.
Étude comparée JAPON/FRANCE.**

Résumé

L'économie circulaire est un nouveau modèle économique, en lien avec la gestion et le recyclage des déchets. Le Japon est précurseur en la matière. La France l'a intégré dans son système de droit uniquement en 2015. Les pratiques entre les deux pays, notamment dans le domaine de la gestion et du traitement des déchets ménagers sont différentes. A la lumière des pratiques japonaises, diverses recommandations peuvent être, ainsi, proposées aux politiques français.

Mots clés : Economie circulaire, déchet, France, Japon,

Abstract

**Circular economy & waste management
Comparative study between JAPAN AND FRANCE**

The circular economy is a new economic model, linked to the management and recycling of waste. Japan is a pioneer in this area. France incorporated it into its system of law only in 2015. The practices between the two countries, in particular in the field of household waste management and treatment, are different. In the light of Japanese practices, various recommendations can be proposed to French politicians.

Keyword: circular economy, waste, law, France, Japan,

Introduction:

The transition towards a circular economy (CE) model is based on a principle of reusing waste as a potential resource¹. So to allow the waste to become legally products, a procedure called "waste status output" was created in 2014 and is implemented in France. The waste is defined by the French legislature, as "any residue of a production process, processing, or use, any substance, material or product or more generally any discarded or that the holder intends to discard ". In civil law, abandonment and willingness to abandoned object gives the object the waste label. Obtaining this label triggers a legal obligation: "Any person who produces or holds waste under conditions likely to produce harmful effects on soil, flora and fauna, to damage sites or landscapes, to pollute the air or water, to cause noises and odors and generally to undermine the health of humans and the environment, is obliged to ensure or make ensure disposal in accordance with this Act in the conditions to avoid those effects."

Japan is considered as a pioneering country in terms of CE development. With the aim of establishing a CE, Japan enacted the Fundamental Law for Establishing a Sound Material-Cycle Society (No.110 of 2000, the fundamental law) in 2000. The concept of this fundamental law is illustrated in Figure 1. The top priority is waste reduction, followed by re-use, material recycle, thermal recycle (energy recovery), and final disposal (landfill). When the first three activities are focused on, CE policy is called "3R policy."

As shown by the life cycle analyzes of various sectors, recycling contributes to the preservation of natural resources including energy resources and generally has undeniable environmental benefits compared to using virgin raw materials (Capron M. Quairel F., (2004) *Mythes et réalités de l'entreprise responsable*, La Découverte, et Collet (2014), *Journal de l'environnement*). The output of the waste process therefore is a lever for CE.

For the fourteen years after the enactment of the fundamental law, the amount of the municipal solid waste per person per day has decreased by 16.3% in Japan; it has decreased from 1132g in 2000 to 947g in 2014. During this period, a large amount of recyclable has begun to be collected; the recycling rate has increased from 14.3% to 20.6% (MOEJ, 2016).

CE is also considered to be a global business model reconciling economy and promoting local employment. Once again in Japan, the scale of re-use market has rapidly expanded since the implementation of the CE law. MOEJ (2015) reported that the market size not including used vehicles and antiques has already reached over 8.8 billion euro (1.1 trillion yen)^{2,3}. MOEJ (2015) further estimated that the total value added of recycling industry was about 55.2 billion Euro (6.9 trillion yen) in 2013, which accounted for about 1.4% of Gross Domestic Product of Japan.

The above mentioned statistics tell that the CE policies introduced in Japan were quite effective in waste reduction as well as in promotion of recycling industry.

¹ A CE is sometime called a recycle-oriented economy. We will use the words interchangeably throughout this paper.

² It is assumed that 1 euro = 125 yen throughout this paper.

³ About 47% of the sales of re-uses products were made at internet auction sites.

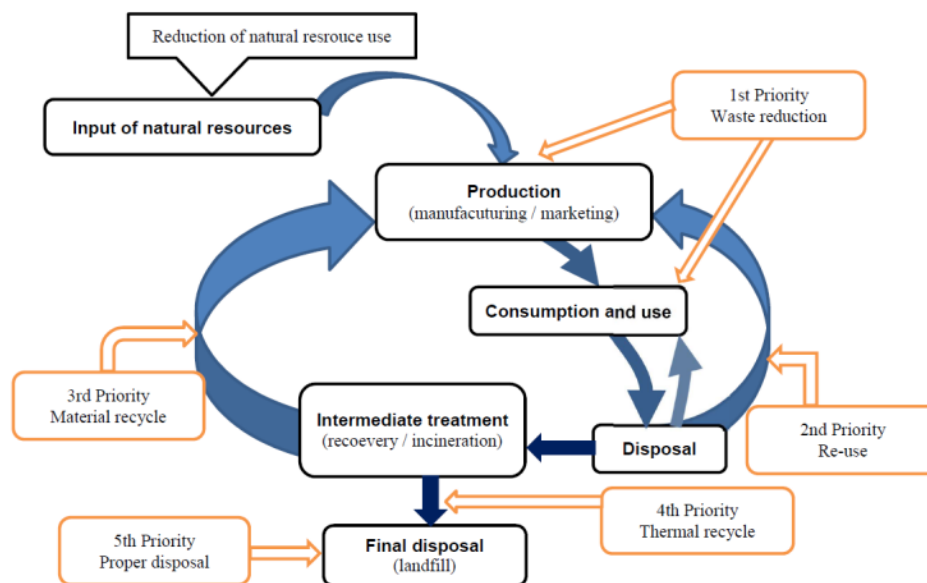


Figure 1. Concept of Circular Economy

Source : Ministry of the Environment (2008)

France is 20 years behind from Japan in terms of CE development. On 17 august 2015, a law (n°2015-992) on the energy transition for green growth has been voted by the French Parliament. A chapter is dedicated to the circular economy. The actions taken before this law are not global and no statistical significance of the impact on the CE arising from this text is yet available.

The purposes of this paper are: (1) to explain the link between the waste management as a lever for circular economy; (2) to assess the impacts of CE policies introduced in Japan; (3) to derive the knowledge useful for the development of CE in France.

The structure of remaining paper is as follows. In the next section, we overview CE policies introduced in Japan and assess their impacts on environment and economies. We then report the current French situation. In Section 2, we focus on household waste management and compare waste treatment practices between France and Japan. In Section 3, we conclude the paper by summarizing the agenda to establish a CE in France.

I. Waste management policies designed for circular economy

The European Union has set up a comprehensive framework for the waste exit procedure, leaving a certain freedom to member states. In Asia, this issue is considered differently by the states with a different implication. China, Japan and Vietnam have fairly similar overall policy in this area, although each country has its own particularity.

a- Japanese experience

The rules for the waste recovery procedure vary by country. The Japan is a good illustration reflecting the diversity of situations and being a pioneer CE country. Although Japan experienced a rapid economic growth after the World War II, its economy was supported by mass production, mass consumption, and mass disposal system. Such an economic system

caused serious environmental degradation and landfill shortage. CE has been proposed as an alternative to triple mass economy in 1990s.

The Japanese government enacted the fundamental law in 2000 and declared that it would aim for establishing a recycle-oriented society. As presented in Figure 2, two types of laws are prepared to contribute to waste reduction and environmental preservation through the effective utilization of recyclable resources and reusable parts; Waste Disposal and Public Cleansing Law (No. 137 of 1970) regulates the waste treatment while Law for Promotion of Effective Utilization of Resources (No. 48 of 1991) requires business entities producing or selling specific products to engage in waste reduction, product re-use, and material recycling. Five varieties of recycling laws introduced from late 1990s to early 2000s specify the recycling duties:

- Law for Promotion of Sorted Collection and Recycling of Containers and Packaging (No. 112 of 1995, Containers and Packaging Recycling Law) was enacted in 1995 to reduce containers and wrapping waste.
- Law for Recycling of Specified Kinds of Home Appliances (No. 97 of 1998, Home Appliances Recycling Law) was enacted in 1998 to reduce wastes and effectively utilize resources by recycling home appliances discarded from households and offices.
- Law Concerning the Promotion of Recycling Food Cyclical Resources (No. 116 of 2000, Food Recycling Law) was enacted in 2000 to reduce the amount of food waste produced and promote recycling into feed and fertilizer.
- Law Concerning Recycling of Materials from Construction Work (No. 104 of 2000, Construction Waste Recycling Law) was enacted in 2000 to reduce the generation of construction waste.
- Law Concerning Recycling Measures of End-of-life Vehicles (No. 87 of 2002, End-of-life Vehicle Recycling Law) was enacted in 2002 to promote the re-use, recycling, and proper disposal of vehicle parts.

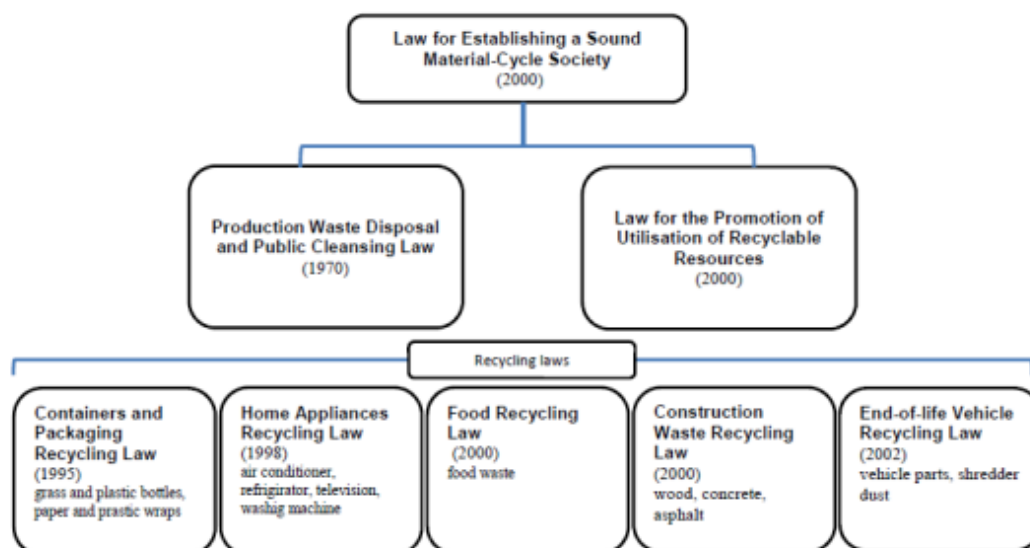


Figure 2. The Body of Circular Economy Law

Source : Ministry of the Environment (2008)

Table 1. Material flow in Japan (2013)

| | | | (Unit: million ton) | |
|---------------|--------|---|---------------------|-------|
| Real Quantity | Input | Total resource input | 2000 | 2013 |
| | | Input of natural resource etc. | 2,138 | 1,674 |
| | | Import | 1,925 | 1,405 |
| | | Product import | 800 | 816 |
| | | Resource import | 48 | 59 |
| | | Domestic resource | 752 | 757 |
| | | Cyclic use | 1,125 | 588 |
| | Output | Hydrous etc. | 213 | 269 |
| | | Export | 299 | 258 |
| | | Net storage | 120 | 182 |
| | | Energy consumption and emission during production process | 1,110 | 515 |
| | | Food consumption | 500 | 553 |
| | | Compost | 97 | 85 |
| | | Waste generated | 16 | 13 |
| | | Waste to nature | 595 | 584 |
| | | Waste reduced | 85 | 81 |
| | | Final disposal | 241 | 218 |
| | | Cyclic use | 56 | 16 |
| | | Total | 213 | 269 |
| | Total | | 2,437 | 1,932 |

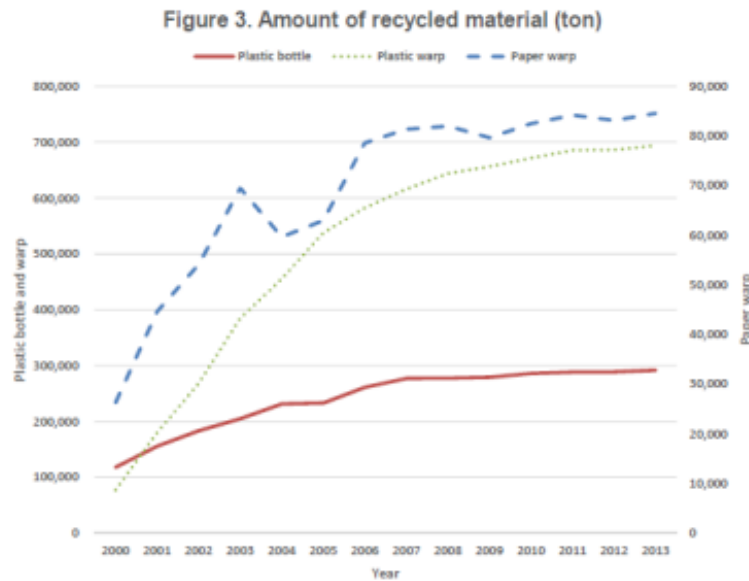
Source: Ministry of the Environment of Japan (2016)

Japanese legislative framework is structured in 3 levels. These specific laws generally impose binding measures. In the case of Containers and Packaging Recycling Law, the device integrates implemented extended producer responsibility (EPR) via the funding of recycling operations by business entities. The total amount of recycling obligation under this law is based on the amount of selective collection planned by municipalities and the amount which can be recycled, and is calculated by competent ministries (Ministry of Economy, Trade and Industry of Japan (METI), 2003). However, in the case of vehicles, End-of-life Vehicle Recycling Law requires manufacturers to establish a recycling industry, but this industry is financed by motorists. It's the same for major home appliances: the end user directly supports the costs of collection and recycling, although operations are organized by producers⁴.

The material flow change from 2000 to 2013 is presented in Table 1. The table shows that after the implementation of the fundamental law, Japan reduced the resource use very drastically; the total resource input decreased from 2138 million tons to 1674 tons while the natural resource input decreased from 1925 million tons to 1405 million tons. The table further shows that Japan succeeded in waste reduction; the amount of waste decreased from 595 million tons to 584 million tons. Owing to the waste reduction, landfill life has been extended. In contrast, recycling has been promoted for the last thirteen years; the amount of cyclic use increased from 213 mission tons to 269 million tons⁵.

⁴ There is a distinction in the collection of recycling fees. Households need to pay recycling fees at the time of vehicle purchase. However, they pay recycling fee when they ask a retailer to collect used appliances. The later system has caused an illegal dumping problem (Matsumoto and Takeuchi, 2011).

⁵ Perhaps, it is required to tell that both product and resource imports increased during this sampling period. Energy consumption and emission during production process increased also. These changes are mainly due to weak yen.



Source: Ministry of Economy, Trade and Industry of Japan (2013)

The circular economy is also a source of innovation, employment and resource deposits for wastes that were previously -to that nuisance and expenses. There is a strong challenge to quantify and further assess this value creation because it will stimulate the deployment steps more than any other argument. This highlight will demonstrate that economy and environment are compatible. In addition, protection of the environment and the creation of value, which are major advantages of circular economy, the waste output process feeds this new societal concept and generates employment, via the creation of recycling industries. Below we will report two illustrative examples.

According to the survey of MOEI (2013), the total amount of waste generated in 2013 was 44.87 million tons and residential solid waste accounted for about 65% of it. In volume, container and package waste accounted for about 53% of residential solid waste. This high share is the reason why Japanese government introduced Containers and Packaging Recycling Law prior to other recycling laws. In 2000, only 27.3% of municipalities collected plastic warp separately. After 13 years, 75.3% of municipalities collect it separately. Consequently, much larger amount of recycle materials is now obtained through recycling procedures. Figure 3 presents the change for the last thirteen years. The amount of plastic bottle recycled into plastic products increased about 2.5 times; the amount of plastic warp recycled into plastic products or fuels increased about 9.0 times; the amount of paper warp recycled into paper products increased 3.2 times.

Home appliances can be another good illustrative example to evaluate the impact of recycling law. Before the implementation of Home Appliances Recycling Law, four varieties of appliances (air conditioners, refrigerators and freezers, televisions, and washing machines) were collected as bulky garbage. Although these appliances contain valuable resources, some of their parts are very hard and thus crushing treatment at bulky garbage facilities was difficult. Since the law was put into force, the four items have been taken back by retailers or municipalities, and then recycled by manufacturers/importers or the Association for Electric Home Appliances. According to the survey by Association for Electric Home Appliances (2014), in volume base, the recycling rates of air conditioners, CRT televisions, liquid crystal televisions,

refrigerators and freezers, washing machines reached to 92%, 75%, 89%, 80%, and 80%, respectively. The amounts of iron, copper, and aluminum collected from the four items in 2014 were 170,782 tons, 14,929 tons, and 14,306 tons, respectively. Since those collected in 2004 were 143,321 tons, 10,064 tons, 2,298 tons, respectively, Japan becomes enable to obtain much larger amount of metals after the implementation of Home Appliances Recycling Law.

b- French situation

In France, the new Article L. 541-4-3 of the 2010-1579 Environmental code from the Order of 17 December 2010 provides: "a waste ceases to be waste after being treated in a facility subject to authorization or declaration under the water Act or in a facility subject to authorization, registration or declaration under the law on classified installations. "For this, the waste must have undergone a recovery operation, including recycling, re-use and meet criteria completing all of the following conditions.

Since February 2013, the French Institute of Circular Economy, created by MP François-Michel Lambert has been working on developing a framework Bill 2015. Preparation workshop on legislative, regulatory and tax is driven by Carl Enckell, Lawyer at the Paris Bar. Ongoing work led to a White Paper at the end of 2014.

Coercive or incentives mechanisms that the law may establish, can be articulated around three main objectives of CE: saving and using with high efficiency resources, protecting the environment and promoting economic development.

The main axis (saving and using with high resources), should allow to change patterns of consumption, production, distribution and management of logistics flows to a more economical and efficient circular economy in the use of resources.

Various operational measures are possible, such as accompanying the ecodesign of products from companies using ecomodulations on ecodesign criteria: sustainability, scalability, repairability, recyclability. Thus, an accurate assessment of these criteria could increase the warranty period for certain products and a closer examination of planned obsolescence.

Integrated from product design dimensions of life, reuse and repairability, allow 2020 reducing landfill waste through planning and appropriate taxation. Some waste can be diverted to reuse or recycling. The CE promotes international competitiveness of enterprises, supported and accompanied in this comprehensive approach.

Since July 1st, 2010, ecocontributions scales of certain equipment waste electrical and electronic (WEEE) are already fixed depending on the reparability and reinvestment, clearance and recyclability of such equipment. For example, the batteries, the contribution varies depending on the environmental impact of end of life equipment.

The "good students" labeling begins to seduce the industrial sector. A true EC label of would target companies and not only certain products. The label of the C2C "cradle to cradle" circular economy is a registered trademark and certification, designed a positive impact on

people and the environment through the production of recyclable non-toxic, biodegradable or at infinity.

The law will punish illegal channels. Public authorities could establish a new approach to management and governance of said EPR channels (Enlarged to Producer Responsibility). It is necessary to take into account the waste stream and recycling opportunities. The preservation of the richest deposits of strategic metals in waste relies on a policy against illegal channels, with the development of economic opportunities in the area.

Public procurement should contribute to the development of CE and changes in behavior that complements an approach to environmental protection.

A CE pact would seek promotion, including through public procurement rules, industrial recovery and recycling of waste. The appropriate legal framework would have to fight against illegal trafficking of materials. It will tender, for 2020, a planning landfill of waste, see the prohibition of certain landfilled waste redirected to recycling. A more comprehensive treatment of this objective would standardize sparse legislation and affect only certain areas.

Taxation is a fertile ground to support the CE. Relief from VAT, with application of the reduced rate of 7% is proposed for both stages of collection and processing of waste for them to buy products from this economy.

On 17 august 2015, has been voted by the French Parliament a law (n°2015-992) on the energy transition for green growth. This law will standardize EC for the all country with general objectives. The Act contains a chapter specifically addressing the CE. In this extension, implementing decrees are being prepared to optimize this by sector of activity.

II. Illustration of the sector of household solid waste management

Although CE policies covers a wide varieties of industries, it would be appropriate to focus on the practices in a specific sector to better understand the value of a CE process. Below we will focus on household waste management practices and compare waste treatment practices between Paris (France) and Tokyo (Japan).

Waste management comprises the collection, transport, storage, sorting and treatment required for the recovery of elements and reusable materials and energy, as well as final disposal into the natural environment of all other products the conditions required to avoid the nuisances. CE is a new paradigm requiring a regulatory framework addressing all actors in society and requests them to exercise their responsibilities in the course of waste management: public institutions are responsible for initiation and controlling waste management policies; private companies are responsible for collecting and recycling waste generated from their products; citizens are responsible for sorting their waste into recyclable materials and refuse.

a- **Actions in Paris (France)**

The City of Paris aims at 50 % recycling its municipal solid waste by 2020, compared to 16% today (*Livre Blanc de l'économie circulaire du Grand-Paris 2016*). 80 % of the waste are incinerated and 4% are buried. A bad pupil today, the French megalopolis is therefore aimed at "0 waste". A vast communication campaign is launched and the installation of a 4th trash, in addition to the green one, for what remains after sorting, the yellow one, for packaging, cardboard, plastic bottles and packaging Metallic, and the white one for glass bottles is provided. This 4th sorting bin will put into practice the collection of "bio-waste" (remains of meals, expired products, faded flowers ...)

Sorting is an essential lever for the development of recycling channels. On the economic level, a recycling process can only be viable if the recycled material is competitive with the virgin material. A sorted waste goes through the collection of dedicated trucks and finally the sorting center. Examples of recycling of household waste are varied: with 6 bricks of milk, one produces a roll of toilet paper ... with 8 canned cans a saucepan.

How to calculate the impact of packaging recycling: to preserve natural resources: materials such as aluminum, steel, plastic or glass are made from natural resources and their recycling will save them and to limit greenhouse gases: by sorting and recycling, these emissions are saved?

- sorting:

The actions are carried out: responsible public procurement policy, web page « 0 waste at Christmas time” ... / ... Efficacy studies are based on the ratio Kg / inhab / year ... 1/3 are household waste The sorting is done mainly by the municipal services names “ SYCTOM treats waste”.

There are various collection devices: bins, by voluntary supply: glass columns or by call for bulky items. The nature and volume of waste collected are calculated: Household waste, recyclable waste ... by rounding and by collection methods Human and material resources increase year by year and various occupations appear: garbage collectors, collection coordinators, engineers to organize collection, mediators of sorting ...

Private companies also sort household waste.

- Treatment:

There are incineration plants, sorting centers and ultimate waste disposal centers. The analysis is carried out by way of treatment. The percentage of machefers valorization and material valuation is calculated: 21 and 5.9%. The surplus is related to incineration and burial. The valued by-products concern electricity, steam, bottom ash, scrap and aluminum ... Packaging, metals, food bricks and small electrical appliances are recycled.

What is the environmental impact of waste treatment:

- Savings of raw materials and energy by recycling channel,

- Direction of the fumes according to the winds,

Financial indicators: expenditure – revenue Revenues come mainly from TEOM, and various SYCTOM subsidies and royalties. New actions are being carried out: limiting food waste, compost plan 2016-2020 with the management of bio-waste with composting compost ... Glass can be recycled infinitely ... Making paper and cardboard from the recycled material makes it possible to consume 3 times less water ... Metal and aluminum are 100% recyclable.

b- Actions in Tokyo (Japan)

The City of Tokyo aims to achieve 27% recycling rate for municipal solid waste by 2020. Hence, Tokyo's recycling target is more modest than Paris's one although Tokyo already achieved 18% recycling rate in 2014. Tokyo incinerated 80% of the waste collected but buried 10% of it.

Tokyo has been considered as a bad student in the field of municipal solid waste management among Japanese municipalities. For instance, Yokohama, the second largest city, achieved 26.4% recycling rate, incinerated only 73% of the waste, and buried 9% of the waste in 2014. The city is planning to reduce the waste by 10% for the next ten years.

- sorting :

Recyclables are collected at three stages in Japan.

The first stage is group collection. Local residents form a recycling group and agree a contract with a waste management company. Residents separate recyclables such as cans, papers, and textiles at home and take them to the collection site on a designated day. The contracted company then collects and transports these recyclables to the centralized recycling station. Since the cost of recyclable collection through group collection is often lower than that through public collection, municipalities encourage group collection in recent years (Matsumoto, 2011). In fact, many municipalities provide subsidies to the recycling group according to the volume of recyclables they collected.

The second stage is direct resource recovery at treatment facilities. If residents separate recyclables from other waste and dispose them as recyclable waste, municipalities can obtain recyclable resources without any treatment. Sorting at home enables direct resource recovery at treatment or recycling facilities. Some municipalities collect papers and metals as recyclable resources.

- Treatment:

The final stage is the resource recovery after intermediate treatment. Even if recyclables are mixed with other waste and disposed without separation at home, some parts of recyclable resources can be recovered at intermediate treatment facilities. The recovery rate and cost depend on the type of resources.

Municipalities intend to obtain more recyclable resources at the first two stages in a CE and expect their residents to engage in more sorting activities.

Table 2. Amount of recyclable resources obtained at three stages (2014)

| | | Unit (ton) | | | | | | | | | |
|----------|-----------------------|------------|------|---------|------|--------|------|---------|-------------------|---------|------|
| | Methods of collection | Total | | Paper | | Metal | | Glass | | Textile | |
| Tokyo | Group collection | 202,352 | 24% | 191,914 | 49% | 4,080 | 5% | 1,986 | 2% | 3,078 | 27% |
| | Without treatment | 332,069 | 39% | 157,170 | 40% | 24,485 | 29% | 83,898 | 75% | 2,212 | 19% |
| | After treatment | 314,354 | 37% | 43,901 | 11% | 54,856 | 66% | 25,768 | 23% | 6,261 | 54% |
| | Total | 848,775 | 100% | 392,985 | 100% | 83,421 | 100% | 111,652 | 100% | 11,551 | 100% |
| Yokohama | Group collection | 186,762 | 59% | 175,552 | 99% | 1,501 | 6% | 65 | 0% | 9,644 | 94% |
| | Without treatment | 13,287 | 4% | 1,588 | 1% | 11,085 | 46% | 0 | 0% | 614 | 6% |
| | After treatment | 114,908 | 36% | 0 | 0% | 11,651 | 48% | 22,108 | 100% ^a | 0 | 0% |
| | Total | 314,957 | 100% | 177,140 | 100% | 24,237 | 100% | 22,173 | 100% | 10,258 | 100% |

Note. a. Most glasses are collected by contracted companies.

Source: Ministry of the Environment of Japan (2016)

Table 2 shows the amount of recyclables obtained at three stages in Tokyo and Yokohama in 2014. The table shows that paper, metal, and glass account for the large share of recyclable resources. The table also shows that the method of recyclable collection varies among recyclables. For instance, group collection plays an important role on paper and textile collection but plays a minor role on metal and glass collection. The comparison between Tokyo and Yokohama tells that the method of recyclable collection varies among municipalities. Yokohama relies on group collection much more than Tokyo.

III. Policy recommendations for French circular economy

Since « COP 21 », France decided to legislate in order to promote CE throughout the country. The need for « green taxation » and the financial support of public authorities is now obvious. The state supports actions in each territory.

Recommendations can be made around seven main axes:

- Encouraging and supporting economic actors:

It will be appropriate to activate public procurement by introducing and giving weight to CE clauses in public procurement, as only 6.7% of public procurement in 2013 includes such clauses.

As part of the drafting of commercial leases, the rent is indexed to the environmental work carried out by the lessor. It's called Green Lease.

Consumers will also need to be encouraged to purchase products from eco-design and waste recycling via a reduced VAT and informative labeling.

- Innovation and experimentation:

Academic research and social entrepreneurship are driving the promotion of the CE. Research chairs within Universities or Business- Schools could reflect on the emergence of this new economic model or quantify the economy of use.

The creation of business incubators facilitating ecodesign approaches is under consideration. Operating as a resource center, this incubator would support start-ups and businesses in raising awareness of the challenges of the CE and eco-design, encouraging innovation, attracting partners and investors.

- Changing scale and establishing territorial dynamics:

This axis requires a rigorous method, which would begin with the establishment of a diagnosis at the scale of a territory by mapping the zones of activity, which generate important flows of resources and energy, according to the economic actors considered and define the needs of companies to engage in CE.

For example, in a countryside, tonnage in agricultural waste should be evaluated. The building needs should be evaluated too. Some agricultural waste can be recycled into eco-efficient construction materials. The farmer would have additional income and a processing industry would have an impact on local employment. A local structure like a committee could coordinate all these actions.

- Changing mentalities and practices:

Initially, it is necessary to raise awareness of CE by creating an online platform of information on this subject and to develop a real citizen awareness.

Creating an emblematic place for CE, designing and deploying labels would allow an excellent visibility. It will also need to identify existing data and tools on renewable energy and recovery.

- Developing communities, businesses and citizens involvement:

The main action here would be the reduction and recovery of food waste. This begins with the prevention and valorisation of bio-waste such as composting or methanisation, in collective catering. It is important to value local composting and use existing equipment for the reconditioning or processing of food unsold. Reducing the use of disposable packaging is essential.

- Putting actors together, networking:

Promoting the second life of products requires facilitating the donation and repair of products through networking. Today, it is almost always easier to throw away, than to give or repair. While there are some online platforms for donating products, they are more of a particular link than an effective collection solution. The points of voluntary contribution are not always close to the home, nor even known to the citizen.

As far as the repair of the products is concerned, there is generally a defect in the availability of spare parts. Craftsmen, companies, public authorities ... should implement solutions to facilitate the donation and repair of products such as fun events, communities of ambassadors.

- Changing regulation:

This last axis is unavoidable. A uniform regulation throughout the territory will allow the promotion and development of CE through incentives (taxation, labeling of good students ...), coercive (notion of « polluter pays » ...)

It is possible to change the measurement of the agronomic quality of compost. As part of the construction, the emphasis should be on renovation rather than demolition.

This is a challenge to our politicians. CE IS not at the center of the debates of the presidential elections. Let us hope that the future head of state and his new government team will promote this new business model.

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