Abstract

In this presentation, we overview the current circumstances of trade of recyclable resources such as end-of-life products, parts and materials in the East Asian countries, pointing out that pollution potential is spreading there due to improper handling of recyclable resources. On the other hand, Japan’s domestic recycling activities are shown to be adversely affected by the outflow of those resources. Considering that cross-border material circulation in East Asia is unavoidable and desirable in certain conditions, we propose a feasible and sustainable transaction scheme of recyclable resources and recovered ones, exemplified by project by the City of Kitakyushuu and the City of Tianjin.

Keywords: recyclable resources, recovered resources, cross-border recycling, resource and environmental constraint

1) Background of Cross-Border Recycling in East Asia

- Recycling related laws have built the domestic framework of a sustainable resource utilization system in Japan.
- On the other hand, soaring international demand for recycled resources has augmented the cross-border trading.
- Severe competition with the East Asian competitors had negative impacts on the domestic recyclers’ business performance.
- The cross-border trading for recycling caused environmental problems such as the improper treatment of E-Waste.
- Since the mid-September, the beginning of global recession triggered by the crush of Sub-Prime Loan, the market for recycled resources has been tumbling, and the market prices fell drastically. Recycling business in Japan and all over the world is going under a chaotic situation.
Definition of “Waste Derived Resources” in this Presentation

Recyclable Resources (Venous Resources) are defined as follows:
- End-of-life products, parts, and materials with potential market value in an economic activity after being used in another.

Recovered Resources are defined as follows:
- Resources with market value derived from recyclable (venous) resources after being treated, processed and manufactured properly.

R-R Resources are defined as follows:
- Recyclable Resources &/or Recovered Resources.

Definition of “Resource and Environmental Constraint” in this Presentation

Resource constraint is defined as follows:
- The constraint imposed upon economic activities which comes from “peak-out” and, therefore, the tight supply-demand of some natural resources.

Environmental constraint is defined as follows:
- The constraint imposed upon economic actors in order to keep clean environment when they are engaged in their own business. It is imposed by law, international agreement, voluntary action and so on.

1-1) Recycling-Related Laws in Japan

- Since the enforcement of “the Containers and Packaging Recycling Law” came into effect in 1997, the national government legislated recycling-related laws in specific categories.
- Recycling-related laws in Japan have formed legislative framework of the sustainable society with the Waste Management Law and Law for Promotion of Effective Utilization of Resources.
- Recycling-related laws adopt the notion of Extended Producer’s Responsibility (EPR), which forces the business sector to be responsible for their products at the post-consumer stage, for example, by recycling “unmarketable” recyclable resources, in Japanese market.

Legislative Framework for Creating a Sustainable Society Based on 3Rs in Japan

source: METI Homepage
1-2) Soaring Demand for “R-R resources” in East Asia, and Augmentation of the Cross-Border Trading

• On the other hand, until the economic crisis in monetary sector in fall 2008, soaring international demand for various resources has promoted the cross-border trading of R-R resources under the resource and environmental constraints.
• Not only the conventional recovered resources such as “scrap metals” and “used paper”, but also recyclable resources such as “scrap plastics”, “mixed metals”, and “used products for recycle use”, became trading items in international markets.
• The cross-border trading of R-R resources has been occurring in the market, which is out of the legislative framework for the adequate treatment of “unmarketable” in Japan.
• As a result, “uncontrolled flow of R-R resources” has emerged and prevailed over East Asian countries.

E. Hosoda, Faculty of Economics, Keio University

1-3) Domestic Recycling Systems at Risk

• Prevailing cross-border trading of R-R resources had negative impacts on the domestic recycling systems in Japan, which had developed along with the legislative frameworks.
• For instance, the rapidly rising export deviated PET bottles from the official treatment flow of the Containers and Packaging Recycling Law.
• The deviation triggered the increasing bankruptcies of domestic PET bottle recyclers under the severe price competition.
• Stable operations of recycling business have been sustaining the recycling infrastructure of Japan, and the radical loss of recycling capacities brought the potential risk to the legislative frameworks of recycling related laws.

E. Hosoda, Faculty of Economics, Keio University
1-4) Potential Risk for the Spread of Environmental Damage

- In East Asian countries, major destination of Japanese R-R resources, most of the recyclers depend upon the “hand-sorting” with the relatively cheap labor.
- “Hand sorting” enables the intricate selections of mixed recyclable resources.
- But, generally speaking, the working environment of sorters tends to be harsh and unsound in East Asian countries.
- In addition, inappropriate treatment of “E-Waste” may result in the spread of serious environmental damage.

Hand Sorting in China

1-5) R-R Resource Market Tumbled

- Currently, the global recession has triggered the dramatic tumble of R-R resource markets in East Asia.
- The export of PET bottle to China halted almost within one week.
- The market price of scrap ferrous (H2) metal has declined sharply from ¥72,000 (the recent maximum value) to ¥8,000 (sharper than ever, in fact.), although it is above ¥20,000 at present.
- The macro economy of southern part of China, the largest importer of Japanese R-R resources with the huge agglomeration of the recycling industry, has been staggering.
- Japanese recycling system had relied heavily on the Chinese recyclers, and, therefore, the present domestic surplus and the falling prices of R-R resources may cause environmental problems such as the illegal dumping.
2-1) Business Fluctuation in R-R Resource Markets

- In last 5 years, the prices of R-R resources underwent unprecedented high level, because of the booming in obviously overheated commodity markets.
- The long-lasting booming in commodity markets was partly due to the inflow of huge speculative money.
- In the market economy, business fluctuation and speculative investments are theoretically inevitable.
- Current recession proved that the rapidly growing market of R-R resources can be no exception of the theory.
- Recycling business is expected to bear two roles in the sustainable society; “to guarantee appropriate treatments of waste as well as end-of-life products, parts and materials” and “to extract and produce recovered materials out of them”.
- The sharp drop of the prices in the commodity markets prevents recyclers from playing the second role properly.

E. Hosoda, Faculty of Economics, Keio University

2-2) Resource and Environmental Constraint

- No matter how the market fluctuates in a short run, we should notice the fact that “the resource and environmental constraint” exists now and hereafter.
- Resource and environmental constraint stands as a long lasting global issue.
- The global contest in R-R resource markets will surely resume when the economy recovers and global recession ends (although no one knows “when?”).
- “The maximum utilization of R-R resources” and “the establishment of sound recycling system” remain to be major issues in Japan, since the public and private sectors cannot help taking urgent measures against the constraint.

E. Hosoda, Faculty of Economics, Keio University

2-3) Comprehensive Approaches to Harmonization of an Economy and Environment

- The Japanese civic lives in “Edo-Era” can be seen as an ideal image of sustainable society.
- However, the citizens’ recycling activities stemmed not from the ethical standards, but from economic incentives.
- Merchants and manufactures utilized R-R resources in order to make profits out of their commercial activities.
- We must build a sustainable society in the same manner, because, if economic incentives are ignored, smooth resource circulation should not be maintained.
- Wise use of market under the resource and environmental constraint enables the comprehensive approaches to realize the society where economic development and protection of ecology go hand in hand.

E. Hosoda, Faculty of Economics, Keio University
2-4) Industrial Structure in East Asia

- The People’s Republic of China has become “the Factory of the World”, while global actors in manufacturing sectors have moved their major factories to China to utilize its cheap labor and try to enter into big markets in the last 20 years.
- “The Factory of the World” seems to last at least for another 20 years, since there is no alternative yet.
- It is not plausible that low-premium factories with low-technologies will return to the developed countries such as Japan.
- By recognizing the industrial structure of East Asia, we can gain better understanding for the effectiveness of the cross-border recycling system in East Asia.

E. Hosoda, Faculty of Economics, Keio University

3) Building a “Cross-Border Recycling System”

- Cross-border trade for recycling came into existence in the market economy, driven neither by ethical standards nor by legislations.
- However, we must build a cross-border recycling system to guarantee “a) the maximum utilization of R-R resources” and “b) the prevention of the environmental damage”.
- “The cross-border recycling system” will be constructed under the combination of “legislative frameworks” and “the R-R resource management system”.
- The national government must be responsible for the legislative frameworks, while the public and private actors in each region must build and manage the R-R resource treatment.
- In order to operate the environmentally sound cross-border trading between two countries, cross-regional cooperation and co-management of recyclers will be highly required.

E. Hosoda, Faculty of Economics, Keio University

3-1) Emergence of Cross-Border Trading for Recycling in a Market Economy

- It makes no sense to argue the ethical meaning of recycling, because it’s already been built in the market economy.
- “R-R resources” became market commodities under the resource and environmental constraint.
- Cross-border trading for recycling emerged along with the sound market economy.
- However, unacceptable trades which may spread environmental damage must be regulated strictly.
- We must distinguish the unacceptable trades from others, and exterminate them from the market.

E. Hosoda, Faculty of Economics, Keio University

3-2) A Cross-Border Recycling System

- We must build a new cross-border recycling system.
- The conventional cross-border trading for recycling may enhance the potential risk of the spread of environmental damages, because the trading process tends to be invisible. (Invisible flow of R-R resources.)
- The new system is required to make the flow visible, and extract the useful materials out of end-of-life products, parts, and materials efficiently without any environmental risk.
- The new system must equip with “transparency”, “traceability”, “accountability” based on the mutual reliance between two parties.

E. Hosoda, Faculty of Economics, Keio University
3-3) Roles of Actors in the New System

- The national government must be responsible for the operation of legislative frameworks.
- Further progressive changes in the current legislative frameworks will be welcomed.
- In addition to the legislative framework, the public and private actors in each region must build and operate a R-R resource management system.
- The actors include all stakeholders such as local government, related manufactures, recyclers, transporters and so on.
- If the local government performs a coordinating role in the system, the reliance for the system will be secured.

E. Hosoda, Faculty of Economics, Keio University

3-4) Building a Reliance between Two Parties

- A new cross-border recycling system requires mutual reliance between two parties.
- However, coordination between national governments goes slow and sluggish in general due to complicated political factors.
- Local governments can make a short-cut to build the mutual reliance and find solutions by working together in specific fields.
- The City of Kitakyushuu, one of the environmental capitals in Japan, sought to make reliance with the city of Tianjin through a challenging project sponsored by the Ministry of Economy, Trade and Industry.

E. Hosoda, Faculty of Economics, Keio University

Traceability System Between Kitakyushu and Tianjin
4) A Challenging Project by the City of Kitakyushuu and the City of Tianjin

- The city of Kitakyushuu engaged in a challenging project to build a cross-border recycling system from fiscal 2005 to 2007, with a help from the city of Tianjin, China.
- In the process of the project, both city had built mutual reliance through international trips and dialogue by local government and local business.
- The national governments of both countries have chosen both cities for their national cooperative projects in energy conservation or environment. So called “Eco-Town Cooperation Program” under their mutual reliance.
- The mutual reliance between two cities has triggered the business-matching activities in the area of recycling.

4-1) A Challenging Project to Build a Cross-Border Recycling System

- The city of Kitakyushu is one of “the designated environmental model cities” in Japan.
- With the accumulation of recycling facilities, the Eco-Town has become a symbol of Japanese recycling system.
- Kitakyushuu has been visited by various missions of inspection from Asian countries including China, which has contributed to building a human network.
- When Kitakyushuu took on the project to build a cross-border recycling system, it selected the city of Tianjin as its partner.
- Since the fiscal 2005, both cities have fostered mutual reliance and understanding through the co-studies of legislative frameworks and the local business needs in each cities, and held a model project by utilizing IT and supports by business sector in both cities.

4-2) A Guideline of Cross-Border Trading for Recycling as Common Property of both Cities

- The document called “a Guideline of Cross-Border Trading for Recycling: Kitakyushuu-Tianjin Method” is the prominent output of their cooperative project.
- The guideline describes “the legislative frameworks in both countries”, “the roles of stakeholders in the system”, “method to realize traceability of R-R resources”, so on.
- The guideline does not indicate mandatory actions, but the agreement of stakeholders on the ideal method of sound cross-border trading for recycling.
- According to the method stipulated in this guideline, related companies such as manufactures and recyclers have formed voluntarily a consortium, which is aiming to establish a “Certifying Institution” for the traceability of R-R resources.
4-3) Next Stage: Eco-Town Cooperation Program

- The mayor of Kitakyushuu and the mayor of Tianjin signed for the memorandum of “Eco-Town Cooperation Program” at the House of Prime Minister and his Cabinet, when Hu Jintao visited in Japan on May.
- The city of Kitakyushuu promised, 1) To support the establishment of master plan for the sound development of Tianjin ZiYa Resources Recycling Industry District, 2) To promote the business exchange between two cities in the field of recycling, 3) To arrange the inspection and training program at the public and private sectors.
- The roadmap in the final report of the project claims the innovative development of recyclers in both countries.
- Unless China establishes the sound recycling infrastructure like Eco-Town, it should be hard to build an efficient cross-border recycling system between Japan and China.

E. Hosoda, Faculty of Economics, Keio University

4-4) Enlightening Mission by the Private Sector

- The consortium held a conference in Tianjin on July, 30th, with the help by the city of Tianjin and a Chinese Professor. (The 3rd Conference on the Cross-Border Recycling System between Japan and China.)
- More than 100 recyclers gathered in the meeting hall, and discussed about the practical steps toward a better recycling systems in Tianjin.
- The enlightening mission by the private sector gave an opportunities for recyclers to create a business channel as well.
- Hopefully, the business channel will end up with mutually beneficial transfer of a progressive recycling technology from Japanese companies to Chinese ones in near future.
5) Conclusion of Today’s Presentations

- Although the market of R-R resources go up and down in a short run, the macro trend of price movement will be upward in a long run without doubt.
- We must utilize the limited natural and “recovered” resources to cope with the resource and environmental constraint.
- In order to build a sustainable society, not only the public sector, but also the private sector must play active roles in the recycling system.
- Building a sound cross-border recycling system is an effective approach to enable the prevention of the environmental damage and the maximum utilization of the R-R resource at one time.

5) Conclusion of Today’s Presentations-1

- The pioneering challenge of the city of Kitakyushuu and Tianjin may create a new model of cross-border recycling system.
- The guideline embodies the basic concept of the international cooperation based on the Public-Private Partnership in the field of recycling.
- All stakeholders of cross-border recycling must tackle for the urgent issues as following:
  1) Transparency of the Trading
  2) Innovative Progress of the Recycling Technologies
  3) Large-Scale Integration of Small Industries

Thank you very much for your attention