

Korea Environmental Policy Bulletin



Recyclable Resources Market in Korea

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Summary

Lately, the optimized waste management system has moved into its stabilization phase, but the quantity of wastes continues to increase, thus accentuating the need to reinforce a policy for promoting the recycling of wastes. In this light, Recyclable Resources Market has been created and currently is in operation. The target is to recover the high value imbedded in recirculation of waste resources, which were previously subjected to incineration, burial or simple reuse. As an optimized and customized marketplace for online trading between suppliers and consumers of wastes, Recyclable Resources Market is a system in which from provided by registered suppliers who registers information of type, characteristics, quantity, and quality of waste. A buyer can acquire best available items by searching information of closest available suppliers, prices, regions, and quality on the Market. There are various types of trading including intermediated trade, auction, group purchase, and ordinary trade. For more effective implication of the policy, the government is planning to begin with wastes, used home electronics and furniture. After

that, it is planned to include used machines and equipment, intermediate processed materials, and recycled products which have high potential, and will allow every product that fit the function of the Market to be on the list, starting from 2015.

Applicable users of Recyclable Resources Market reach about 800,000 business operators including waste generators, and those who deal used home electronics and furniture, the recycling centers operated by local governments are suitable to this project. For stable operation of the system, starting with the creation of the basic information system in 2012, a pilot project

has been conducted targeting synthetic resin wastes, used home electronics and furniture, and baby products. And by figuring out market characteristics and trading process to come up with revised checklist and improvement methods, the government is going to build it by 2015 into a general trading marketplace for waste materials, which all waste discharging businesses and general public will have access to. If resource circulation rate is increased by 5% through Recyclable Resources Market, it will create an economic effect estimated at 3.316 billion dollars.

I. The Background and Necessity for Implementation of Recyclable Resources Market

For the last 5 years (2006-2011), the average annual growth rate of waste in Korea has increased to 3.14%, but the average annual growth rate for its recycling has showed slow growth only reaching 0.06%. Like this, waste generation is on a steady growth year after year and the optimized waste management system moves into stabilization phase, the policy needs to be supplemented to promote the reuse and recycling of wastes. The existing legal waste disposal system, named "Allbaro" has lacked in providing information that can help recycling of still usable wastes, and allowed suppliers and consumers to waste a considerable amount of waste resources. In attempt to improve such problems and revitalize

the recycling of waste resources, a survey was conducted in January 2011 to figure out the demand for the service of Recyclable Resources Market. In that survey, over 95.4% of the respondents answered that they would use the electronic commerce system if introduced, establishing a consensus for the need of waste resources trading through electronic commerce. Accordingly, the existing system has been refurbished, and for vitalizing the recycling of high value added waste resources, Recyclable Resources Market, a waste resources electronic commerce system, has been implemented as a pilot project since 2012. And from January 2013, the system was completed and is currently in service.

II . Methods for Creating and Operating Recyclable Resources Market

The basic concept of Recyclable Resources Market consists in creating an information system on trading, distribution, and quality of waste resources and providing a customized marketplace connecting suppliers and consumers in order to revitalize the recycling of the otherwise incinerated, landfilled, or simply reused wastes and used items.

Supplier of waste resources can register information of type, characteristics, quantity, quality, region and desired price of supplied wastes on Recyclable Resources Market. These waste may be otherwise incinerated, landfilled, or simply reused wastes and used items. While Recyclable Resources Market not only creates a database supporting the trade of wastes by consisting information of their discharge, collection, transport, and treatment of waste but also builds a trade supporting system to enable the online trading. Furthermore, the Market provides Geographical Information System (GIS) to provide consumers with information on closest available suppliers and thus ensure reduction of logistic costs. The Market also encourages registration of wastes that are to be incinerated or landfilled, in order to maximize the amount of wastes that can be reused as tradable items.

2.1. Type of Trading

To ensure vigorous trading and its growth, the market adopted a trading system that is convenient for suppliers and consumers. The following four types are currently in service: 1) matching system, 2) auction, 3) group purchase, and 4) ordinary trading in which a consumer can personally search and purchase products.

2.2. The Status of Creation and Operation of the System for Recyclable Resources Market

Since 2012, the government has operated Recyclable Resources Market dealing waste synthetic resin, used home electronics and furniture, and plans to expand it into e-General Resources Market that can be accessed by not only the public but all business operators (about 800,000 of them) who discharge industrial waste.

2.2.1. The Goal of Creating Recyclable Resources Market

Recyclable Resources Market is a Web portal that allows trading in all items including waste resources, intermediate artifacts, and used products, and is designed to encourage the recycling and reuse of waste resources, promote saving of materials and recycling industry, and ultimately increase the resource circulation rate. While Recyclable Resources Market raises the circulation rate for such resources as otherwise incinerated or landfilled wastes and reduces the cost for disposing of wastes by matching optimized waste disposal companies operating in intermediate treatment, it can also expand opportunities to reuse the otherwise wasted products by trading them with other used products.



Source: Ministry of Environment

Moreover, a cost effective system is being created through reduction of logistic costs by providing information on close-by suppliers through GIS and customized matching of supplier and consumer. Since the creation of the Recyclable Resources Market system, problems have been detected through the pilot project and improvement methods were already prepared to upgrade the reliability of the trading system.

2.2.2. Items Traded on Recyclable Resources Market

Trading items of the Recyclable Resources Market includes waste resources, used products, intermediate artifacts, and recycled products. To maximize the effects of the policy of creating Recyclable Resources Market and increase the ripple effect of its use, phased application proceeds with waste resources

with greatest recycling potential.

The trading items for Period 1 (2012-2013) include waste resources and used home electronics and furniture, and those for Period 2 (from 2012) include used machines and equipment, intermediate artifacts, and recycling products, while those for Period 3 (from 2015) will include all items acceptable to function of Recyclable Resources Market in consideration of importance and urgency.

2.2.3. Users of Recyclable Resources Market

Users of Recyclable Resources Market are about 800,000 business operators that discharge, transport, and treat waste, while recycling centers of the local governments and ordinary citizens loom as the foremost users for used home electronics and furniture.

2.2.4. The Medium-and-Long-Term Plan for Building and Operating Recyclable Resources Market

The plan for revitalizing Recyclable Resources Market proceeds in three stages.

• Period 1 (2012-2013)

The goal is to realize a matching system for trading in waste resources, in which suppliers like business owners and other individuals register their trading items online to find partners. Trading items include waste resources, used home electronics and furniture, and baby products. To encourage registration of different product types with Recyclable Resources Market and thereby revitalize trading, diversity of items is going to be secured by providing information on demand and supply through links to the data of the existing Allbaro system.

• Period 2 (2014)

Its goal lies in securing legal and institutional devices such as a system for supporting trade and protection of personal information. The range of the items are going to be expanded to improve resource productivity through recycling, while distribution support centers and distribution bases will be installed to coordinate supply and demand.

• Period 3 (from 2015)

Period 3 is designed to upgrade its service in waste resources trading. Therefore, regional distribution centers will be established to create a consumer-oriented on-hand support system, while in reflecting regional characteristics of waste occurrence and trading demands, regionally specialized distribution bases are to be set up to reduce logistic costs.

Table 1 : Medium and long-term plan for creating recyclable resources market

	period 1	period 2	period 3
goal	Realize a matching system for trading in waste resources	Secure legal and institutional devices	upgrade service in waste resources
trading items	waste resources, used home electronics and furniture, baby products et al.	expand trading items to almost all possible items to improve resource productivity through recycling	Establish regional distribution centers to create a consumer-oriented on-hand support system
year	2012~2013	2014	2015~

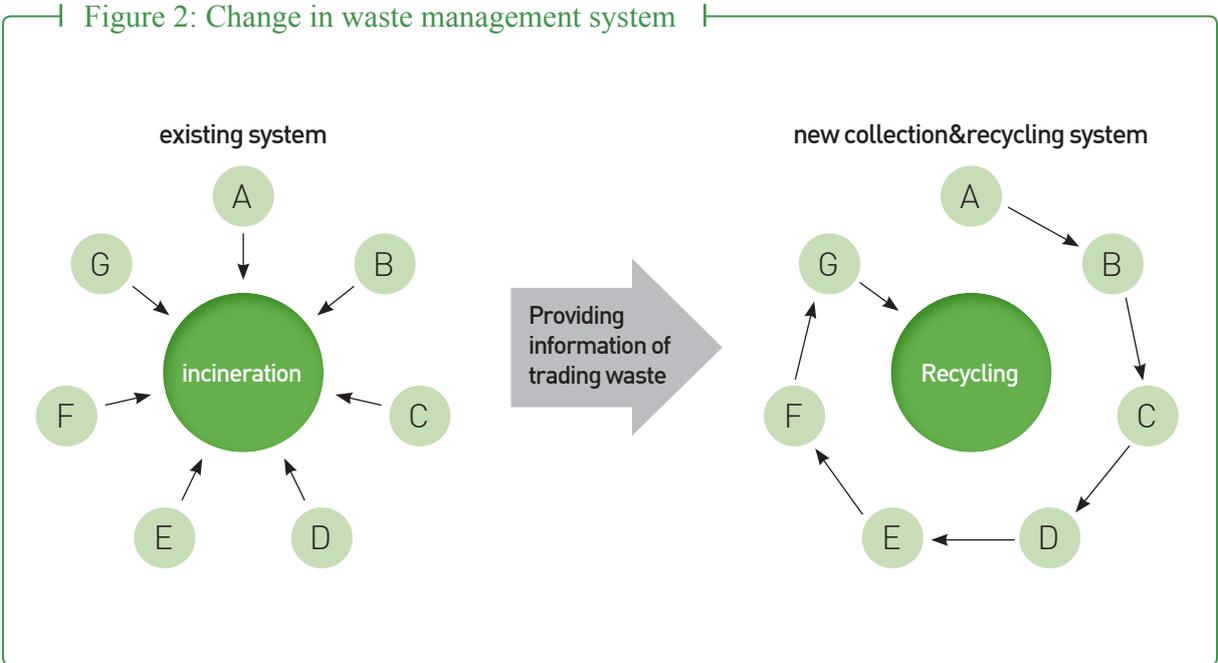
Source: Ministry of Environment

2.3. Revitalizing Recyclable Resources Market through Mutual Cooperation with Allbaro System

As for wastes that are treated through incineration and landfill, the existing Allbaro system is to be used to regularly upload information of type, quantity, and region of wastes to provide consumers with information on wastes and expand recycling opportunities by improving a retrieval system.

Intermediate artifacts and recycling products are to

be registered on Recyclable Resources Market to allow access for information on distribution following their manufacture, while with regard to used home electronics and furniture, a Web portal is to be built with Recyclable Resources Market to eliminate the inefficiency involved in market liberalization and redundant registration of items.



Source: Ministry of Environment

Ⅲ . Pilot Project Implementation Plan and Outcome

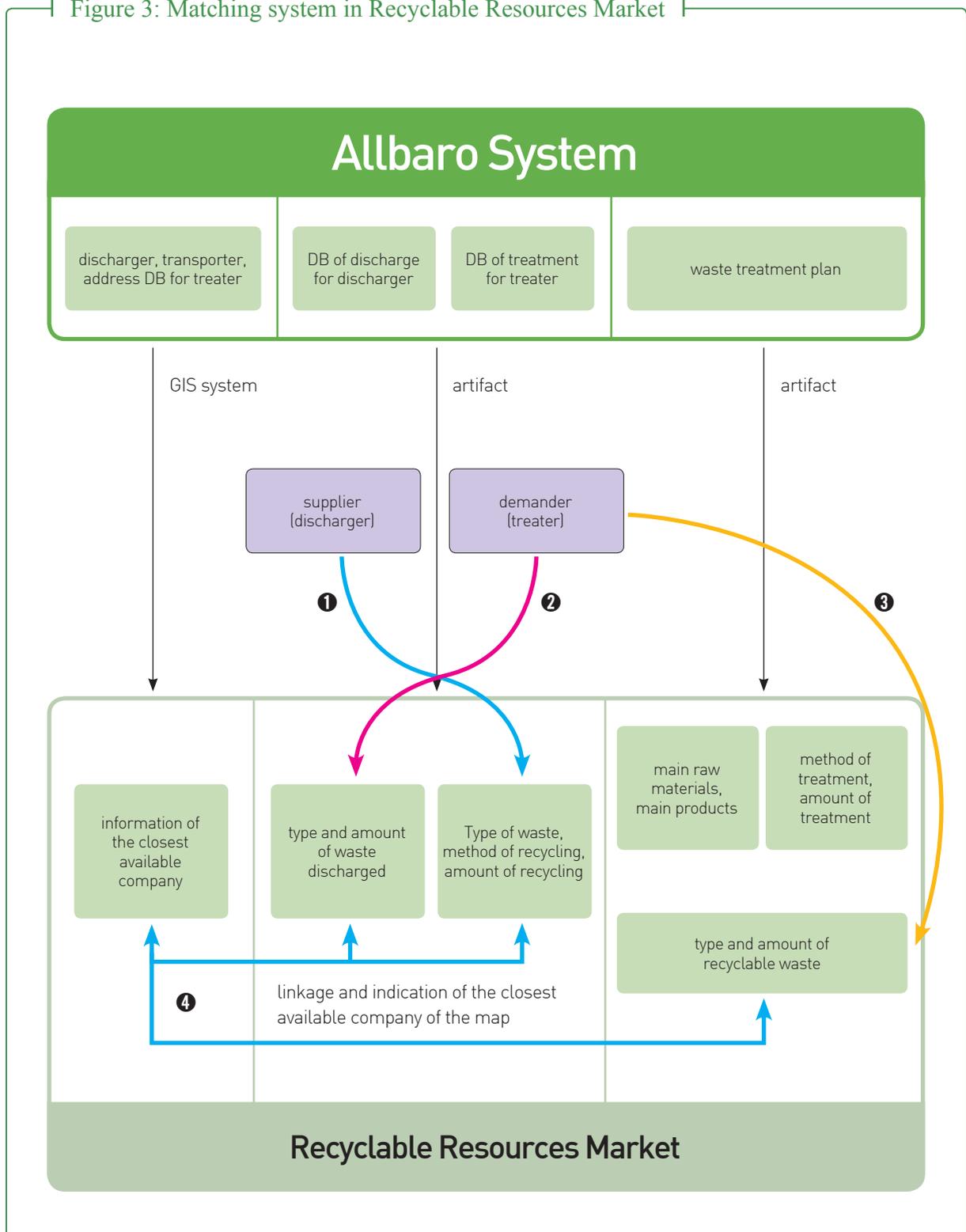
3.1. Experimental Creation of Recyclable Resources Market

The Ministry of Environment and the Ministry of Public Administration and Security reviewed the plan on operating Recyclable Resources Market for six months from June 2012 through December 2012 and created a pilot project of the operation system for Recyclable Resources Market. The ministries sought to reduce logistic costs by creating a matching system based on the basic data and transfer-related information of the existing Allbaro system and building a computerized system on trading in waste resources between suppliers and consumers. In 2012, with the creation of a pilot online system for Recyclable Resources Market, the pilot project for Recyclable Resources Market was performed. Trading items included waste synthetic resin, used home electronics and furniture, and baby products.

Previously, waste synthetic resin was treated through incineration, crush, and grinding process. As the quantity subjected to incineration or landfilling

accounted for 32% of the total amount of generated wastes, methods for upgrading resource circulation rate were urgently required. Moreover, as recycling venues were hard to find for waste resources generated in small scale, they were usually mixed with municipal domestic wastes for incineration. Some of the used home electronics and furniture are discharged as wastes prior to the expiry of their duration, since product replacement cycle is being shortened by consumers. As it became compulsory for the local governments to install and operate recycling centers to promote trading in used items and recycling of reusable large wastes, as of 2010, 136 recycling centers are currently being operated by the local governments. Baby products create enormous amount of tradable items because the products are used less than a couple of years. In such cases like these, there is a high need of online intermediate exchange systems like Recyclable Resources Market.

Figure 3: Matching system in Recyclable Resources Market



Source: Ministry of Environment

3.2. Outcome of Operation of the System of Recyclable Resources Market (as of May 2013)

As of May 2013, Recyclable Resources Market reached a membership of 53,000 persons and 181,000 traded items. Since the pilot operation that proceeded from September through December of 2012 and the start of its legitimate operation in March 2013, Recyclable Resources Market showed tangible results of increased recognition and trading volume. About 0.11% of the citizens signed up themselves as members of Recyclable Resources Market. As the usage rate of Recyclable Resources Market continues to grow, problems that have surfaced about the operation are to be promptly addressed in order to ensure stabilization of the operation of Recyclable Resources Market. Especially through reinforced participation from the affiliated organizations and the local governments, upgrade of nationwide recognition based on secured the reliability of Recyclable Resources Market and its revitalization will be the next goal.

3.2.1. Current Membership Status

As of May, 2013, the membership continues to increase with individuals taking up 44% and businesses accounting for 56%, totaling 53,635 of membership. Individuals seem to have signed up through press release, promotions, events, and homepage banners, whereas businesses seem to have come to know about Recyclable Resources Market through training and sharing of member information from Allbaro system. Improvements are need to be made to ensure continued encouragement of membership sign-up and trading revitalization through national awareness

of Recyclable Resources Market and publicity on its function and reliability of trading in it. For this purpose, various meetings with specialists have proceeded to prepare methods for revitalizing Recyclable Resources Market, and various publicity campaign is underway using promotion materials, press releases, and efforts through social networking services and other new media. Furthermore, training program with local governments and related organizations are conducted while events are used to upgrade the recognition of the Market and expand its use.

3.2.2. The Number of Trades and the Total Value of Transactions

• Used products

The trading volume comes in the order of books, home electronics and furniture, miscellaneous stuffs, and baby products, while the value of transactions follows the order of home electronics and furniture, books, miscellanies, and office supplies. As for used products, the types of used products are various, but major traded items appear only in a limited category of items. In this light, the government is planning to secure low-price and high-quality products by putting key trading items on display through a survey of demands, strengthening cooperation with recycling centers of the local governments, and inviting sellers of refurbished products registering brisk transaction, and increase the trading volume by pushing for trading in purchased but not used items possessed by the government including Public Procurement Service.

• **Waste resources**

As for waste resources, the number of trades follows the order of waste synthetic polymer compounds, renewable raw materials, recycled aggregates, and abandoned metals, while the value of transactions follows the order of

waste oil, waste synthetic polymer compounds, abandoned metals, and waste board. For revitalizing the intermediation between dischargers and treaters of waste, trading reinvigoration will be sought through distribution consulting, reinforced incentives, and publicity on excellent trading cases.

IV. Expected Effects of Recyclable Resources Market and Plans for its Future

Recyclable Resources Market is a project designed to create the basis for the up-cycling system of waste resources. According to the Ministry of Environment, with the operation of Recyclable Resources Market, waste resource recycling rate is expected to rise, and the resulting economic effects will be worth 3.316 billion dollars, creating 10,443 jobs. Also, as waste trading volume increases and profit system improves through reduction of treatment costs, recycling market is expected to grow, and related businesses will

enhance their competitiveness. It is expected that the creation of a general online trading portal dealing all waste resources and used products that fits the need of both consumers and suppliers will increase user convenience and the efficiency of system operation. This will enable a response to rising prices of oil and other raw materials, which will contribute to the establishment of a resource circulating society through substitution of crude oil and dissolution of raw materials shortage.

Table 2 : Expected economic benefits of Recyclable Resources Market

		Total
Economic Benefits	KRW(Billion)	3,798.2
	US\$(Billion)*	3.316
Employment (jobs)		10,443

Source: Ministry of Environment

Overview of the Allbaro System ¹⁾

Introduction of the Allbaro System

The Allbaro System monitors and manages each stage of waste processing from discharge, transportation to waste treatment, utilizing an IT-based system called e-information system. The introduction of the Allbaro System in 1999 in Korea reflected the growing awareness of the importance of waste management in light of the rapid industrialization the country had undergone and the resultant waste problems. Paper waste transfer documents previously used were inefficient in monitoring and analyzing waste movements in real time while costing considerable amount of money. The time-consuming process necessitated further improvement.

Consequently, the Allbaro System was developed to resolve the problems. Under operation since 2001, it is an online-based automated system that makes possible real-time waste management including the online preparation and tracking of transfer documents.

Purpose of Establishment

The Allbaro System has been established for the purpose of environmental protection using a management system that ensures transparency and efficiency for the benefit of both waste producers and handling agencies. The System includes various

functions such as waste authorization and permission, statistical analysis and the generation of annual waste status reports.

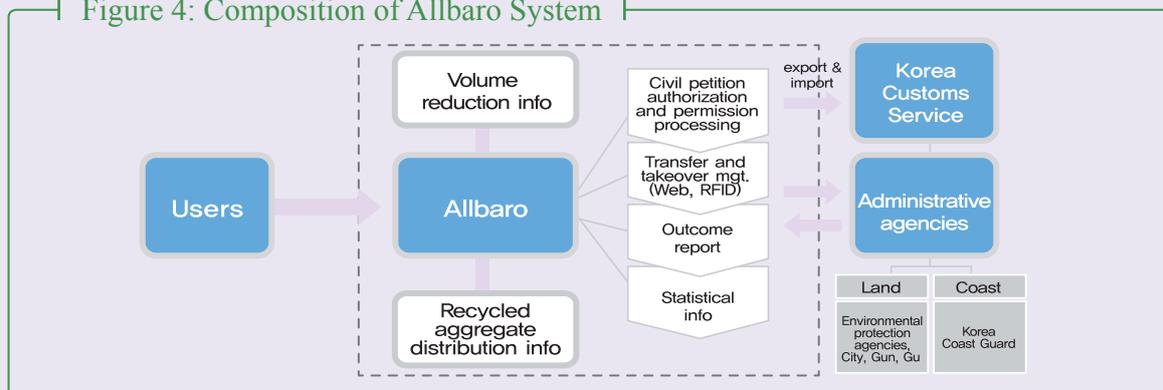
As the only waste information exchange portal in Korea equipped with years of operational experience, the Allbaro System also provides information on how to reduce the volume of construction and industrial waste and offers incentives to those who meet their reduction targets.

Stakeholders of the Allbaro System

The Allbaro System involves the participation of ① the Ministry of Environment (MOE) ② Korea Environment Cooperation (KECO) ③ local governments and environmental agencies and ④ users.

The Ministry of Environment provides legal and regulatory foundation for waste management. Korea Environment Cooperation performs system processing, including authorizing system use, processing input data, improving the system and providing education and training. Local governments and environmental agencies offer major administrative services, providing waste authorization, permission receipts and guidelines for users while also inspecting for compliance with regulations. Users submit waste transfer documents online for processing and are obliged to comply with relevant laws and regulations on waste discharge and treatment.

Figure 4: Composition of Allbaro System



Source: 「Understanding the Allbaro System Properly」, Ministry of Environment and Korea Environment Corporation.

1) 「Understanding the Allbaro System Properly」, Ministry of Environment and Korea Environment Corporation.

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