

The Enlightenment of the Distribution of Subject Responsibility in Japan's Household Appliance Recycling Law to China

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Abstract

Waste home appliances have become new urban polluters because of the replacement of home appliances; however, they are also recyclable resources. To regulate the recycling of home appliances, the Japanese government has issued the 'Household Appliances Recycling Law', which clearly defines the responsibilities of manufacturers, retailers, consumers, governments and other entities involved in the recycling process of waste household appliances. This article analyzes the distribution of subject responsibility and legal effectiveness in the law, as well as the current legislative status of China's home appliance recycling industry and proposes several inspirations for China's home appliance recycling industry: enact special legislation, extended producer responsibility, the tripartite burden of recovery costs, and improve recycling channels.

Keywords: Japan 'Household Appliances Recycling Law', distribution of subject responsibility, research on environmental protection legislation

1. Introduction

With the rapid development of China's economy, environmental problems have become increasingly prominent. Since the reform and opening up, various household appliances have become available to every household. Since the 21st century, the world has ushered in a peak period of scientific and technological development, the speed of home appliance replacement is rapid, a large number of household appliances have been eliminated, and recycling methods have become a prominent problem. China has not formulated special legislation to regulate the recycling and treatment system of waste home appliances, and there are serious loopholes in the industry, presenting an urgent problem to be addressed at the legal level.

1.1 Analysis of the Positive Impact of the Law

After World War II, Japan entered a period of rapid economic development, at a cost of severe environmental pollution. After two 'consumption revolutions', the peak period of scrapping of home appliances was ushered in. A vast number of waste home appliances not only pollute the environment but also restrict the development of Japan's economy. Therefore, after a series of reflections, the government formulated a 'recycling-oriented society' legal system, issued the 'Household Appliances Recycling Law' to regulate the recycling of home appliances, and clearly defined the responsibilities of manufacturers, retailers, consumers, governments and other entities involved in the recycling process of waste household appliances.

This law clearly establishes a system for the recycling and reuse of discarded home appliances, transforming discarded home appliances from the original "production, use, and disposal" model to a circular model of "production, use, recycling, and recycling". Since the implementation of the law, good results have been achieved, the number of waste home appliances recycled and the number of re-commercialization have increased, and with the advancement of recycling technology, the re-commercialization rate has also increased significantly. The implementation of the law has made outstanding contributions to environmental protection, and the number of mineral resources recovered has increased significantly, reducing the waste of resources. Due to the change of recycling method, greenhouse gas emissions are greatly reduced, energy conservation and emission reduction are realized, the service life of the final treatment plant is extended, and land resources are saved. Since its implementation, the law has achieved good social results, which is of great reference significance for China's special legislation. Faced with the same resource and environmental problems, China should vigorously learn from

the advanced experience of Japanese legislation in environmental protection, so as to establish and improve relevant legislation in China.

1.2 Analysis of the Negative Impact of the Law

During the implementation of Japan's "Household Appliance Recycling Law", there are also some problems to be solved, the most prominent of which is the serious phenomenon of illegal abandonment. In addition, the types of products subject to the law are small, have certain limitations, and cannot well adapt to the rapid development of high and new technology. Finally, in the process of product recycling, some small and medium-sized retailers violated their handover obligations, resulting in waste home appliances not being effectively recycled.

2. Allocation of Subject Responsibility in Japan's Household Electrical Appliance Recycling Law

2.1 Consumer Responsibility

The law stipulates that the consumer is responsible for the delivery of the products to the object of abandonment and the payment of transportation costs and recycling costs. To be specific, consumers, as dischargers of waste household appliances, must pay the expenses incurred by the collection, transportation and recycling of the object products to ensure the funds needed by retailers and manufacturers in the process of fulfilling the obligations of recycling. The specific process is as follows: when consumers deliver discarded appliances to electrical retailers, they have to pay for transportation and recommercialization costs; when the manufacturer collects the used household appliances in the designated recycling place, it shall obtain the recommended processing fee paid by the consumer from the retailer, while the logistics company shall obtain the transportation fee paid by the consumer in advance from the retailer.

Legally, retailers, logistics companies and producers should set separate fees for the collection, transportation and recommoditization of used home appliances, which cannot exceed the actual costs incurred during the recommoditization process. According to the originally announced standards, the recycling fee for each air conditioner is 3,500 yen, TV 2,700 yen, refrigerator 4,600 yen, and washing machine 2,400 yen. In recent years, to encourage consumers to actively implement home appliance recycling and reduce the phenomenon of 'illegal disposal', the law has greatly reduced the fees that consumers must pay and at the same time adopted measures to charge fees for some household appliances by size to reduce consumer pressure. If consumers do not return the used home appliances to the retailer and pay the fee in accordance with the law but discard or bury them privately, it constitutes an act of 'illegal abandonment'. Illegal acts will be punished with a fixed-term imprisonment of up to 5 years or a fine of not more than 10 million yuan, or both, in accordance with the Waste Disposal Law.

2.2 Retailer's Obligations

The obligations of retailers stipulated in the Household Appliance Recycling Act are mainly collection, storage and delivery. Specifically, the retailer collects the waste home appliances handed over by the consumer and then delivers them to the manufacturer. The management and transportation costs incurred in the middle are handed over to the retailer in advance when the consumer discards the product. At that point, retailers had already participated in the 'trade-in' of home appliances before the implementation of the law, and the important role of this policy was continued through the provisions of the law on retailers' obligations. The law also stipulates that the waste home appliances that retailers should accept are mainly divided into two categories: first, the target household appliances that were previously sold through the merchant; and second, the home appliances currently being sold in merchants. In addition to used appliances that can be sold directly as second-hand goods after a simple update, retailers must transport the used appliances to the manufacturer's designated recycling center or hand them over to a designated person.

As an intermediate bridge between manufacturers and consumers, retailers do not have to bear the cost of recycling and improve treatment technology, but consumers must pay the recycling fee, and the retailer completes and provides the Appliance Recycling Management Ticket (RKC) to the manufacturer.

2.3 Manufacturer's Obligations

The law stipulates that home appliance recycling manufacturers include manufacturers and importers and requires them to bear the obligation to transport waste home appliances to recycling treatment plants and recycle them after treatment. Specifically, first, in the total weight of used household appliances, parts and materials that exceed a certain weight are separated, parts and raw materials that are used for newly manufactured products by themselves, or parts and raw materials are sold and transferred to other manufacturers for reuse. Second, surplus components and raw materials that cannot be recycled as fuel are recycled, taking care that the emission of pollutants does not exceed legal standards. Third, because Freon in air conditioners, refrigerators and freezers has a destructive effect on the ozone layer, when recovering Freon in air conditioners and refrigerators or replacing refrigerants such as

Freon, they are recycled and destroyed in accordance with the methods prescribed by law. Fourth, home appliance manufacturers are required to consider issues such as waste reduction and low-cost disposal at the earliest stage of product design and continuously improve the level of recycling technology in recycling to achieve a higher recycling rate, which is 'Extended Producer Responsibility (EPR)'.

At the beginning of implementation of the law in 2001, the Enforcement Decree of the Household Appliance Recycling Act required manufacturers of these four types of products to meet certain standards for the recycling rate (the ratio of the weight of recommercialized weight to the weight of used household appliances): 55% for televisions, 50% for refrigerators, 50% for washing machines, and 60% for air conditioners. After several revisions, the standard was comprehensively improved in 2015, and the recycling rate standards implemented from April 1 were 55% for picture tube TVs, 74% for thin TVs, 70% for refrigerators and freezers, 82% for washing machines and clothes dryers, and 80% for air conditioners.

2.4 Government Responsibilities

Japan's Household Appliance Recycling Law stipulates that the main responsibilities of the government include the supervision of the recycling process and the promotion of the recycling system and at the same time distinguish the responsibilities of the central and the local governments.

The central government has the obligation to publicize the specific content of the Waste Home Appliance Recycling Law to the public, strengthen the public's awareness of the recycling and recommercialization of waste home appliances, enable them to establish a correct awareness of the recycling of home appliances, and provide necessary information related to the recycling of waste home appliances. According to the law, individuals who dispose of waste home appliances without permission are punished accordingly, and compulsory measures such as warnings, orders, and penalties are imposed on enterprises that commit improper acts. To ensure that manufacturers and retailers fulfil their obligations, the competent minister may exercise supervision by means of advice, orders, interventions, inspections, etc. In addition, the Ministry of Economy, Trade and Industry and the Minister of the Environment jointly determine the establishment and operation of recycling plants for waste household appliances.

The role of local governments is to take measures to promote the recycling and recommodification of target products based on national policies, including supervision of consumers, manufacturers, retailers, and consumer education. In addition, municipalities and villages may organize the collection of subject products on their own, as well as the collection of illegally discarded subject products, and transport them to designated collection points of each manufacturer or designated legal person.

3. The Legal Effect of Japan's Household Appliance Recycling Law

3.1 Environmental Protection and Resource Conservation

The implementation of the law has made outstanding contributions to environmental protection, and the number of mineral resources recovered has increased significantly, reducing the waste of resources. As of October 2013, a total of 5.208 million tons of valuable mineral resources have been recovered, including 2.022 million tons of iron, 182,000 tons of copper, 822,000 tons of steel, 106,000 tons of aluminum, 1.007 million tons of picture tube glass and 1.068 million tons of other valuable mineral resources. The recovery of these mineral resources has greatly eased the import pressure of Japanese home appliance manufacturers on raw materials and products, contributing to the recovery of domestic resources.

According to statistics, the total amount of refrigeration Freon recovered in air conditioners in 2013 was 1726 tons, equivalent to 634 grams of Freon recycled per air conditioner. The total amount of refrigerated Freon recovered in washing machines and dryers was 6.8 tons, and the total recovery of refrigerated Freon in refrigerators and freezers was 292 tons, equivalent to 91 grams of Freon recovered per refrigerator. In addition, the total amount of Freon recycled for thermal insulation reached 432 tons, which is equivalent to 134 grams of thermal insulation Freon recycled per air conditioner or refrigerator.

This extends the service life of the final treatment plant and preserves land resources. According to the 2002 General Waste Treatment Business Survey released by the Ministry of the Environment, the remaining capacity of the final landfill in 2002 was 153.273 million cubic meters, and the remaining service life at that time was only 13.6 years. By the end of 2012, a total of 1,741 final landfills for general waste had been set up nationwide (including 15 new landfills and 9 reconstructed landfills in 2012), with a remaining capacity of approximately 112.014 million cubic meters, and the average remaining service life of final landfills nationwide has been extended to 19.7 years. The trend of increasing the remaining service life year by year is inseparable from the positive effect of Japan's Household Appliance Recycling Law.

3.2 Social Benefits

Since the law stipulates that consumers bear the costs of recycling, transportation, management, and recommercialization of waste home appliances, it will inevitably increase the burden on consumers and thus lead to an increase in the phenomenon of illegal abandonment, increasing the relevant costs of local governments and organizations in dealing with illegal abandonment. However, compared with the previous local government's obligation to collect and transport home appliances, after the implementation of the law, the government's series of expenditures for the collection, transportation and treatment of large-scale garbage have been significantly reduced. At the same time, home appliance manufacturers implement comprehensive and in-depth recycling and reuse of more than tens of millions of target products every year, which also greatly reduces the cost of purchasing raw materials for enterprises, bringing economic benefits to enterprises. Therefore, from the perspective of reducing government garbage transportation fees, extending the service life of waste treatment plants, reducing the expenditure of enterprises on purchasing raw materials, and properly treating and reducing waste, the implementation of the law has produced considerable social benefits.

3.3 Raise National Awareness of Environmental Protection

Since the implementation of Japan's Household Appliance Recycling Law, the Ministry of the Environment and the Home Appliance Association have conducted follow-up surveys on the service life of the four major categories of home appliances specified in the law. The survey results show that the average service life of the four major categories of products shows a trend of extension. On the one hand, this shows that the legal provision that consumers bear the cost of recycling does have a restraining effect on consumers' waste home appliances, making consumers more cautious when replacing home appliances. On the other hand, it is because of the implementation of the law that the government's continuous publicity on environmental protection issues has made national environmental awareness increase overall and more attention is focused on cherishing the use of home appliances and other resource products than was the case prior to implementation of the law. This positive legal effect is not only reflected in the field of home appliance recycling but also leads to a high awareness of environmental protection in all aspects.

3.4 Promote Environmentally Friendly Design for Producers

The Household Appliance Recycling Act stipulates that manufacturers are obliged to recycle their own products, which is a fundamental obligation directly imposed on home appliance manufacturers in product design and manufacturing. According to statistics released by the Ministry of the Environment, the recycling rate of home appliances in the four major categories has increased in the past 14 years, and the recycling rate of these products is much higher than the legal standard. In the 13 years since the law came into effect, the cumulative recycling of household appliances has exceeded 170 million, recycling technology of waste household appliances has been continuously improved, and the recommercialization rate of recycled products has increased from 66% in 2001 to 84% in 2014. This result shows that due to the obligation imposed by the law, home appliance manufacturers fully consider the recommercialization process after the product is recycled in the process of producing the product. This leads to promoting the standardization of parts and making the components easier to disassemble and dispose of separately due to the reduction in the number of parts and screws, increasing recycling efficiency. These design concepts show that the law has promoted the environmentally friendly design of products by producers and promoted the economic development of a recycling-oriented society.

4. The Current Situation of Legislation in China's Household Electrical Recycling Industry

At present, China has not issued a special law to regulate the home appliance recycling industry, relying only on government regulations and special systems as industry norms. The distribution of responsibilities among various entities is not very clear, resulting in a relatively low level of management and loopholes in all aspects of home appliance recycling.

4.1 Status of Special Laws and Regulations

At present, China has promulgated four laws for resource recovery, namely, the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste, the Law of the People's Republic of China on the Promotion of Cleaner Production and the Law of the People's Republic of China on the Promotion of Circular Economy. Forming the basic and comprehensive laws in the field of environmental protection, these four offer general provisions on resource recycling. The State Council has promulgated a series of regulations and departmental rules, including the Technical Policy on Pollution Prevention and Control of Waste Household Electrical Appliances and Electronic Products, the Administrative Measures for the Control of Pollution of Electronic Information Products, the

Administrative Measures for the Prevention and Control of Environmental Pollution by Electronic Waste, and the Regulations on the Management of the Recycling and Treatment of Waste Electronic Products. In addition, the Ministry of Environmental Protection immediately promulgated the Administrative Measures for the Qualification and Licensing of Waste Electrical and Electronic Products Disposal, and the National Development and Reform Commission, together with the Ministry of Environmental Protection and the Ministry of Industry and Information Technology, issued the Catalog of Disposal of Waste Electrical and Electronic Products. These series of regulations make more specific provisions on the disposal of waste electrical and electronic products.

In addition, with the approval of the State Council, the Ministry of Finance, the Ministry of Environmental Protection, the National Development and Reform Commission, the Ministry of Industry and Information Technology, the General Administration of Customs and the State Administration of Taxation jointly issued the Administrative Measures for the Collection and Use of Waste Electrical and Electronic Products Treatment Fund on May 21, 2012. The measures establish a waste electrical and electronic products disposal fund system, stipulate the collection, use and supervision of subsidies for the recycling and treatment of waste electrical and electronic products and also offer a relatively complete recycling management system.

4.2 China's Current Recycling Methods and Treatment Methods

At present, there are three main ways to recycle waste electrical and electronic products in China: one is through door-to-door recycling by small traders offering street pick up or recycling through manufacturers and sellers "old for new", etc., which flows into the thrift market and sells to low-end consumers; second is through donations and other means, transfer to specific regions and groups, such as the western region and Hope Primary School; and third is by dismantling, processing, and extracting precious metals and other raw materials. The problem of environmental pollution is concentrated in the third flow; that is, due to the existence of a large number of individual workshops that dismantle and dispose of waste electrical and electronic products to achieve short-term benefits, primitive backward methods such as open burning and strong acid immersion are used to extract precious metals and arbitrarily discharge waste gas, waste liquid, and waste residue, causing serious pollution to the atmosphere, soil and water, endangering human health. Although people's governments at all levels have focused on the environmental and health problems caused by e-waste, there are still areas of inadequate response, and it is necessary to strengthen the legal management of e-waste treatment to facilitate sustainable development.

There are many useful resources in waste electrical and electronic products, such as copper, aluminum, iron and various rare precious metals, glass and plastics, which have high reuse value. The cost of obtaining resources through renewable means saves energy and is much lower than the cost of obtaining resources directly from ore, raw materials, etc. Strengthening the recycling of waste electrical and electronic products is of great significance for the development of the circular economy and overcoming the constraints of resource shortages on China's economic development. As a major producer and consumer of electrical and electronic products, China standardizes the recycling and treatment of waste electrical and electronic products, which is conducive to preventing and reducing environmental pollution, promoting the comprehensive utilization of resources, developing a circular economy, creating a conservation-oriented society, and ensuring human health.

4.3 Special Fund System for the Disposal of Waste Electrical and Electronic Products

At present, by establishing waste electrical appliances and electronic product treatment funds, the recycling industry of waste household appliances is subsidized. The special fund system lists the manufacturers of electrical and electronic products, importers or agents of imported electrical and electronic products as the fund collection agents, requiring them to pay the fund according to the system. The special fund system is based on the existing legal system, combined with the national situation, and draws lessons from the producer responsibility approach in the Household Electrical Appliances Recycling Law of Japan. To be specific, first, the Law on the Prevention and Control of Environmental Pollution by Solid Waste stipulates that the state implement the principle that the polluter is legally responsible for the prevention and control of environmental pollution by solid waste. Second, to encourage producers to take responsibility for recycling waste electrical and electronic products and to support processing enterprises in achieving industrial management, the country needs to introduce certain incentive measures. Third, from the practice of some countries, producers also pay recycling fees through specialized agencies' unified organization of recycling treatment.

To improve the openness and fairness of the special fund for the disposal of waste electrical and electronic products in the process of collection and use, the regulations stipulate the following: The opinions of electrical and electronic product manufacturers, processing enterprises, relevant industry associations and experts shall be fully considered when formulating corresponding collection standards and subsidy standards.

4.4 Subject Responsibility

China's requirements for producer responsibility are not very clear, and the main direction is to promote "green" production. "Green" production is the responsibility of the production enterprise stipulated in the Cleaner Production Promotion Law. From Japan's implementation experience, producers should work to achieve environmentally friendly design and green production and strive to control pollution at the source, which is the fundamental way to solve pollution. The currently implemented Regulations on the Administration of Recycling and Treatment of Waste Electronic Products stipulates that the electrical and electronic products produced and imported by manufacturers, importers of imported electrical and electronic products or their agents shall comply with the national regulations on pollution control of electrical and electronic products, adopt design schemes conducive to comprehensive utilization and harmless treatment of resources, and use non-toxic, harmless or low-toxicity and low-harm materials that are conducive to recycling. Information such as the content of toxic and harmful substances, recycling and treatment instructions shall be provided on electrical and electronic products or in product manuals in accordance with regulations.

For home appliance recycling institutions, China's regulations provide the following: sellers, maintenance institutions and after-sales service institutions of electrical and electronic products shall mark the recycling and processing of waste electrical and electronic products in a priority position in their business premises. Recycled waste electrical and electronic products shall be disposed of by qualified processing enterprises. Operators of waste electrical and electronic product recycling should adopt a variety of methods to provide convenient and efficient recycling services for users of electrical and electronic products. Operators recycling waste electrical and electronic products shall obtain the qualifications for disposing of recycled waste electrical and electronic products in accordance with the provisions of these regulations. If the disposal qualification is not obtained, the recycled waste electrical and electronic products shall be handed over to the qualified processing enterprise for disposal. Recycled electrical and electronic products sold after restoration must meet the mandatory requirements of national technical specifications such as protecting human health and personal and property safety and be marked as used goods in a conspicuous position, and the specific management measures shall be formulated by the competent department of commerce under the State Council.

In addition, China has not strictly stipulated that the producer bears the responsibility for the recycling of waste household appliances but broadly proposes to hand over waste electrical and electronic products to enterprises that have obtained treatment qualifications. For waste electrical and electronic product disposal enterprises, special regulations put forward three requirements. First, the disposal of waste electrical and electronic products shall meet the requirements of the state on comprehensive utilization of resources, environmental protection, labor safety and protection of human health, and it is forbidden to use technologies and processes eliminated by the state to treat waste electrical and electronic products. Second, the treatment enterprise shall establish a daily environmental monitoring system for the disposal of waste electrical and electronic products. Third, the handling enterprise shall establish a data information management system for waste electrical and electronic products and report basic data and relevant information to the local competent department of environmental protection in accordance with regulations, and the retention period of basic data shall not be less than 3 years.

5. Recommendation for China's law

5.1 Further Improve Special Legislation

Although China has initially established a recycling and treatment system for waste household appliances, the laws in it only make general provisions, the specific recycling and processing links are basically regulated by various administrative rules, and there is still a lack of "special legislation" as an important step. There is no formal special law to regulate the system, which is not enough to reflect the importance of recycling waste electrical and electronic products, nor can it form a standardized legal system.

For the current situation in China, the formulation of special legislation related to home appliance recycling is of great practical significance: first, improve the legal status of the special environmental protection system, cooperate with comprehensive laws, form a perfect legal system, and ensure that there is a law to follow for the performance of rights and obligations. Second, clarify the responsibilities of each entity in the recycling process of home appliances, and those who violate the law should bear the corresponding legal responsibility, and its coercive force is incomparable to general laws and regulations. Third, through the special law on home appliance recycling, it is strictly forbidden for small traders, second-hand merchants and dismantling workshops to disassemble and crush waste electrical appliances without permission, resulting in waste of resources and environmental pollution. Fourth, establish an administrative license for the treatment of waste home appliances, implement strict market access certification, and implement legal supervision for enterprises with treatment

qualifications, so that laws must be followed. Fifth, publicity should be achieved through legislation, and national awareness of the need for environmental protection and resource recycling should be improved. Whether or not a relatively complete and orderly special recycling law with effective incentives and healthy sustainability is the key to achieving recycling and green environmental protection.

5.2 Further Extended Producer Responsibility

One point worth learning from Japan's Household Appliance Recycling Law is that it expands the responsibility of producers. The dismantling and treatment of waste household appliances has a certain technical content and requires specific process equipment, environmental protection equipment, and professional and technical personnel to operate the industry so that the process of dismantling, detecting toxic and harmful substances and waste disposal meets the requirements of safety and environmental protection. At present, domestic home appliance manufacturers are involved in the dismantling industry of waste household appliances; only a few, such as TCL, Haier and Changhong, are based on handicraft workshops, using backward and crude dismantling and treatment processes, which has brought further waste of resources and environmental pollution. Although some Japanese companies in China have advanced recycling technology in Japan, because Chinese law does not mandate producers to have recycling obligations, they do not recommoditize waste household appliances in mainland China according to the same standards as in Japan. For example, according to the Japanese special law, the famous Japanese enterprise Panasonic Company should also bear the responsibility of recycling products, so the Japanese Panasonic Company has set up a special product recycling department to develop product recycling technology and practical implementation. However, China's legal rules adopt encouraging provisions rather than mandatory provisions for this, which makes China Panasonic Company not set up a special product recycling department to track the recovery of sold goods.

In June 2011, Panasonic (China) Co., Ltd. announced that its first home appliance recycling and treatment plant in China was officially established in Hangzhou, named 'Hangzhou Panasonic Dadi Tonghe Pinnacle Resource Recycling Co., Ltd.', with a total investment of 120 million yuan in the first phase and a construction scale of 1 million waste household appliances per year, which was completed and implemented in the first half of 2012. This is the first time a Japanese home appliance manufacturer has carried out recycling in China. It is understood that Hangzhou Panasonic Dadi Company will buy waste household appliances from recycling companies for five types of products, TVs, refrigerators, washing machines, air conditioners, and computers, and use Japan's advanced home appliance recycling technology in the factory, and eventually, the factory will provide the generated recycling resources to smelting companies, resin recycling enterprises and other manufacturers. Panasonic did not set up a product recycling department in the company but established a joint venture in a comprehensive way, mainly because China's waste electrical and electronic products recycling regulations stipulate corresponding subsidy and incentive policies, so home appliance recycling is no longer a mandatory norm like Japan, but an incentive measure. Panasonic took a fancy to the market of China's home appliance recycling industry and believed that it had broad prospects, so it participated by establishing a joint venture.

However, whoever created the pollution is responsible for clearing it up; the producer will recycle the products sold by the enterprise, and then further collect and treat the available materials, and even recycle. This will lead to professional and technical advantages over general recycling enterprises, based on the understanding of the home appliances they produce to maximize the recycling of waste home appliances. Referring to Japan's Household Appliance Recycling Law, it is clearly stipulated in the legislation that it is necessary for each manufacturer to complete the recycling of the company's electrical products. Putting forth specific requirements for recycling technology and clarifying the recycling rate to be achieved can promote recycling technology innovation and effectively save natural resources.

5.3 Tripartite Burden of Recovery Costs

China's current system stipulates that most of the costs required for recovery are borne by production enterprises, and the government provides certain subsidies, which undoubtedly leads to intense financial pressure on enterprises with low profits. However, Japan's Household Appliance Recycling Law shifts the economic burden of home appliance recycling to consumers, which has led to a high number of illegal abandonment phenomena after implementation of the law, indicating that consumers are dissatisfied with the system of having to bear the cost of secondary costs in the process of purchasing household appliances and then recycling. In Japan, which is cognizant of environmental protection, there remains a problem of illegal abandonment that is difficult to resolve, thus the difficulty of implementing this system in Japan can only be imagined.

Combined with China's national conditions and the current system, the adoption of a reverse paid recycling system, and the recovery cost on consumers, this burden method is still difficult to achieve. Even if it is regulated by

legislative means, it will inevitably cause consumer resistance and will have a negative impact on the economic direction of China's vigorous domestic demand. However, simply letting companies bear the cost of recycling and requiring enterprises to improve recycling technology is also not conducive to the development of small and medium-sized enterprises. Based on the above two points, it is recommended that the government share a certain proportion with producers and consumers in the cost of home appliance recycling, most of which is still borne by the government and enterprises, and consumers bear a nominal portion of the cost, aiming to cultivate awareness of environmental protection. Since the government bears part of the cost, more effort will be invested in the supervision of the use of recycling fees, which will help supervise the reasonable use of recycling fees by enterprises. Producers shift from the original burden of most of the recycling fees to sharing with the government, which can promote their efforts to improve recycling technology, and for production enterprises with high recycling rates, they can appropriately reduce the proportion of their recycling cost burden and encourage environmental protection behavior. Consumers should bear a small part of the recycling fee when discarding home appliances, which can make their disposal more cautious, and the household appliances that consumers have discarded can also be introduced into Japan's 'management ticket system' to supervise the government and enterprises, which can improve consumers' awareness of environmental protection and can increase consumers' sense of participation in the field of environmental protection.

5.4 Further Improve Recycling Channels

Japan's Household Appliance Recycling Law clearly stipulates that retailers are responsible for transportation, based on the fact that the transportation channel is very well developed, and the channel supervision is implemented by the 'management ticket system'. However, China has not clarified the main responsibility in terms of recycling channels or regulatory responsibilities, which leads to compensatory channels, and consumers cannot clearly find a perfect recycling channel to deal with waste home appliances. At this stage, home appliance recycling occurs only through various methods, through private recycling stations without qualifications to collecting waste household appliances to be moved to specialized recycling enterprises for unified processing. This all occurs without establishing a smooth channel for handing waste appliances over to manufacturers.

As mentioned above, the recycling work undertaken by the product manufacturer is undoubtedly the best solution for subsequent treatment, but this puts forward higher requirements for the recycling channel of home appliances. Special legislation needs to provide for effective recycling channels, and combined with China's situation, it is necessary to combine the power of various recycling channels through mandatory regulations and economic interest drive. It is suggested that the law not only entrust the responsibility of transportation to retailers but also combine the current market situation and make full use of home appliance dealer channels, enterprise after-sales service or maintenance network channels, waste material recycling enterprises, moving companies, individual merchants, community concentration points, municipal storage and transfer points to broaden recycling channels for this purpose to establish a more complete recycling network system so that enterprises can 'eat' in multiple ways. At the same time, in the early stage of the implementation of the law, we can try to provide corresponding incentive mechanisms to promote various transmission channels and enterprises to actively recycle waste household appliances and then gradually stipulate the main transportation responsibility after the channels are diversified and smooth.

5.5 Prevent and/or Reduce the Generation of Waste

In the process of implementing the law, the government's continuous publicity on environmental protection issues has made the national awareness of environmental protection as a whole, and more attention is paid to cherishing the use of home appliances and other resource products than before the implementation of the law. This positive legal effect is not only reflected in the field of home appliance recycling, but also makes people have a high awareness of environmental protection in all aspects, reducing unnecessary waste of household appliances. In terms of enterprises, producers should try to achieve "environment-friendly" design, "green" production, and strive to control pollution from the source, which is the fundamental way to solve pollution.

6. Conclusion

As a daily product with a high penetration rate and consumption rate, whether the recycling problem of household appliances can be effectively solved directly affects economic development and ecological environment, so the formulation and improvement of special legislation in this field is the top priority in the circular legal system. Through the comprehensive analysis and research of Japan's "Household Appliance Recycling Law", combined with the current situation of home appliance recycling in China, the great significance of formulating this special law in China and the issues that should be paid attention to are analyzed. Finally, drawing on Japan's special legislative experience, it puts forward four suggestions for China in this field, including the formulation of special

legislation, the expansion of producer responsibility, the tripartite burden of recycling costs, and the improvement of recycling channels.

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