Research on the Utilization of Waste Resources of SMEs Based on Low Carbon Background

Renzao Lin
Fuzhou University of International Studies and Trade, Fuzhou 350202, Fujian, China

Abstract. The core content of low-carbon is low-carbon economy and low-carbon life. Circular economy is a production mode of low-carbon economy. The utilization of waste resources of SMEs' reverse logistics is a way to promote circular economy. The use of waste resources has the problems of low recycling rate of packaging materials, non-standard recycling of waste materials, high cost of return and transportation, and serious environmental pollution. In order to achieve sustainable development, implement the concept of a low-carbon economy and develop green logistics, it is necessary to take measures to improve the recycling rate of packaging materials, improve corporate social responsibility, reduce the cost of return logistics, and prevent environmental pollution to promote the improvement of reverse logistics for SMEs Utilization of waste resources.

Keywords: Utilization of Waste Resources, Circular Economy, Sustainable development, Waste Materials.

1. Introduction

Low-carbon economy and low-carbon life are the core content of low-carbon. Low-carbon economy is a production method with low energy consumption, low pollution, and improved energy and resource utilization efficiency. Circular economy is a production method of low-carbon economy. Circular economy refers to the process of comprehensive utilization of energy and waste in accordance with the method of clean production. It is a development state in order to meet the requirements of human environmental protection and health. The main characteristic of circular economy is a balanced economy that maintains the human living environment, protects resources and energy, and is beneficial to the healthy development of society and economy.

With the rapid development of the global economy, resources are overused, causing pollution to the environment. Therefore, the survival and development of an enterprise not only need to rely on existing resources, but also learn to efficiently use limited resources to create more value. The reuse of waste materials is one of the effective ways to improve the efficiency of enterprises.

However, the previous research objects and hotspots mainly focused on large and medium-sized enterprises. There is less relevant literature and achievements on the use of waste materials in reverse logistics for SMEs, and the social responsibility research on reverse logistics for SMEs is also scarce. This thesis will study the utilization of waste materials of SMEs from the perspective of circular economy, hoping to provide assistance to the development of reverse logistics for SMEs.
2. Problems in the use of waste materials in reverse logistics for SMEs

Reverse logistics refers to the process of remanufacturing, recycling and material recovery of those products that have been discarded, so as to achieve the purpose of recycling value and proper disposal. From a broader perspective, reverse logistics also includes the purpose of reducing resource consumption and waste, and at the same time it is conducive to improving the efficiency of forward logistics and reverse logistics. The activities of SMEs' reverse logistics mainly include the classification and reuse of items.

2.1. Low reuse rate of waste packaging

In terms of waste plastic recycling, China is still in its infancy. The recycling rate of waste plastic and packaging is less than 10%. At present, the lack of regulations on the use of packaging waste by enterprises has led to the low utilization rate of guaranteed packaging materials, the waste of resources and energy, and the serious pollution. In addition, government supervision is not in place. However, due to the high costs of normal recycling channels and high technical equipment costs, qualified companies are in a state of loss, which makes it difficult to maintain the normal production and operation of the enterprise, and there is always the risk of capital chain breakage and bankruptcy. These are issues that require the attention of governments and environmental protection agencies.

2.2. Irregular recycling of waste materials

The waste recycling of SMEs does not meet the specifications, causing serious environmental pollution. China's waste materials recycling channels are not smooth, and waste recycling companies are insufficient. Waste recycling is still characterized by informal and fragmented management. SMEs' compliance recycling of waste products will generate additional costs, and factors such as lack of funds and poor competitiveness also seriously restrict their daily operations and capital turnover. SMEs do not have the corresponding capacity to increase investment in waste recycling, which further increases the difficulty of compliance and recycling of waste materials.

2.3. High return shipping costs

The overall logistics efficiency of SMEs is relatively low. In terms of logistics organization, due to inaccurate grasp of market supply and demand by SMEs, large transportation volumes, long distances, lack of capacity, and lack of scientific methods, coupled with higher returns and transportation costs. The increase in logistics costs for SMEs ultimately leads to an increase in overall terminal prices. This is not conducive to the small and medium-sized enterprises' foothold in the fierce competition, it will also increase the overall commodity price of the entire industry and society, resulting in higher social energy consumption and gradually increasing costs.

2.4. Serious environmental pollution

There are environmental pollution phenomena in the production, transportation and other links of small and medium-sized enterprises, and little attention is paid to the management of environmental pollution. The environmental pollution in the reverse logistics of SMEs first comes from the pollution of the transportation means itself. Whether it is car transportation, train transportation or air transportation, certain greenhouse gases and pollutants will be emitted, which will cause atmospheric pollution. At the same time, the noise pollution generated by vehicles also puts greater pressure on the environment. In addition, during the process of product loading and unloading and transportation, waste materials and losses will be generated, which will also pollute the environment.
3. Strategies to improve reuse of waste materials

3.1. Improve the recycling rate of waste packaging

(1) Strengthen channel management. Regarding the specification of the recycling of guaranteed materials, the government established a professional association to be responsible for the recycling of packaging materials, establish unified management and technical standards, and set up a special recycling system and management system. Easy-to-recycle and high-value waste products can be recycled through fixed or mobile community material collection points. After recycling, they are concentrated in the head office for professional testing and classification, and then distributed to packaging waste utilization enterprises through decentralization.

(2) Classify items in detail. Professional associations carry out a series of professional processes such as professional sorting and cleaning to prevent packaging items from mixing with other garbage. In order to improve the utilization efficiency and free recycling efficiency, regulations should be made to prohibit the random landfill and incineration of packaging wastes.

(3) Improve the professionalism of packaging waste utilization enterprises. The government should do a good job in the supervision and inspection of relevant qualifications to ensure that the recycling companies have the corresponding qualifications and that the technology and equipment meet the relevant requirements. Enterprises that do not meet the requirements for unlicensed operations and qualifications are required to make rectifications. The government needs to increase support for companies operating in compliance, reduce related costs and tax points, implement tax incentives and related support work, promote professionalism in overall recycling, and effectively increase the recycling rate of packaging materials.

3.2. Improve corporate social responsibility in fulfilling circular economy

The reverse logistics of SMEs is closely related to the circular economy. Reverse logistics can achieve the goal of circular economy through a series of processes such as sorting, recycling, and treating related items. SMEs recycle materials that have lost their use value and explore their potential value, which is conducive to the development of circular economy and promotes the effective use of resources. In addition, advocated by the concept of circular economy, SMEs will use environmental protection and resource conservation as their guiding ideology in their daily work and production. This will further promote the development of reverse logistics and change the traditional pollution of the environment and waste. Conserving resources can also reduce the cost of SMEs, further improve the efficiency of the supply chain of enterprises, and promote better benefits for SMEs. When an enterprise fulfills its social responsibility, it does not mean giving up economic benefits. The economic responsibility of an enterprise itself is social responsibility.
Figure 1. Figure of social responsibility factors for enterprises to fulfill circular economy

3.3. Reduce the cost of return logistics and control environmental costs at all stages of production

Enterprises can build their own independent reverse logistics system, which can effectively reduce logistics costs, which is conducive to SMEs' extensive handling of product returns, repairs and recalls, recycling of waste products, etc.. Enterprises can also jointly establish a reverse logistics system with the industry, which is conducive to reducing the cost of return logistics, reducing the financial pressure of the enterprise, and effectively ensuring the cost control and reduction of SMEs. In addition, the company established a reverse logistics information management system in order to form return information sharing with customers, conduct unified management of returned products and analyze the reasons for returns. Based on the reasons for returning goods and seeking solutions, companies can avoid returns as much as possible and reduce the cost of return logistics from the source. At the same time, the information system can improve the processing speed of the return of the enterprise, so that the return of goods can be divided in a short time, which can effectively reduce the transportation cost, storage cost and inventory cost. The reduction of the cost of return logistics for enterprises is conducive to the control of environmental costs at all stages of production. The environmental cost control indicators of each stage of enterprise production are shown in Table 1.

Table 1. Environmental cost indicators of each stage of enterprise production

| Product existence stage | Product design stage | Cleaner production stage | Product sales and scrap stage |
|-------------------------|---------------------|--------------------------|-----------------------------|
| Environmental cost control indicators | Transport pollution emissions, effective energy utilization, etc. | Renewable energy utilization rate, exhaust gas utilization rate, clean energy utilization rate, industrial (wastewater, exhaust gas) utilization rate, etc. | Waste recycling utilization rate, industrial solid waste utilization rate, component reuse rate, etc. |
3.4. Prevent environmental pollution

If the enterprise causes serious environmental pollution by waste, it shall make rectification within a time limit and accept the punishment of the government. Government departments should strengthen the inspection and assessment of environmental protection requirements of waste products and establish corresponding reward and punishment mechanisms. The government will give cash rewards to enterprises that have disposed of waste materials and established a standardized ledger and complete transfer procedures. For enterprises that fail to dispose of waste materials in accordance with regulations, the government will give them corresponding penalties according to the severity of the circumstances. Such measures can be used both within SMEs and in government regulation of enterprises. Only when both the enterprise and the government attach great importance, can the phenomenon of environmental pollution be effectively reduced.

4. Conclusion

There are three motivating factors for SMEs to fulfill their social responsibility for reverse logistics: pressure, motivation, and ability. First is pressure. The government and society should put pressure on the enterprise to promote the company to fulfill its social responsibility for reverse logistics. The second is motivation. Enterprises realize that the implementation of reverse logistics can save resources, reduce production costs and pollution control costs, and increase the visibility of enterprises, so that they have the motivation to regulate the management of reverse logistics and do a good job of environmental protection. The third is ability. Only when small and medium-sized enterprises become bigger and stronger, can they invest more resources to implement reverse logistics, and then realize a virtuous circle of enterprise development.

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