

Research on the new mode of green development of express packaging under the goal of "double-carbon"

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Keywords: "Double-carbon" goal, green logistics, new model, and explore countermeasures

Abstract: Under the background of the concept of "double carbon", how to achieve the pollution control of logistics packaging waste and to start a new model for the development of green logistics is an essential problem. This paper expounds the basic problems of logistics packaging waste treatment, and puts forward the countermeasures to promote the green development mode of logistics packaging, such as establishing waste recycling and green packaging usage standard, promoting the use of modern technology in logistics packaging recycling, and establishing the closed-loop supply chain of shared express packaging. Due to it is difficult to recycle traditional logistics packaging forms such as cartons, foam and tape, resulting in problems of environmental pollution and low resource utilization. In order to cope with the severe test of global climate change and realize the goal of carbon peak and carbon neutrality as soon as possible, many logistics enterprises spontaneously carry out various forms of measures to reduce carbon emissions, but the effect is not obvious. Therefore, it is urgent to form a new mode of logistics and packaging standardized development.

1. Analysis of the problems and causes of logistics packaging

There are many deficiencies in the sustainable development of logistics packaging.

1.1. Logistics packaging recycling efficiency is low

The classification processing are the most important factor for the formation of low-carbon logistics mode. At present, the effect of household garbage classification management needs to be improved, most people can not effectively do a good job of garbage classification, make the secondary pollution caused by the mixed logistics packaging waste and household garbage, and increase the reuse cost of express packaging.

1.2. Low-carbon packaging application is highly subjective

At present, the selection and use of logistics packaging materials are made by the merchants themselves through experience or sensory estimation. It is usually accompanied by the waste of logistics packaging materials and inadequate packaging functionality. The unreasonable selection of packaging methods will cause the waste of resources, reduce the recycling capacity of packaging, and may even reduce the protective role of logistics packaging products.

1.3. Logistics transportation and production process of high efficiency is insufficient

Logistics commodity are transported in a decentralized system, with a low degree of networking, Unreasonable vehicle scheduling, such as high no-load rate and poor route planning, which increases carbon emissions in the logistics process. Unreasonable discharge of waste from the logistics processing will aggravate the adverse impact on the environment, such as ink pollution, waste gas emissions and so on.

1.4. Low-carbon logistics packaging application mode development is slow

To achieve low carbon logistics packaging application new mode, need to coordinate the relevant government departments, logistics companies, online consumers, packaging waste recovery and disposal manufacturer with the same goal. At present, although the supervision, management and standardized guidance of express enterprises are being continuously strengthened, the lack of effective management means for other subjects limits the implementation effect of green development of logistics packaging.

2. Policy reference and experience reference

To form a new model of green development of express packaging, it is urgent that the experience adapted to the new model can be used for reference and relevant policies to improve the action of logistics packaging related personnel.

2.1. Low-carbon development policy reference

In order to promote the logistics enterprises actively respond the development of green logistics packaging, the government departments to guide the relevant enterprises around green packaging contributes to sustainable development and low carbon development of innovation to strengthen scientific and technological innovation.

(1)In order to promote the development of logistics industry to green low carbon transformation, government of China have issued the "express interim regulations" "express market management method" "mail express packaging waste recycling bin application reference" and so on, strive to steadily push forward low carbonization of express packaging market. The requirements and selection principles of packaging are further standardized in the Measures for the Management of Mail Express Packaging, stipulating that express delivery enterprises must give priority to the packaging methods that are reusable and easy to recycle, and encourage express delivery enterprises to improve the working mechanism of recyclable express packaging and the recycling process of waste packaging.

(2)The government reduces the cost burden for the formation of the new model of logistics enterprises, relevant authorities pointed out that enterprises that keep up with the national sustainable development guidelines and have a sense of national responsibility will give support in

terms of debt, credit and capital. Strengthening the linkage effect between government and enterprises will ensure the smooth formation of the new model of express packaging reduction and green cycle, promote the construction of sustainable distribution system under the new development concept^[1]; optimize the policy of professional talent introduction, guarantee the environment of talent development; promote the construction of professional and intelligent recycling facilities projects and improve the construction capacity of express recycling infrastructure under the new situation. The government guarantees that the new model of express packaging reduction and green circulation is unimpeded.

2.2. Successful experience of green development of express packaging

When the resource and environmental problems caused by excessive packaging occurred, the United States carried out the long-term ecological protection activity of "protecting the beautiful United States". At the same time, a lot of money was spent on the exploration of packaging design and the research and development of new packaging materials. Vigorously prohibit multiple layers of non-degradable tape outside the express packaging box, and advocate the addition of biodegradable foam padding inside the packaging. Take the "anti-frustration packaging" project developed in 2008 as an example, it can remove the simple packaging without knives, scissors and other tools, which is convenient, fast, environmentally friendly.

Japan has a perfect packaging waste treatment system. The Japanese government carefully divides the packaging waste into 17 categories, and stipulates the disposal of different types of waste materials on different days. The Japanese government actively holds various environmental protection appeal activities, such as the material cleaning institute to facilitate the public to understand the transformation process of packaging waste, and to enrich the construction of recycling stations to facilitate the designated recycling and centralized transfer of waste.

The South Korean government fully plays its leading role as the government. To implement the waste prepayment system, the manufacturer shall advance the funds to the relevant government administrative department according to the packaging type and type of its production, and the management department shall return the corresponding proportion of funds according to the recycling utilization rate of the waste.

3. Logistics packaging green new mode formation method

Through the analysis and understanding of existing policies and successful experiences, the following development approaches are proposed.

3.1. Standardization of waste recycling management

Referring to the household garbage classification management method, refine the classification of express packaging to promote packaging recycling. There are few types of materials used for express packaging, and the classification difficulty is low. The express packaging can be refined and recycled according to different types of materials such as cardboard, plastic, wood and composite materials. Reduce the difficulty of reprocessing recycled packaging materials, and some express delivery will cause little damage to the packaging when dismantling, and even reach the degree of direct secondary benefit.

Set up a special express packaging recycling point. After investigation, most consumers will discarded express packaging in the garbage can near the delivery point after take the package. We can set up special express packaging recycling points near express delivery points and residential areas, which can not only meet the needs of consumers who want to remove the express packaging

after picking up the express or taking it home, but also facilitate the recycling work of the recycler, and can avoid secondary pollution caused by the mixing of express packaging waste and domestic garbage.

Carry out intelligent recycling methods. The first is to realize the direct recycling of express packaging by manufacturers through the establishment of relevant websites or apps, mainly including express packaging intelligent recycling facilities and online recycling APP, and by optimizing the express packaging recycling process, providing intelligent and convenient recycling services for express packaging recycling users, adding interesting recycling processes and incentive recycling results in the small programs or APP, and improving consumers' enthusiasm for express packaging recycling.

3.2. Standardization of Use and Management of Green packaging

It is suggested that the relevant departments should establish a mandatory and standardized logistics packaging management mode, and rationalize the selection of express packaging materials and express packaging methods. For unreasonable packaging, such as increasing taxes on enterprises that use excessive use of packaging materials and packaging methods that exceed the amount of packaging materials used, the goals of recycling and processing should be strictly regulated, and an extended producer responsibility system should be introduced to ensure the safety of packaging materials and improve the utilization efficiency of packaging materials and packaging recycling capacity. The formulation of the Standard of Use and Management of Green packaging can be establish from the following aspects:

- (1) Reduce the use of non-degradable materials in logistics packaging materials.
- (2) Optimize the design of logistics packaging structure, improve the protection function of logistics packaging for goods and reduce the waste of natural resources of packaging material production.
- (3) Reduce the size of the logistics packaging, improve the utilization of packaging space, reduce the product logistics cost and storage cost.
- (4) Optimize and streamline the use of logistics packaging materials, and reduce the human and financial cost of packaging waste disposal.
- (5) Promote the packaging method instead of paper to reduce the non-degradable plastic packaging to the environment.

3.3. Optimize the logistics and transportation environment and packaging and processing process^[2]

Optimizing the layout of freight outlets and distribution centers will reduce the vehicle fuel consumption and the exhaust gas pollution due to the circuitous transportation of goods. Secondly, relevant departments should plan the most efficient mode of delivery based on actual logistics transportation needs. Centralized inventory can effectively reduce the logistics cost of enterprises, which is suitable for long-distance transportation, reasonable planning of distribution route, centralized distribution of logistics package, and improve logistics delivery efficiency; instant distribution emphasizes no inventory operation and is suitable for close logistics transportation, which can improve logistics output efficiency and reduce inventory occupation and improve the return rate of enterprises.

Optimize the process flow of logistics packaging in order to reduce the adverse impact on the environment caused by unreasonable logistics package circulation treatment. First of all, reasonable planning of the location of the circulation processing center can reduce the waste of effective resources while reducing the cost of circulation processing, and then reduce the environmental

pollution caused by the increase in transportation volume due to unreasonable site selection; form a regionalized centralized circulation and processing industry chain, effectively concentrate and reuse the corner waste generated by circulation processing, reduce the waste in the production and circulation process, and improve the utilization rate of resources.

3.4. Establish a closed-loop supply chain for shared express packaging

The relevant government departments, express companies, online consumers, packaging waste recovery and disposal party and other party related to logistics industry, form a closed loop supply chain which like a nature ecosystem can have self circulation ability of ecological. The government plays its policy guiding role, standardize and restrain the behavior of other element structure; express enterprises should strive to realize the integrated development mode among enterprises that tend towards green and low-carbon, mutual benefit; residents and consumers should be familiar with environmental requirements, practice environmental protection actions; packaging waste recycling should improve the recovery efficiency; other partners should supply resources of the equipment and technology for carbon reduction work.

4. Conclusion

Due to the requirement of environmental sustainable development, we want to achieve the goal of carbon neutrality. There must be reasonable policy and effective measures. Therefore, refining the classification methods of express delivery packaging, strengthening the promotion of green express delivery action and enhancing the national awareness of low carbon provide an effective way to solve this problem. Through the analysis of current logistics packaging phenomenon, looking for efficient green development approaches and policy references at home and abroad, understand such decision advice is superior to where, why effective, and draw some countermeasures for the general problems of current logistics development.

Acknowledgement

This work was supported by this paper is the research result of the university-level project "Applied Curriculum Development and Construction" of Shanxi Institute of Engineering and Technology in 2021, project number: 2021120313; Research results of the university-level project "Applied Curriculum Development and Construction" of Shanxi Institute of Engineering and Technology, Project No.: 2022082505.

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