

Research on Green Logistics Based on Circular Economy Theory

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Abstract. Green logistics is the foundation of circular economy and circular economy promotes green logistics development. This paper firstly introduces the concepts of green logistics and circular economy, and then explains the relationship between the circular economy and the green logistics. Finally, this paper gives some suggestions on the construction of green logistics industry based on circular economy theory to provide some references for the relative researchers.

I. Concept of Green Logistics

Green logistics is the logistics which aims at reducing the pollution of the environment and decreasing the consumption of resources. It makes use of the advanced logistics technology to plan and implement the transport, storage, packaging, loading and unloading, circulation processing and other logistics activities. Green logistics overcomes the spatial barriers to provide the effective and fast services. To some extent, we believe that the logistics which does not damage the earth environment can be called green logistics. The behavior subject of green logistics is mainly professional logistics enterprises, including the related production enterprises and consumers. Although it is consistent with the goal of saving resources and protecting the environment and economic benefits from the macro perspective and long-term interests, it is contradictory for a particular logistics enterprise. Green logistics of multi objectives embodied in the logistics activities to conform to the strategic goal of sustainable development requirements and the protection of the ecological environment and to pay attention to the conservation of resources, pay attention to the coordinated development of economy and ecology. It pursues the unity of the objectives of economic benefit, consumer benefit, social benefit and ecological benefit. How to achieve a balance between multiple targets is the key problem to be solved in the process of green logistics.

II. Concept of Circular Economy

The concept of circular economy was proposed by the United States economist named Kenneth Boulding in 1960s. The circular economy is opposed to the traditional economy. The material flow process of the traditional economy is a "resources - products - waste" one-way linear flow process. The more wealth it creates the more resource it consumes. It is not conducive to sustainable development, and is not conducive to the protection of resources and environment is a kind of extensive pattern of economic development. The circular economy is a major change to the extensive mode of economic development. The closed curve of "resources - products - renewable resources" makes environmental pollution recycle, promotes the sustainable and harmonious development of economic society and natural ecosystem. The features of circular economy are summarized as reduce, reuse and recycle. Reduce means to make use to the lowest resource

consumption to achieve the purpose of promoting the economic development, abandoning the traditional economic model of “much consumption, mass production”. Reuse means that the product produced by the producer should not be disposable, but it can be used repeatedly in order to save resource consumption and protect the ecological environment. Recycle is the core requirement of the circular economy. The waste generated in the production process can also be returned to the production process or by a chemical reaction conversion for other materials and make use of them. 3R characteristics of circular economy realize the objectives of resource conservation, environmental protection and economy development in the process of resource consumption, product manufacturing and waste treatment.

III. Relationship between Green Logistics and Circular Economy

A: Green Logistics is the Foundation of Circular Economy

The 3R principle of circular economy is applied to the modern logistics management, which is to change the one-way function between economic development and logistics. Circular economy needs to establish a modern logistics system, the formation of a closed loop logistics system with the resources and environment. In all aspects of the closed-loop logistics including transport, storage, packaging, handling, distribution processing and waste disposal, and other logistics activities, by means of modern technology, improve resource utilization, maximize reduce the impact of logistics activities on the environment, this is the so-called green logistics. Visible green logistics is not only the pursuit of economic efficiency, but also the pursuit of social and ecological benefits, which is in line with the requirements of circular economy feedback loop process. China faces the population and economic growth situation. The environmental damage and resource depletion situation has been approaching the limit of nature. So according to the view of scientific development of circular economy requirements, the transformation of the traditional concept of development, in the development of ideas completely change the one-sided pursuit of economic growth, tend to ignore the resources and the environment, efforts to minimal resource consumption and minimal environmental costs to achieve economic sustainable development. Generally speaking, manufacturing processing takes very little time, most of the time is used in the process of storage, handling, packaging, secondary processing, information processing and other logistics process. Therefore, the green logistics is an important support of circular economy.

B: Circular Economy Promotes Green Logistics Development

Circular economy aims at the long-term economic growth and structural optimization through the high quality labor, advanced industrial structure and low pollution. The idea of circular economy penetrates into the whole process of logistics activities. Take the core idea recycle of circular economy for example. Waste is refers to the production process to form qualified products and does not have the use value of the material, such as generated in the production process of waste, waste, slag by iron and steel plant and machinery factory machining of chip and so on; or the waste generated in the process of circulation, abandoned wooden cases such as bundle untying bundles of goods produced, weaving bag, carton, rope. Waste recycling is to lose the original value of the use of these economic activities, according to the actual needs of recycling or after the use of recycling or processing into the use of new raw materials. Waste recycling, further development will become reverse logistics, including production, circulation, production, waste recycling utilization system, make the logistics from the consumer to flow into the enterprise production, including recycling of old products, old products transportation, recycling products repair or restoration, recycling products sales of several links to the traditional logistics terminal of the waste material may be returned to the normal process of logistics. The reverse logistics and forward

logistics constitute a closed loop system, realizing the recycling principle. Therefore, the circular economy theory promotes the development of green logistics.

IV. Construction of Green Logistics Industry Based on Circular Economy Theory

The construction of green logistics industry based on circular economy theory calls for the improvement of the legal system, the establishment of emission trading system, the guidance of the green consumption and the formulation of the green logistics standards.

A: Improve Legal System

The road of "treatment after pollution" of the early industrial development polluted the environment. Therefore, the developed countries pay more attention to the environmental regulation. Our country can learn from the experience of foreign countries in the legal norms. Germany is in the forefront of the world in developing circular economy and green logistics. Germany's waste disposal law was first developed in 1972, but it only emphasized the end treatment of waste disposal. Since 1996, Germany has put forward a new "recycling economy and waste management law". It elevated the waste treatment to a new height of the development of circular economy and the established of a system of legal system. Green logistics is cannot completely rely on the market and self-realization so on green logistics of legal regulation is essential, by legal provisions, and a variety of means, establish pollution on the damage caused by them should bear the legal responsibility. The government's regulation on green logistics should be mainly through economic means and legal means to establish and improve a series of laws and regulations on green logistics. According to the external nature of logistics activities, we can set the environmental legislation related to solid waste, recycling, air pollution control and noise control.

B: Promote Relative Trading

Enterprises discharge waste in the production process. Due to the asymmetric information, the government is difficult to develop tax policy for its externalities. At this time, the emission permits market transactions can solve this problem. Considering that there are multiple actors in the pollution, the government under the premise of the level of total pollution control, emission rights will allow somehow awarded various actors, and allows the actors to free trade the permissions. Therefore, it has formed a permit to discharge the trading site. Once a behavior subject to discharge more pollutants, it must be in the market to other actors to buy emission rights. This produces a kind of incentive mechanism, incentive some behavior subject idea to try to reduce their pollutant production, excess emission rights sold to reap the benefits. The government should formulate relevant rules to promote the trading of emission rights. The concept of carbon emissions trading originated in 1968. American economist Dell proposed the concept of "carbon emissions trading". It established the legitimate rights of pollutant emissions so that resources and environment can be bought and sold like goods. At the time, Dell was given a program in the water pollution control applications. Then, the solving of the problem in reducing emissions of sulfur dioxide and nitrogen dioxide also applied carbon emissions trading means. China is vigorously developing the circular economy. China should expand the carbon emissions trading market to promote the continuous development of green logistics.

C: Guide Green Consumption

The green consumption of consumers can force enterprises to carry out green logistics management. Government should strengthen the study of circular economy, make propaganda for the importance and urgency of environmental protection, wake up social organizations and the public crisis consciousness, and establish a concept of green consumption to create a good atmosphere for public opinion and social environment for the construction of green logistics. Green

consumption can be realized through the choice of consumer goods, the conservation of resources, and the protection of the environment. Such as in the food consumption, the choice of organic food and green food, reduce waste of resources. At the same time, the promotion of energy-saving products, and further develop the use of green energy, reduce environmental pollution. With the development of economic level, people choose the purpose of consumption is no longer limited to solve the problem of food and clothing, increasingly prominent extravagance and excess nutrients and other issues, vigilant we want to start to change consumer attitudes. The government should play an exemplary role in the green consumption, the government procurement in the use of green supplies, in life, work in accordance with the energy saving and environmental protection. At the same time, the government can guide the green consumption from the angle of tax revenue. While advocating green consumption in the current society is still a small part of people's behaviors. The government needs to carry out a certain price subsidies to change the choice of the majority of consumers. The promotion of reasonable green consumption will be great benefit to the development of green logistics.

D: Formulate National Standards

Green logistics must be based on a certain standard. Only we formulate the national green logistics standards, can we determine whether the logistics activities of enterprises meet the requirements of environmental protection or not. Therefore, the government should first take measures to develop the evaluation system of enterprise logistics green as soon as possible in the process of promoting enterprise logistics green. Logistics standardization does not follow the green development of enterprise logistics. The lack of a large number of standards to make the enterprise logistics cannot be followed. The existing standard is not perfect or poor implementation of the enterprise also restricts the green development of logistics. The existing logistics standardization level is difficult to ensure the smooth implementation of enterprise logistics. Due to technical and economic reasons, China's current product standards and emission standards are not strict. The national standards are low and uncompleted, and the western developed countries have a greater difference. In this case, the government should draw lessons from foreign advanced technology, combine the actual situation of our country with the standards in foreign countries, to develop more suitable product standards and emission standards and to develop green logistics.

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