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Reverse logistics system network planning in E-commerce express industry based on the coordinative development of economy and environment

Yanning Jiang

Guangzhou University, P R China

In China, the rapid development of E-commerce express industry has caused serious damage to environment, which includes waste of resource, pollution on air, automobile noise, traffic jam and terrible package problems in recent years. Only in 2014, 14 billion operation volume on express industry consumed 2 billion plastic woven bags, 5.5 billion plastic bags, 2.1 billion envelopes, 6.7 billion cartons, 11.4 billion meters of adhesive tap, and 2 billion inner buffers. Most of the package materials are plastic, especially bad quality plastic, which are hard to be degraded and recycled, and severely harmful to the environment. To meet the requirement of sustainable development, reverse logistics is of equal importance on the reduction of packing usage. Thus, an efficient reverse logistics system network is essential and necessary, and should play an important role in the coordinative development of economy and environment. Self-supporting model, outsourcing model, and joint operation model in reverse logistics industry have been discussed and the results show that: Joint operation model is superior to the other two models on economy of scale and integration of logistics enterprises, but it still has deficiencies on the degree of integration and leadership. Thus, public mode leading by government in reverse logistics system with logistics enterprises can increase the utilization ratio of resource and decrease logistics cost. Site selection and optimal network planning in reverse logistics are also made to improve the efficiency of recycle, recycling rate of resource, logistics efficiency, and economic effectiveness. Meanwhile, it can be benefit to the environment protection, decrease social environment cost, and develop low-carbon and recycling economy.

Biography

Yanning Jiang is the Director of the major of Regional Logistics Planning in School of Geographical Science in Guangzhou University, and is doing her Doctorate in School of Traffic and Transportation Engineering in Central South University. She is specialized in the study of reverse logistics planning, location and lateral transshipment.

jyanning@163.com

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