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Who is the most appropriate incentive object in waste cooking oil (WCO) supply chain? A case study of China

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Waste cooking oil (WCO) ranks one of the most promising feedstock for biodiesel production, due to the advantages in environment friendly, energy supply potential, edible oil safety and low recycling cost. Currently, the main roadblock in the way of developing WCO-based biodiesel in China is the fairly low enthusiasm in formal WCO supply chain. Chinese government has implemented a number of laws, regulations and incentive policies to improve WCO management and promote the use of biodiesel. However, many waste cooking oils are still collected by informal collectors and some of them are flowed back to “table”. Our paper aims to find out the most appropriate incentive object and condition in WCO supply chain. We conducted a Stackelberg game model among catering enterprise, recycler, and biodiesel production enterprise. The results showed that catering enterprise was the most effective incentive target in WCO supply chain with a certain economic incentive. A simulation model was built to seek the best condition to incentive catering enterprise. There was a correlation between policy incentive effectiveness and catering enterprise’s sensitivity to the collecting price of WCO. When the price sensitive degree is greater than 3.15, it is the most effective condition for government to implement economic incentive policies. To guarantee the effective operation of policy incentives, the support of law, policy guidelines and routine supervision should be provided.

Biography

Yaru Liu is a student of Institute of Circular Economy□Beijing University of Technology, this is her first year as a graduate student. She has completed her Bachelor of Management at the age of 22 from University of International Business and Economics. Now, she is servicing as an edit in We Chat public platform of RCR journal.

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