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DECARBONISATION OF FREIGHT TRANSPORT WITH SYSTEM DYNAMICS

IN FOOD SUPPLY CHAINS IN UK

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Purpose

In this study, decarbonisation (reduction of carbon emissions) on food supply chain considering forward and reverse logistics operations will be analysed. The main concern in proposed system dynamics (SD) model is to measure emissions caused by forward and reverse logistics activities.

Research Approach

System dynamics modelling approach will be applied to the forward and reverse logistics activities in food supply chain to handle with complex and dynamic nature of food supply chains. Besides, environmental impact of forward and reverse logistics activities is needed to be investigated in a holistic approach.

Findings and Originality

This study is on progress and it is planned to consider UK food supply chains as a case by collecting data from industrial partners. The SD model will be designed and managed to measure efficiently distribution networks of food supply chain and compared emissions from different part of food supply chain operations.

Research Impact

The study will provide UK logistics activity and its carbon footprint using SD model, enhancing the awareness on the carbon footprint of logistic activity in food supply chain and creating more efficient and beneficial food supply chain by decreasing carbon footprint.

Practical Impact

The practical impact of the study will be, a SD model for creating solutions by considering environmental impact of carbon emissions in food supply chains. That will help supply chain actors to understand the opportunity of efficient food supply chains and enable them to manage food supply chains more effectively. Moreover, it will be provided a continuous collaboration in terms of industry-academia partnership.

Keywords: System Dynamics (SD), Transport Decarbonisation, Food Supply Chain