Faculty of Arts and Humanities

https://pearl.plymouth.ac.uk

Plymouth Business School

2020-09-09

DECARBONISATION OF FREIGHT TRANSPORT WITH SYSTEM DYNAMICS IN FOOD SUPPLY CHAINS IN UK

Kazancoglu, Y

http://hdl.handle.net/10026.1/16824

All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.

DECARBONISATION OF FREIGHT TRANSPORT WITH SYSTEM DYNAMICS

IN FOOD SUPPLY CHAINS IN UK

Dr. Yigit Kazancoglu ¹, Dr. Sachin Kumar Mangla ², and Dr. Stavros Karamperidis³, Dr. Esra Ekinci⁴, Melisa Ozbiltekin⁵, Muruvvet Deniz Sezer⁶

^{1*} Yasar University, Turkey, yigit.kazancoglu@yasar.edu.tr, ² University of Plymouth, UK, sachin.kumar@plymouth.ac.uk, ³ University of Plymouth, UK, stravros.karamperidis@plymouth.ac.uk, ⁴Yasar University, Turkey, esra.ekinci@yasar.edu.tr, ⁵Yasar University, Turkey, melisa.ozbiltekin@yasar.edu.tr, ⁶Yasar University, Turkey, deniz.sezer@yasar.edu.tr

*Corresponding Author

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