

## **Is a Green Supply Chain Network Resilient to Disruptions?**

**Behnam Fahimnia and Armin Jabbarzadeh**

Institute of Transport and Logistics Studies

University of Sydney

Sydney, Australia

### **Abstract**

Supply chain network design concerns determining the location and capacity of facilities including manufacturing and assembly plants, warehouses and distribution centres. Greening of supply chain operations is most effective if addressed at the strategic network design phase. This has been an important area of research focus for almost a decade now. One can however argue that a green supply chain design may have impacts on the supply chain resiliency making supply chains less robust to disruptions. Supply chains may face disruptions of various types—noting the increasing occurrence of natural disasters (e.g. floods, earthquakes) and man-made disasters (e.g. strikes, terrorist attacks). Using a modelling approach, this paper aims to investigate how greening of a supply chain design can influence its resiliency to disruptions. An optimisation model is presented that can be used to investigate the economic and environmental tradeoffs of supply chain networks in normal and under-disruption circumstances. Numerical experiments provide interesting managerial insights and practical implications.

### **Biography**

Associate Professor Behnam Fahimnia is currently the Director of Logistics and Supply Chain Management Programs at the University of Sydney. Dr Fahimnia has made contributions to multiple research areas in the context of logistics and supply chain management with demonstrated practical applications across a wide breadth of industries. His primary areas of research focus are supply chain risk management, green supply chain design and planning, and supply chain performance measurement/management. An expert in applied and problem-driven research, Dr Fahimnia has used analytical tools and innovative mathematical optimisation approaches to help managers create efficient, resilient and sustainable supply chains. He is frequently consulted by regulatory bodies and a range of businesses, from small and medium size companies to Fortune 500 corporations. Featured in leading academic journals, his work has been honored with numerous research excellence awards and scholarships by universities, research organisations and government agencies.