

Chapter 14

Multifaceted Applications of Green Supply Chain Management

Kijpokin Kasemsap

Suan Sunandha Rajabhat University, Thailand

ABSTRACT

This chapter aims to explain the overview of Green Supply Chain Management (GSCM); the significant activities of GSCM; GSCM and collaboration; GSCM and environmental management; GSCM in small and medium-sized enterprises (SMEs); and the multifaceted applications of GSCM. Green supply chain is capable of increasing corporate value while considering its impacts on all processes of physical distribution, production, and environment. Managing a green supply chain is about finding the balance between economic and environmental benefits in global supply chain. GSCM recognizes the disproportionate environmental impact of supply chain processes in an organization. GSCM practices can manifest themselves from the process of selecting raw material to final consumption based on the aspects of reduction, reuse, recycling, and recovery. The chapter argues that the multifaceted applications of GSCM have the potential to enhance organizational performance and gain sustainable competitive advantage in global supply chain.

INTRODUCTION

Globalization and the increased number of countries entering the World Trade Organization (WTO) have promoted green supply chain management (GSCM) practices in manufacturing organizations (Diabat, Khodaverdi, & Olfat, 2013). Industries significantly experience the tremendous pressure from the customer's environmental awareness and stricter environmental regulations to incorporate the ethical and environmental considerations in all facets of traditional supply chain management (SCM) (Mathiyazhagan & Haq, 2013). One of the key challenges for firms is to manage sustainability in global supply chain (Gimenez & Sierra, 2013).

Economic globalization, increasing resource scarcity, and environmental degradation have caused GSCM to become an important approach for organizations involved in international trade (Zhu, Sarkis,

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Lai, & Geng, 2008). Environmental sustainability and green environmental issues have an increasing popularity among researchers and supply chain practitioners in SCM (Luthra, Garg, & Haleem, 2014). In order to develop an effective green supply chain, the strategic factors that influence the priorities of green strategies and initiatives should be recognized while planning to implement the environmental improvement programs (Masoumik, Abdul-Rashid, Olugu, & Ghazilla, 2015).

GSCM is an extension to the supply chain, which represents a set of interorganizational environmental management practices that are useful for logistics management (Lee, Ooi, Chong, & Seow, 2014). GSCM has emerged as a proactive approach for improving the environmental performance of processes and products in accordance with the requirements of environmental regulations (Hsu & Hu, 2008). Muduli et al. (2013) stated that GSCM integrates ecological concepts with those of SCM in order to minimize the energy and material usage and to reduce the adverse impacts of supply chain activities on the environment.

Govindan et al. (2015) indicated that companies are struggling to find an appropriate supply chain strategy to achieve competitiveness. The paradigm of the green economy has contributed to raising the attention paid to developing sustainability-oriented strategies for SCM (Rizzi, Bartolozzi, Borghini, & Frey, 2013). Various dilemmas of an environmental and social nature emerge as important in the decisions and practices that ecopreneurs initiate with respect to managing their supply chain internationally (Kirkwood & Walton, 2010). The successful integration of the economic, environmental, and social sustainability goals are at the direction of the leading supply chain and operations management (Fahimnia, Sarkis, & Davarzani, 2015).

BACKGROUND

Since the early 1990s, GSCM has been widely pursued in the academic and business circles with the development of corporate environmental management practices, environmentally conscious manufacturing strategies, and SCM techniques (Sheu, Chou, & Hu, 2005). In the globalized and competitive marketplace, the industries are pressurized to follow the environmental management, these pressures are derived from the internal and external sources in the organization (Zhu, Sarkis, & Lai, 2007). GSCM has its roots from green management and SCM (Srivastava, 2007). Green supply chain is an effective way for manufacturers to manage the environmental strategies (Wang, Wang, & Sun, 2003). The demand and application of integrating the environmental factors in SCM practices has been recognized by the growing literature on GSCM (Agarwal, Barari, Tiwari, & Zhang, 2011).

There is a growing concern that business enterprises and their supply chains focus on economic activities while ignoring their impact on the environment (Jakhar, 2014). Business community is considered responsible for a number of environmental problems (Tsireme, Nikolaou, Georgantzis, & Tsagarakis, 2012). Environmentally sustainable activities have received an increasing interest among the firms to improve their practices in the supply chain (Rostamzadeh, Govindan, Esmaeili, & Sabaghi, 2015). With the increasing awareness of environmental protection, organizations are obliged to take into account environmental practices to strengthen the green image of their own companies, along with the intent of protecting the environment (Lin, 2013).

The concepts of SCM and environmental management as strategic organizational practices to gain competitive advantage have been receiving the increased attention during the period of the late 1980s and early 1990s (Fahimnia et al., 2015). However, the relative importance of the strategic SCM practices can be traced back to the early periods of the environmental management movement of the late 1960s

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