

# Supply chain sustainability and humanitarian logistics

[Business](#), [Management](#)



Supply Chain Sustainability & Humanitarian Logistics A closed-looped supply chain and how it supports environmental sustainability Public awareness of global warming and deterioration of the environment have significantly stimulated both government and businesses to focus on the environmental sustainability issues. Either being forced by legislation or voluntarily, many companies have begun to adjust their supply chain strategies to sustainability principles and to adopt closed-loop supply chains (Krajewski, Ritzman, & Malhotra 2010).

A closed-loop supply chain is a supply chain, which “ focuses on the complete chain of operations from the birth to the death of a product” (Krajewski, Ritzman, & Malhotra 2010, 445). Thus, this type of supply chain combines both forward and reverse logistics, and covers all the processes from the new product/service development to the point of origin for repairs, manufacture, returns, or recycling (Krajewski, Ritzman, & Malhotra 2010). Moreover, closed-loop supply chain implies sustainable distribution process as the customer sends the used product back to the manufacturer or seller, and thus closes the loop of distribution (Krajewski, Ritzman, & Malhotra 2010). Taking care of end-of-use items is viewed as a proven measure, which makes supply chain for environmentally friendly. Thus, closed-loop supply chain is categorized as sustainable supply chain almost by definition (Quariguasi Frota Neto et al 2010).

A closed-loop supply chain is an integrated system, which supports environmental sustainability through maximization of value creation over the entire life cycle of a product followed by recovery of value at different stages and types of returns (Guide & Wassenhove 2009). Practically all phases of

the closed-loop supply chain mitigate environmental footprint of manufacturing, usage, transportation, distribution, and end-of-life activities (Quariguasi Frota Neto et al 2010). The items, used in the production process of the closed-loop supply chain, are returned into the supply chain system and then are remanufactured, recovered or recycled (de Brito and Dekker, 2004). These activities help to extend the lifespan of the product and therefore, are sustainable (Quariguasi Frota Neto et al 2010). While extension of the lifespan of a particular item might not be always sustainable as old items might consume more energy than the new ones, the further recycling of these items helps to contribute to environment protection (Quariguasi Frota Neto et al 2010). By recycling end-of-life equipment the companies manage harmful substances (polychlorinated biphenyls, lead, etc.), and thus, keep environment cleaner and safer. In addition to focus on harmful substances, closed-loop supply chain enables companies to focus on scarce resources or substances, and thus, to use it in more effective way. The companies which have practiced some of the above mentioned activities are Wal-Mart, Hewlett Packard and some others (Krajewski, Ritzman, & Malhotra 2010).

While a closed-loop supply chain undoubtedly contributes to the environmental sustainability, sometimes it is not economically efficient solution for businesses. Therefore, before applying closed-loop supply chains the companies should perform economic analysis in order to achieve win-win result. In the short-term perspective sustainable solutions are not always economically viable and often require significant investment, however, in the long-term perspective it can save substantial sums of money to the business

and add value to the company (Quariguasi Frota Neto et al 2010).

References:

de Brito, M. P. & Dekker, R. (2004). A framework for reverse logistics. In Dekker, R., Fleischmann, M., Inderfurth, K., & Van Wassenhove, L. N. (Eds.), *Reverse logistics: quantitative models for closed-loop supply chains* (10-20). Berlin, Germany: Springer-Verlag.

Guide, Jr., V. D. R. (Ed.). (2005). *Proceedings from CIMSO Supply Chain Forum '05: The development of closed-loop supply chains*. Pittsburg, PA: Duquesne.

Krajewski, L., Ritzman, L. and Malhotra, M. (2010). *Operations management Processes and Supply Chain*. 1st ed. Upper Saddle River, N. J.: Prentice Hall.

Quariguasi Frota Neto, J. J., Walther, G. G., Bloemhof, J. J., van Nunen, J. E., & Spengler, T. T. (2010). From closed-loop to sustainable supply chains: the WEEE case. *International Journal Of Production Research*, 48(15), 4463-4481.