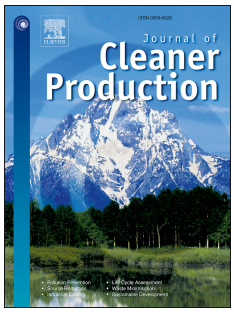
Accepted Manuscript



An integrated approach for performance evaluation in sustainable supply chain networks (with a case study)

S. Motevali Haghighi, S.A. Torabi, R. Ghasemi

PII: S0959-6526(16)31015-0

DOI: 10.1016/j.jclepro.2016.07.119

Reference: JCLP 7691

To appear in: *Journal of Cleaner Production*

Received Date: 23 September 2015

Revised Date: 30 March 2016

Accepted Date: 20 July 2016

Please cite this article as: Haghighi SM, Torabi SA, Ghasemi R, An integrated approach for performance evaluation in sustainable supply chain networks (with a case study), *Journal of Cleaner Production* (2016), doi: 10.1016/j.jclepro.2016.07.119.

An Integrated Approach for Performance Evaluation in Sustainable Supply Chain Networks (with a case study)

[1&2]S. Motevali Haghighi, [1]S.A. Torabi[*], [3]R. Ghasemi

[1]*School of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran*

[2] *Department of Industrial Engineering, Esfarayen University of Technology, Esfarayen, 9661998195, Iran*

[3]*School of Management, University of Tehran, Tehran, Iran*

Abstract

This paper proposes a novel hybrid BSC-DEA framework for performance evaluation in sustainable supply chains. The proposed DEA model is capable of dealing with both qualitative and quantitative indicators while accounting for desirable and undesirable indicators. A tailored network DEA model involving a set of comprehensive sustainability indicators is applied to rank different supply chains from sustainability viewpoint to find the efficient and benchmarked units at each echelon. Then, sustainability indicators are classified into four groups according to BSC perspectives to help policy makers and top managers to have a more comprehensive and thorough understanding of the sustainability with respect to the long- and short term strategies. Finally, a number of sensitivity analyses are performed to identify the effective factors and strengths and weaknesses of each supply chain are identified based on BSC perspectives. To demonstrate the capabilities of the proposed approach, this framework is implemented for performance evaluation of plastic recycling companies in Mazandaran and Golestan provinces of Iran and some helpful managerial insights are derived from the numerical results.

[*] Corresponding author, Tel.: +98 21 61114267; fax: +98 21 88013102.

E-mail addresses: sara.motevali@ut.ac.ir (S. Motevali), satorabi@ut.ac.ir (S. A. Torabi), ghasemir@ut.ac.ir (R. Ghasemi)