Assessing the Impact of Implementing Green Supply Chain Management Components on Supply Chain Performance (Cost, Productivity, Quality, and Social Cost)

Elham Rastpour Gheshlaghi and Majid Rafiee

Abstract: Green supply chain management has emerged as an important organizational performance to reduce environmental risks. Now days, Green Supply Chain Management (GSCM) is becoming an attractive subject among the business competition of organizations. In this competitive and globalized environment, most of the all organizations are emphasizing more efforts to improve their green supply chain practices. The purpose of this paper is to evaluate the performance of green supply chain management (GSCM) using SCOR model and offer suggestions for improvement of a large dairy company in Iran, and the research hypothethes of the proper performance of supply chain management is tested by SCOR model. For this purpose the questionnaire method is used. the t test is used in SPSS software application to test the null hypothesis based on the suitability of the factors' performance (smaller than the mean) and the opposite hypothesis based on the unsuitability of factors' performance (greater - equal to the mean). The results indicate that the dairy company has a good performance in the areas of cost, productivity, quality and social costs.

Keywords— Supply Chain Management (SCM), Green Supply Chain Management (GSCM), Environmental Management, Supply Chain Operations Reference (SCOR)

I. Introduction

In recent years, the rapid industrial modernization has led to negative environmental impacts including greenhouse gas emissions, toxic pollutions, and chemical spills [9]. In response to the growing global environmental awareness, green supply chain management (GSCM) has emerged as a concept that considers sustainability elements and a combination of environmental thinking along the intra- and inter-firm management of the upstream and downstream supply chain [25], [32].

The importance of environmental issues is continuously translated into regulations, which potentially has a tangible impact on supply chain management [2]. In today's global environmental demands, the focus of firm performance has changed. Previously, it focused primarily on the creation of wealth through superior economic performance in terms of success in assets, liabilities and overall market strength, but now focuses on environmental and social performance while achieving the high economic performance [3]. An increasing concern and awareness among the general public for environmentally friendly business processes and prevention of global warming can trigger firms to show remarkable commitment to green practices such as recycle, reuse and reduce materials [11].

A supply chain is a network consists of all parties involved (e.g. supplier, manufacturer, distributor, wholesaler, retailer, customer, etc.), directly or indirectly, in producing and delivery products or services to ultimate customers – both in upstream and downstream sides through physical distribution, flow of information and finances. The main focus of supply chain management (SCM) is to provide right product to the right customers at the right cost, right time, right quality, right form and right quantity [1].

Green supply chain management (GSCM) is evolved from SCM. As competition intensified in the 1990s, the increased awareness of green practices has triggered firms to act in an ethically and socially responsible manner in their supply chains [7].

II. LITERATURE REVIEW

The literature review will be consist of the explanation about supply chain management (SCM), green supply chain management (GSCM), and supply chain operations reference (SCOR).

A. Supply Chain Management

Supply Chain Management (SCM) is one of the most promising research fields in the area of Operations Management. SCM includes various activities starting from the collection of raw material from the sources until the final product reaches in the hands of the customer [4]. Supply chain management is ultimately about influencing behavior in particular ways and particular directions [28].

B. Green Supply Chain Management

Green Supply Chain Management (GSCM) is derived from both Supply Chain Management literature and Environmental

Elham Rastpour Gheshlaghi, Science and Research Branch University, Iran
Majid Rafiee, Sharif University of Technology, Iran.

Management literature [21]. The term of GSCM was defined as a way of initiative improvement, covers supply chain activities from the procurement of raw materials for product design, manufacturing processes to delivery final products and also relates to reverse logistics in reducing sources of wastes [22]. Green supply chain literatures have demonstrated that GSCM focus not only on products and production processes but also includes materials sourcing on the immediate outcome of the supplier on green efforts, and on the means by which more green operations or products might be achieved, buyer requirements are often incorporated in the conceptualization of green supply chain. Thus, partners can happen simultaneously upstream with the green suppliers [29]. GSCM is the summing up of green purchasing, green manufacturing, green packing, green distribution and marketing. GSCM is to eliminate or minimize waste in the form of hazardous, chemical, energy, emission and solid waste [12]. In addition, in a recently conducted study, GSCM has also been linked to human resource management to achieve organizational sustainability and truly sustainable supply chains [8].

1. Comparison between Green Supply Chain Management and Tradition Supply Chain Management

Acording to [30], The function goal of traditional supply chain management only contains four ones of T (time), Q (quality) and C (cost), S (services), while the function goal of green supply chain management contains 6 factors ones of T (time), Q (quality) and C (cost), S (services), E (environment) and R (resources). Green supply chain management experiences the whole closed cycle of design, procurement, production, package, sales, use and recycling. It covers each process of the product life cycle. However, traditional supply chain management is just a one-way process from suppliers to consumers. Its process can be imagined as from cradle to grave. Traditional supply chain information transmission is very common, almost ubiquitous and present, while green supply chain management increases the information of environmental impact and the transmission of resources protection, and combines the information, logistics and energy flow of supply chain management and systematically integrates and optimizes them.

C. Supply Chain Operations Reference (SCOR)

Supply Chain Operations Reference (SCOR) model provides a uniqe framework that connects performance metrics, best practices, and people into a unified structure [5]. SCOR (Supply Chain Management) is developed in 2000 by Supply Chain Council (SCC) and AMR (Advanced Manufacturing Research). SCOR is a across-industry framework that is applied evaluation and improving the performances and management of the supply chain [14].

The SCOR model establishes the notion of business process reengineering (BPR), performance measurement, and logistics management by combining these techniques to cross functional framework. This framework has four levels.

- Level 1- Identifies the important supply chain processes- plan, source, make, deliver and return. It aids firms to form supply chain management objectives.
- Level 2- Explains the main process categories that exist in real and created supply chain in an enterprise. For instance, the source part has ‘source stocked products’, ‘source make-to-order’ and ‘source engineer-to-order products.
- Level 3- Includes information for the supply chain management to plan source and build goals for supply chain management strategy. This also consists of definitions, benchmarks, and system software capabilities.
- Level 4- Centers on implementation. Since the supply chain management implementations are special to each company, the specific parts of level 4 are not explained in the SCOR model [27], [6].

TABLE I:
LIST OF REVIEWED PAPERS

	Source	Describtion	Research Method	Study Area
1	[18]	Identifying and finding out the relationship and dependence power of the GSCMEs	ISM and fuzzy MICMAC approach	India
2	[24]	Explored the GSCM pressures, practices, and performance	PLS-SEM	Brazil
3	[20]	Explored and checked the diverse performance indicators and sub-indicators and its reliability to rank them	Analytical Hierarchy Process (AHP)	India
4	[23]	Evaluated and identified the performance and criteria of Green Supply Chain Management (GSCM)	Fuzzy DEMATEL, fuzzy ANP and fuzzy TOPSIS	Turkey
5	[17]	Identified, predicted, and measured the GSCMEs and the success possibility of its implementation.	Fuzzy DEMATEL and fuzzy MCDM	India
6	[13]	Identified the direct and indirect relationships between customer-driven GSCM practices and environmental and financial performance	PLS-SEM	Finland
7	[19]	Analysed the risks in GSC	Fuzzy Analytical Hierarchy Process (AHP)	India
8	[15]	Evaluated the GSCM SFs to achieve sustainability	Interpretive Structural Modelling (ISM)	India
9	[10]	Identified the 26 common barriers in GSCM adoption	Analytical Hierarchy Process (AHP)	India

II. RESEARCH METHODOLOGY

In this study in order to cover the theoretical discussions of the study, professional and public books, articles and journals are used and to collect data the questionnaires and interviews, and expert opinions have been used.

In this study first by analyzing the research conducted in the field of green supply chain management, the factors affecting green supply chain management were extracted. Then through screening of the identified factors, the factors affecting green supply chain management in the company are selected.

To accomplish the objectives of this research work, the SCOR model is used to evaluate the performance of green supply chain management (GSCM). The SCOR model is able to measure and improve the internal and external business processes of the corporate, and it also guides the strategic management of the enterprises [26].

A. Data Collection

Required data and information are the records in company, suppliers and customers extracted by the questionnaire from the existing records in various processes including procurement, logistics and program planning, high quality production, measurement and analysis of improvement, sales and after-sales service and various units associated with the mentioned processes including support, planning, warehouse, production, sales and so on. In this study, the factors of supply chain operations reference model are used that cover all aspects of each of the features of the supply chain. The design of the questionnaire is based on the third level indicators of supply chain operations reference model.

Index values are calculated by qualitative Likert scale. Scoring is based on five point Liker scale as follows:

Score 1: very low range (zero to 20%)

Score 3: low range (20 to 40 percent)

Score 5: medium range (40 to 60 percent)

Score 7: high range (60 to 80 percent)

Score 9: very high range (80 to 100 percent)

For example, if respondents' agreement is between 60 and 80 percent (or high range) he obtains the high score of 7. It should be noted that the average value is different from the average range. For example, (hypothesis) the average score is 5 which is 50%.

Cronbach's alpha test is used for reliability. The Cronbach's alpha value is 0.819 ($0.7<\alpha<1$) which confirms the reliability of the questionnaire.

In this study, Statistical society involves 20 of suppliers, company, and customers of a dairy product company in Iran. To collect data, the quota sampling is used for the performance characteristics. The questionnaires designed for 20 of suppliers, company, and customers of company. They are distributed and collected among their representatives. The questionnaires present the relationship between the performance features and performance factors of the green supply chain in accordance with Table 2.

TABLE II:
THE RELATIONSHIP BETWEEN PERFORMANCE FEATURES AND FACTORS OF THE SUPPLY CHAIN

Feature/ Factors	**Cost**	**Efficiency**	**Quality**	**Social costs**
Suppliers		✓	✓	
Company	✓	✓		✓
Customers	✓		✓	

In each part of different questionnaires the factors of level 1, the factors available in lower level (levels 2 and 3) and the related questions are recorded. Questionnaires were distributed and collected in associated companies and units. The questionnaire return rate is 97.14%.

IV. RESULTS

A. Principles of Accepting the Hypothesis

Given that the available information is limited, the volume of data is small; thus the t Student's distribution is used to test the hypothesis.

To test the hypothesis, the zero and opposite hypotheses are defined and given that the purpose is to analyze the suitability of (above-average) hypotheses, here the one–way (left sided) is used. It should be noted that the appropriateness of the hypothesis of this study means more than the average. If the t calculated by the software is higher that the t in the table, the test is not in the critical range and the null hypothesis is confirmed, but if the t calculated by the software is lower than that the t in the table, the statistic is still in the critical area and the null hypothesis is rejected.

In cases that the null hypothesis is confirmed, techniques will be required to maintain the improvable areas. Also if the null hypothesis (suitability) is confirmed, it indicates the proper green supply chain management performance.

B. Testing the Hypotheses

The main hypothesis is to analyze the supply chain management performance of company based on SCOR model. to confirm this hypothesis the following secondary hypotheses should be tested. (H1: TABLE IV, H2: TABLE V, H3: TABLE VI, H4: TABLE VII).

- The cost of green supply chain management in company is appropriate (CGSCM)
- The efficiency of green supply chain management in company is appropriate (EGSCM)
- The quality of green supply chain management in company is appropriate (QGSCM)
- The social cost of green supply chain management in company is appropriate (SCGSCM)

H1. The cost of green supply chain management in company is appropriate

$H_{0:}\ \mu \geq 5$

$H_{1:}\ \mu < 5$

Null hypothesis: The cost of green supply chain management in company is appropriate

Alternative hypothesis: The cost of green supply chain management in company is not appropriate

H2. The efficiency of green supply chain management in company is appropriate

$H_{0:}\ \mu \geq 5$

$H_{1:}\ \mu < 5$

$H_{1:}\ \mu < 5$

Null hypothesis: The social costs of green supply chain management in company is approp

Alternative hypothesis: The social costs of green supply chain management in company is not appropriate

Null hypothesis: The efficiency of green supply chain management in company is appropriate

Alternative hypothesis: The efficiency of green supply chain management in company is not appropriate

H3. The quality of green supply chain management in company is appropriate

$H_{0:}\ \mu \geq 5$

$H_{1:}\ \mu < 5$

Null hypothesis: The quality of green supply chain management in company is appropriate Alternative hypothesis: The quality of green supply chain management in company is not appropriate

H4. The cost of green supply chain management in company is appropriate

$H_{0:}\ \mu \geq 5$

TABLE III

Hypothesis	Describtion
The cost of green supply chain management (CGSCM)	Ordering costs (OC)- Production costs (PC)- Inventory maintenance costs(IMC)- Shipping costs(SC)
The efficienty of green supply chain management (EGSCM)	Energy efficiency(EE)- Capital efficiency(CE)- Labor efficiency(LE1)- Land efficiency(LE2)
The quality of green supply chain management (QGSCM)	Quality leadership(QL)- Quality strategies(QS)- Process approach(PA)- Quality information systems(QIS)- Human resource development(HRD)- Focus on customers(FC)- Quality management of suppliers(QMS)- Supplier quality management(SQM)
The social cost of green supply chain management (SCGSCM)	Health costs(HC)- Air pollution costs(APC)- Noise pollution costs(NPC)- Waste costs(WC)- Water pollution costs(WPC)- Soil pollution costs(SPC)- Costs of minimum standards for health and safety at work(CMSHSW)

SECONDARY HYPOTHESES AND THEIR DESCRIBTIONS

	N	Mean	Std.Deviation	Std.Error Mean	Test Value = 5					
					t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CGSCM	242	7.53	1.583	0.102	24.844	241	0.000	2.529	2.33	2.73
OC	56	7.71	1.171	0.156	17.345	55	0.000	2.714	2.40	3.03
PC	54	7.37	1.866	0.254	9.333	53	0.000	2.370	1.86	2.88
IMC	78	7.47	1.409	0.160	17.197	77	0.000	2.744	2.43	3.06
SC	54	7.19	1.833	0.249	8.759	53	0.000	2.185	1.68	2.69

TABLE IV:
TESTING HYPOTHESIS 1 AND THE SECONDARY HYPOTHESES

TABLE V
TESTING HYPOTHESIS 2 AND THE SECONDARY HYPOTHESES

	N	Mean	Std.Deviation	Std.Error Mean	Test Value = 5					
					t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SCGSCM	256	6.40	2.063	0.128	10.903	25 8	0.000	1.398	1.15	1.65
HC	14	6.71	1.729	0.462	3.710	13	0.003	1.714	0.72	2.71
APC	28	6.43	1.620	0.306	4.666	27	0.000	1.429	0.80	2.06
NPC	42	6.05	1.886	0.291	3.599	41	0.001	1.048	0.46	1.64
WC	28	7.57	1.200	0.227	11.342	27	0.000	2.571	2.11	3.04
WPC	28	7.21	2.200	0.416	5.325	27	0.000	2.214	1.36	3.07
SPC	70	5.26	1.954	0.234	1.101	69	0.275	0.257	-0.21	0.72
CMSHSW	65	6.35	2.034	0.252	5.365	64	0.000	1.354	0.85	1.86

	N	Mea n	Std.Devia tion	Std.Error Mean	Test Value = 5					
					t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
QGSCM	407	5.64	2.369	0.117	5.441	406	0.000	0.639	0.41	0.87
QL	36	5.22	2.016	0.336	0.661	35	0.513	0.222	-0.46	0.90
QS	36	6.00	1.942	0.324	3.090	35	0.004	1.000	0.34	1.66
PA	36	4.83	2.104	0.351	-0.475	35	0.638	-0.167	-0.88	0.55
QIS	30	6.67	2.468	0.451	3.699	29	0.001	1.667	0.75	2.59
HRD	70	6.34	2.401	0.287	4.679	69	0.000	1.343	0.77	1.92
FC	54	6.22	2.107	0.287	4.262	53	0.000	1.222	0.65	1.80
QMS	80	5.88	2.009	0.225	3.896	79	0.000	0.875	0.43	1.32
SQM	65	4.51	2.526	0.313	-1.572	64	0.121	-0.492	-1.12	0.13

TABLE VI
TESTING HYPOTHESIS 3 AND THE SECONDARY HYPOTHESES

TABLE VII
TESTING HYPOTHESIS 4 AND THE SECONDARY HYPOTHESES

TABLE VIII
DATA DESCRIBTIONS

	N	Mean	Std.Deviation	Std.Error Mean	Test Value = 5					
					t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EGSCM	240	5.78	1.879	0.121	6.390	239	0.000	0.775	0.54	1.01
EE	60	4.53	1.780	0.230	-2.031	59	0.047	-0.467	-00.93	0.00
CE	40	5.85	1.562	0.247	3.443	39	0.001	0.850	.35	1.35
LE1	100	6.58	1.782	0.178	8.867	99	0.000	1.580	1.23	1.93
LE2	40	5.55	1.501	0.237	2.317	39	0.026	0.550	0.07	1.03

	N	Sum	Mean	Std. Deviation
OC	56	432	7.71	1.171
PC	54	398	7.37	1.866
IMC	78	604	7.74	1.409
SC	54	388	7.19	1.833
EE	60	272	4.53	1.780
CE	40	234	5.85	1.562
LE1	100	658	6.58	1.782
LE2	40	222	5.55	1.501
QL	36	188	5.22	2.016
QS	36	216	6.00	1.942
PA	36	174	4.83	2.104
QIS	30	200	6.67	2.468
HRD	70	444	6.34	2.401
FC	54	336	6.22	2.107
QMS	80	470	5.88	2.009
SQM	65	293	4.51	2.526
HC	14	94	6.71	1.729
APC	28	180	6.43	1.620
NPC	42	254	6.05	1.886
WPC	28	212	7.57	1.200
SPC	28	202	7.21	2.200
CMS	70	368	5.26	1.954
CMSHSW	65	413	6.35	2.034

C. Data Describtions

As noted, the design of the questionnaire is based on the third level factors of supply chain operations reference model and the values are measured based in Likert scale qualitatively. The questionnaires are distributed and collected in the related companies and units. The return rate of questionnaires is 97.14% and the data descriptions are presented in TABLE VIII.

D. Data Analysis

To test the data compliance with normal statiatical society the following hypothesis is defined:

H0: The population distribution is normal

H1: The population distribution is not normal

The test results are shown in TABLE IX.

TABLE IX
KOLMOGOROV SMIRNOV TEST FOR DARA NORMALITY DISTRIBUTION

		All
N		1273
Normal Parameters[a]	**Mean**	6.01
	Std.Deviation	2.312
Most Extreme Differences	**Absolute**	0.019
	Positive	0.018
	Negative	0-.019
Kolmogorove-Smirnov Z		1.024
Asymo. Sig. (2-tailed)		0.278

Test Distribution is Normal

As specified in TABLE VIII, the calculated Dn is lower than the Dn calculated in the Table this the null hypothesis is confirmed or the statistical society is normal.

III. CONCLUSION

By referring to the statistical table and given that the test is left sided, the critical value t is equal to -1.645. Thus according to TABLE IV all calculated values are higher than the critical t and the test statistic is not within the range of critical t and the null hypothesis is accepted. It means that all secondary hypotheses on the cost of green supply chain management are confirmed.

According to TABLE IV it can be concluded that since the value of calculated t (CGSCM) is higher than the critical t (-1.645), it is not within the critical range and the null hypothesis is accepted. In other words the cost performance of green supply chain management in the company is appropriate.

TABLE V shows that only EE is within the critical range and the rest of t values are higher than the critical t and the test statistic is not within the range of critical t and the null hypothesis is accepted.

According to TABLE V it can be concluded that since the value of calculated t (EGSCM) is higher than the critical t (-1.645), it is not within the critical range and the null hypothesis is accepted. In other words the efficiency performance of green supply chain management in company is appropriate.

TABLE VI shows that all calculated values are higher than the critical t and the test statistic is not within the range of critical t and the null hypothesis is accepted. It means that all secondary hypotheses on the quality of green supply chain management are confirmed.

According to TABLE VI, it can be concluded that since the value of calculated t (QGSCM) is higher than the critical t (-1.645), it is not within the critical range and the null hypothesis is accepted. In other words the quality performance of green supply chain management in company is appropriate.

TABLE VII shows that all calculated values are higher than the critical t and the test statistic is not within the range of critical t and the null hypothesis is accepted. It means that all secondary hypotheses on the social costs of green supply chain management are confirmed.

According to TABLE VII it can be concluded that since the value of calculated t (SCGSCM) is higher than the critical t (-1.645), it is not within the critical range and the null hypothesis is accepted. In other words the social cost performance of green supply chain management in company is appropriate.

References

[1] T. Ai Chin, T, H. H, S. Sulaimana, "Green Supply Chain Management, Environmental Collaboration and Sustainability Performance, " Procedia CIRP, Vol. 26, pp. 695-699, Mar. 2015.

[2] A. Aksoy, İ. Küçükoğlu, S. Ene, N. Öztürk, "Integrated emission and fuel consumption calculation model for green supply chain management, " Procedia - Social and Behavioral Sciences, Vol. 109, pp. 1106-1109, Jan. 2014,

[3] C. R. Carter, D. S. Rogers, "A framework of sustainable supply chain management: moving toward new theory, "International Journal of Physical Distribution & Logistics Management, Vol. 38, no. 3, pp. 360-387, Jun. 2008.

[4] S. Chopra, P. Meindl, D. V. Kalra, "Supply Chain Management 4th edition, " Pearson Publication, 2008.

[5] S. C. Council, "Supply Chain Management Reference (SCOR) model, " USA: Cypress, 2010.

[6] E. G. Delipinar, B. Kocaoglu, "Using SCOR Model to Gain Competitive Advantage: A Literature Review, " Procedia - Social and Behavioral Sciences, Vol. 229, pp. 398-406, Aug. 2016.

[7] A. Diaban, K. Govindan, "An analysis of the drivers affecting the implementation of green supply chain management, " Resources, Conservation and Recycling, Vol. 55, no. 6, pp. 659-667, Apr. 2011.

[8] S. Gandhia, S. K. Manglab, P. Kumar, D. Kumar, "Evaluating factors in implementation of successful green supply chain management using DEMATEL: A case study, " Applied Mathematics and Computation, Vol. 256, pp. 394-403, Apr. 2015.

[9] R. Geng, S.A. Mansouri, E. Aktas, D.A. Yen, "The role of Guanxi in green supply chainmanagement in Asia's emerging economies: A conceptual framework, " Industrial Marketing Management, Vol. 63, pp. 1-17, May. 2017.

[10] K. K. Govindan, D. K. Mathiyazhagan, A. Noorulhaq, "Barriers Analysis for Green Supply Chain Management Implementation in Indian Industries Using Analytic Hierarchy Process, " International Journal of Production Economics, Vol. 147, Part B, pp. 555-568, Jan. 2014.

[11] A. J. Hoffman, "Competitive environmental strategy: a guide to the changing business landscape, " Washington, D.C.: Island Press, 2000.

[12] A. Jayant, M. Azharb, "Analysis of the barriers for implementing green supply chain management (GSCM) Practices: An Interpretive Structural Modeling (ISM) Approach, " Procedia Engineering, Vol. 97, pp. 2157-2166. 2014.

[13] S. Laari, J. Töyli, T. Solaki, V. Ojala, "Firm performance and customer-driven green supply chain management, " Journal of Cleaner Production, Vol. 112, Part 3, pp. 1960-1970, Jan. 2016.

[14] S. M. Lee, S. T. Kim, D. Choi, "Green supply chain management and organizational performance, " Industrial Management & Data Systems, Vol. 112, no. 8, pp. 1148-1180, 2012.

[15] S. D. Luthra, D. Garg, A. Haleem, "An Analysis of Interactions among Critical Success Factors to Implement Green Supply Chain Management Towards Sustainability: An Indian Perspective, " Resources Policy, Vol. 46, Part 1, pp. 37-50, Dec. 2015.

[16] R. K. Malviya, R. Kant, "Hybrid decision making approach to predict and measure the success possibility of green supply chain management implementation, " Journal of Cleaner Production, Vol. 135, pp. 387-409, Nov. 2016.

[17] R. K. Malviya, R. Kant, "Modeling the enablers of green supply chain management: An integrated ISM – fuzzy MICMAC approach, " International journal of Benchmarking, Vol. 24, no. 2, pp. 536-568, Jan. 2016.

[18] S. P. Mangla, P. Kumar, M. K. Barua, "Risk Analysis in Green Supply Chain Using Fuzzy AHP Approach: A Case Study, " Resources, Conservation and Recycling, Vol. 104, Part B, pp. 375-390, Nov. 2015.

[19] V. K. Sharma, P. Chandna, A. Bhardwaj, "Green supply chain management related performance indicators in agro industry: A review, " Journal of Cleaner Production, Vol. 141, pp. 1194-1208, Jan. 2017.

[20] A. Susanty, D. P. Sari, W. B. Sriyanto, H. Kurniawan, "Improving green supply chain management in furniture industry through Internet based Geographical Information System for connecting the producer of wood waste with buyer, " Procedia Computer Science, Vol. 83, pp. 734-741, Dec. 2016

[21] K. Y. Tippayawong, T. Tiwaratreewitb, A. Sopadanga, "Positive Influence of Green Supply Chain Operations on Thai Electronic Firms' Financial Performance, " Procedia Engineering, Vol. 118, pp. 683-690, Sep. 2015.

[22] Ö. Uygun, A. Dede, "Performance evaluation of green supply chain management using integrated fuzzy multi-criteria decision making techniques, " Computers & Industrial Engineering, Vol. 102, pp. 502-511, Dec. 2016.

[23] R. M. Vanalle, G. M. D. Ganga, M. G. Filho, W. C. Lucato, "Green supply chain management: An investigation of pressures, practices, and performance within the Brazilian automotive supply chain, " Journal of Cleaner Production, Vol. 151, pp. 250-259, May. 2017.

[24] H. Walker, N. Jones, "Sustainable supply chain management across the UK private secto, " Supply Chain Management: An International Journal, Vol. 17, no. 1, pp. 15-28, 2012.

[25] F. Wang, "Research on Performance Measurement of Green Supply Chain Management, " Proceedings of the 2nd International Conference on Economics, Trade and Development, Vol. 36, pp. 111-114, 2012.

[26] W. Wang, S. Micheal, Y. Patrick, "A process oriented methodology for the supply chain analysis of implementing global logistics information systems, " Proceedings of the 2nd International conference on Innovations in Informational Technology, 2005.

[27] M.A. Wibowo, S. E. Moh Nor, H. S. Adji, "Supply Chain Management Strategy for Recycled Materials to Support Sustainable Construction, " Procedia Engineering, Vol. 171, pp. 185-19, Feb. 2017.

[28] K. J. Wu, M. L. Tsengb, T. Vyc, "Evaluation the drivers of green supply chain management practices in uncertainty, " Procedia - Social and Behavioral Sciences, Vol. 25, pp. 384-397, Mar. 2012.

[29] J. Ying, Z. Li-junb, "Study on Green Supply Chain Management Based on Circular Economy, " Physics Procedia, Vol. 25, pp. 1682-1688, Apr. 2012.

[30] Q. Zhu, J. Sarkis, "Relationships between operational practices and performance among early adopters of green supply chain management pract ices in Chinese manufacturing enterprises, " Journal of Operations Mangement Vol. 22, no. 3, pp 265-289, Jun. 2004.