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How Green Supply Chain Management Affects the Company's Performance?

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Abstract: Green Supply Chain Management is an environmental innovation which integrates environmental concerns into supply chain management (Seman, Zakuan, and Arif, 2012). It has started in the early years when various firms around the world committed to go green with the supply chain management due to environmental impacts of production (Kopicki, Berg, and Legg, 1993). And now, green supply chain management is the emerging trends in most companies around the world. However, complying to green supply chain management means a firm should undergo a paradigm shift with regards to their environmental obligation but this would help them gain a competitive advantage. In the Philippines, though it is considered as an emerging economy (Geng, Mansouri, and Aktas, 2017), there are only few businesses practicing Green SCM due to the lack of concern and awareness to the environment. Some companies may be compliant but not fully aware that they are so the proponent would like to know how green supply chain management affects the company's performance through the study of one manufacturing company in Sta. Rosa, Laguna. The company that has been selected will be called Company X for the purpose of this study. The researchers determined the initiatives of the Supply Chain Division of Company X that are similar with the standard Green Supply Chain Management practices and its contribution to the performance of the company. The researchers were able to determine if the company is compliant or not by checking if the result exceeds more than half of the fifteen (15) given practices. With this, the Supply Chain Division will be able to assess if the following Green Supply Chain activities are their actual practices or not. If these specific Green Supply Chain practices are similar to their actual practices, it only means that they are compliant towards Green SCM. After that, it would also be possible to assess if these Green SCM benefits/practices will improve the performance of the company. After a thorough analysis of quantitative and qualitative data, the researchers would like to provide recommendations based on the results of the study. The recommendations to be provided would be for different entities, such as the academe, Company X, businesses in the Philippines, and Government. This paper is just only one of the efforts to investigate Green Supply Chain Management practices in manufacturing industries here in the country like Company X. This study had its limitations, where a small sample size was only used in drawing out data. It should also be acknowledged that the results of this study may be different from other business industries. Thus, the investigation and its findings can still be further explored, given that there are only few existing literatures of Green SCM especially here in the Philippines. This study may be further explored with better approaches by measuring other effects of organizational performance in terms of economic, operational, and social.

Key Words: Green Supply Chain Management; Performance; Green Procurement; Green Manufacturing; Green Distribution



1. INTRODUCTION

Green Supply Chain Management is an environmental innovation which integrates environmental concerns into supply chain management (Seman, Zakuan, and Arif, 2012). It started in the early 1990s when firms decided to commit to go green with their SCM because of the environmental impacts of production according to Kopicki, Berg, and Legg (1993) and Van Hoek (1999). Nowadays, Green SCM is one of the emerging trends which companies all over the world are trying to implement.

Khairani, Rajamanoharan and Thirumanickam (2012) mentioned that every company or business should undergo a paradigm shift with regards to their environmental obligations. Through that, they would gain competitive advantage at a global market scenario wherein competitive advantage and environmental sustainability are believed to co-exist. However in the Philippines, though it is considered as an emerging economy (Geng, Mansouri, and Aktas, 2017), there are only few businesses practicing Green SCM due to the lack of concern and awareness to the environment.

Some of the widely-known companies who have been practicing concern to the environment are Apple and Coke. Apple having a strong name in the industry of computers and smartphones was criticized by the NGO Greenpeace back in 2003 for not doing efforts towards a more sustainable business approach (Kumar, Teichman, et. al, 2012). As their response, they informed the public with some of their practices that help lessen their negative impact to the environment.

It is very timely because as was mentioned by Rola, Junare, et.al. (2013), industries, organizations, and governments are gradually moving towards to more sustainable business practices as the world becomes increasingly concerned with issues about being green and sustainable. In connection, Green SCM has been implemented to different organizations in other Asian countries to incorporate awareness to the environment and solve pressing issues and problems. Philippines as being a developing country, implementing Green SCM in this country gives an opportunity for different companies to catch up in the

loop of other countries especially in Asia who are already practicing Green SCM.

With this, the researchers decided to study on the initiatives of the company and determine if they are similar with the Green SCM practices, identify its contribution on the performance of the company, and eventually give suggestions or recommendations as to how they could lessen their negative impacts to the environment. To be able to identify those said initiatives, the researchers focused on the departments under the Supply Chain Division of Company X where it captures the processes being done in making their products from the purchasing of raw materials until it reaches to its distribution.

The researchers chose Company X for they already have prior knowledge with the company, given that they were able to use it for their previous studies. Also, one of the researchers has a direct connection from the top management providing them accessible and first-hand information that would help the researchers in furthering this study.

Company X is one of the companies that is part of the top 1000 Philippine Companies in 2016. Company X is known to be a Filipino-owned multi-national manufacturing and distribution company serving customers in the Asia-Pacific region, through excellence in service, reliable industrial and household adhesives, sealants, specialty coatings, insulation, packaging and other products (Pioneer, n.d.). Being in the industry for more than 50 years today, Company X is known to be a multi-million dollar enterprise committed to developing fully its key resource its people to be responsible, responsive and involved individuals to ensure the continued realization of its vision and to welcome tomorrow's challenges (Pioneer, n.d.). As a chemical manufacturing industry, their practices towards the environment have a high impact that could affect the reputation and profitability of the company.

Studying Green SCM would not only help Company X, but also other companies in the Philippines in promoting initiatives that could lead to Green Supply Chain Management. Once Company X begins to implement Green SCM, the company will enjoy an improved performance that could lead to more opportunities for growth and development. This would also make their employees more productive and efficient that could lessen the waste in the company.

2. METHODOLOGY

For this study, the operational framework is used in order to determine the initiatives of the Supply Chain Division of Company X that are similar with the Green Supply Chain Activities and its contribution to the performance of the company. The research undertook in De La Salle University both in the Science and Technology Complex Campus at Biñan, Laguna and in the Manila Campus at Taft Avenue. It was conducted in Company X. Warehouse Plant at Carmel Ray, Canlubang Laguna which is under the Main Office in Aurora, Quezon City. The respondents for this study are from the Supply Chain Division headed by Mr. Tirso Antonio B. Pereja. They were informed that they will be part of the study and the researchers will ensure that their identity will be kept confidentially. The researchers oriented the employees of the Supply Chain Division as to how the survey questionnaire will be answered to ensure accurate answers.

The research design will be quantitative and qualitative at the same time for the data collection. The researchers prefer to use this method for the study instead of doing an online survey, where internet access is needed, because there is a higher chance that all of the respondents get to answer the survey. Due to the small population of employees in Company X in Canlubang, it will not be difficult for the researchers to hand out the surveys and collect the questionnaires right after.

Since the population of the Supply Chain Division of Company X is less than a hundred, this means it is already census where all of the employees in the Supply Chain Division will be respondents of the survey.

The figure 1 illustrates the operational framework that the researchers used for the study. The researchers determined the initiatives of the Supply Chain Division of Company X that are similar with the standard Green Supply Chain Management practices and its contribution to the performance of the company. To do this, the VP Supply Chain of Company X identified, from the study conducted by Ninlawan et al. (2010), specific Green Supply Chain Management Practices which are applicable to their division. Using average, the researchers were able to determine if the company is compliant or not by checking if the result exceeds more than half of the fifteen (15) given practices.

With this, the Supply Chain Division will be able to assess if the following Green Supply Chain activities are their actual practices or not. If these specific Green Supply Chain practices are similar to their actual practices, it only means that they are compliant towards Green SCM. After that, it would also be possible to assess if these Green SCM benefits/practices will improve the performance of the company.

The VP Supply Chain of Company X, from the study of Javaid and Shoeb (2015), identified only six performance measures which are measurable by the respondents under the Supply Chain Division. Other Green SCM benefits such as profitability, market share, brand image, and product quality are not included for these are immeasurable by the respondents. He also mentioned that all members of the Supply Chain Division are aware and knowledgeable of all practices of the division regardless to which department they belong to. Because of this, the respondents will be able to understand and evaluate each Green Supply Chain activity if they are being practiced or not by the Supply Chain Division.

Give the support for your main claim by showing evidence for it. What are the foundations of your claim (theoretical framework)? What conclusion/s follow from it. How are you deriving the conclusion from the basis/bases of your claim (methodology)? It is not always necessary to actually state the specific logical rules for your inferences. It depends on the style that you are taking on in writing your paper. (In papers that are not highly analytical, if you find it necessary to label the actual process/es of derivation of your conclusion, do it in the footnotes.) But the correct inference must be made apparent here and you have to convince your audience of your argument.

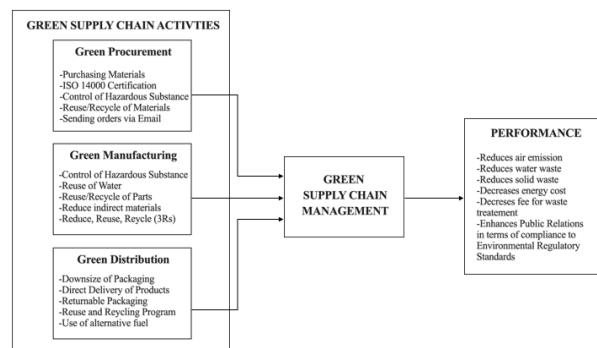


Fig. 1. Operational Framework



3. RESULTS AND DISCUSSION

In order to assess the reliability of the research instrument used, a reliability assessment was performed using Cronbach's Alpha, which ranges from 0 to 1. Reliability deals with the internal consistency between multiple measurements of variables such as Likert Scale and Cronbach's Alpha is commonly used to measure it. In order for the research instrument to be considered reliable, it should have a Cronbach's Alpha value of at least .70 which is the acceptable rate. If the value falls less than .70, it means that there are certain questions that should be replaced or deleted in order to improve the Cronbach's Alpha of the instrument. Having an unreliable research instrument would also lead to inaccurate results. In this study, all variables in the research instrument have an acceptable rate as can be seen in Table 5.6. The Effects on Performance has the highest value with .872, while Green Procurement has the minimum value at .717.

Table 1. Summary of Cronbach's Alpha Green Procurement

Criteria	Number of Variables	Cronbach's Alpha
Green Procurement	5	.717
Green Manufacturing	5	.792
Green Distribution	5	.868
Effects on Performance	5	.909
Perceived Benefits	4	.872
<i>Overall Cronbach's Alpha</i>		.924

Green Procurement

Table 2. Summary of Regression Results

Green Procurement	Beta Coefficient	P-Value
GP1	-.044	.794
GP2	.608	.002*
GP3	-.061	.743
GP4	.156	.330
GP5	.355	.023*

Constant = .067
 Adjusted R Square = .434
 P Value = .000

Green Procurement Activity has a significant effect on performance, since the overall p-value of the model is .000. Therefore, the null

hypothesis that the Green Procurement Activity do not have a significant relationship with Performance is rejected since the overall p-value is less than 0.05. Based on the adjusted R-Square value of the model, the Green Procurement Activity can only explain performance by 39.3%. In addition, the Beta coefficient is .639 which explains that as the company Actively Practices Green Procurement, the company's performance will increase by 63.9%.

A multiple linear regression was calculated between the Green Procurement independent variables and Performance dependent variable to predict the performance of the company based on the Green Procurement practices. Looking at the p-value of the independent variables, only GP2 (.002) and GP5 (.023) have a significant effect on performance since their p-values less than 0.05. Whereas, the GP1 (.794), GP3 (.743), and GP4 (.330) of Green Procurement have p-values greater than 0.05 which means that these variables do not significantly affect the performance of the company. In addition, the Beta coefficient values of GP1(-.044) and GP3 (-.061) statement have an inverse effect on the dependent variable performance. While GP2 (.608) and GP5 (.355) have a direct effect on performance since their Beta coefficient values are positive. With this, as the company actively practices the second statement on Green Procurement "In selecting suppliers, we consider those who acquire ISO 14000" and the fifth statement "We send our orders via email", the company's performance increases by 60.8% and 35.5%, respectively. They can serve as a direct recommendation to the company since they are the most significant predictors of performance when it comes to Green Procurement activities.

Green Manufacturing

Table 3. Summary of Regression Results

Green Manufacturing	Beta Coefficient	P-Value
GM1	.160	.449
GM2	.032	.886
GM3	-.055	.812
GM4	.152	.398
GM5	.392	.129

Constant = .003
 Adjusted R Square = .164
 P-Value = .044

Green Manufacturing Activity has a significant effect on performance, since the overall p-value of the model is .001. Therefore, the null



hypothesis that the Green Manufacturing Activity do not have a significant relationship with Performance is rejected since the overall p-value is less than 0.05. Based on the adjusted R-Square value of the model, the Green Manufacturing Activity can only explain performance by 21.7%. In addition, the Beta coefficient is .486 which explains as the company actively practices Green Manufacturing the company's performance can increase by 48.6%.

Table 3 shows the summary of results of the Regression test for the Green Manufacturing Practices and Performance. Similarly, multiple linear regression was also calculated between the Green Manufacturing independent variables and Performance dependent variable to predict the performance of the company based on Green Manufacturing practices. Looking at the p-values of the independent variables, all statements from GM1 to GM5 have p-values greater than 0.05 which means that these variables individually do not have a significant effect to performance. Looking at the Beta coefficients of the independent variables, only GM3 (-.055) has an inverse effect on the dependent variable performance since its Beta coefficient value is negative, while the remaining variables GM1 (.160), GM2 (.032), GM4 (.152), and GM5 (.392), have a direct effect on performance given that the Beta coefficient value is positive. With this, it is recommended to do all the practices together rather than individually to have a significant effect on performance.

Green Distribution

Table 4. Summary of Regression Results

Green Distribution	Beta Coefficient	P-Value
GD1	.199	.432
GD2	.097	.671
GD3	.173	.599
GD4	.027	.908
GD5	.086	.681

Constant = .000
Adjusted R Square = .136
P-Value = .070

Green Distribution Activity has a significant effect on performance, since the overall p-value of the model is .001. Therefore, the null hypothesis that the Green Distribution Activity do not have a significant relationship with Performance is rejected since the

overall p-value is less than 0.05. Based on the adjusted R-Square value of the model, the Green Manufacturing Activity can only explain performance by 22%. In addition, the Beta coefficient is .489 which explains as the company actively practices Green Procurement, the company's performance can increase by 48.9%.

Table 4 presents the summary of results of the Regression test of the Green Distribution independent variable with Performance. Likewise, multiple linear regression is also calculated between the Green Distribution independent variables and Performance dependent variable to predict the performance of the company based on the Green Distribution practices. Looking at the p-values of the independent variables, all statements from GD1 to GD5 have p-values greater than .05 which means that the independent variables do not have a significant effect on the dependent variable performance. In addition, the Beta coefficients of all statements have a direct effect on performance since the value of the Beta coefficients are positive.

Green Supply Chain Activities

Green Supply Chain Management Activities have a significant effect on performance, since the overall p-value of the model is .000. Therefore, the null hypothesis that the Green SCM Activities do not have a significant relationship with Performance is rejected since the overall p-value is less than 0.05. Based on the adjusted R-Square value of the model, the Green SCM Activities can only explain performance by 35.5%. In addition, the Beta coefficient is .609 which explains as the company actively practices Green SCM Activities, the company's performance can increase by 60.9%.

Table 5. Summary of Regression Results

Independent Variables	Beta Coefficient	P-Value
MeanGP	.536	.002*
MeanGM	-.020	.920
MeanGD	.222	.205

Constant = .013
Adjusted R Square = .396
P-Value = .000

Table 5 presents the summary of results of the Regression test of all the Green SCM activities in all departments combined together with Performance. Multiple linear regression is calculated between the Green Supply Chain Management Activities independent variable and Performance dependent variable to predict the performance of the



company based on all the activities. Looking at the p-values of the independent variables, among the three, MeanGP is the most significant predictor of performance since its p-value is less than 0.05. This can serve as another direct recommendation to the company where they should focus on Green Procurement activities while performing also the Green Manufacturing and Green Distribution activities. Whereas, MeanGM and MeanGD have p-values greater than 0.05 which means that these variables do not significantly affect the dependent variable performance when they are performed with Green Procurement. In addition, the Beta coefficient of the Green Procurement (.536) and Green Distribution (.222) have a direct effect on the dependent variable. While the Green Manufacturing (-.020) has an inverse effect on the dependent variable since the Beta coefficient value of the variable is negative.

The results of the Regression Analysis of each Green SCM activities and Green SCM show that they have a positive significant relationship with the performance of the company.

4. CONCLUSIONS

The study measured the effects of Green SCM practices on performance when implemented by the Supply Chain division. In order to test the hypotheses, Single linear and multiple regression was conducted. Pearson correlation was also conducted to further understand the relationship existing between the Green SCM practices and the performance of the company. Existing literature suggests that Green SCM practices may either have a positive or negative relationship with performance. The results of the hypotheses testing show that the performance of the company greatly depends on the Green SCM practices. In this study, the researchers were able to prove that Green SCM activities have a significant relationship with the performance parameters.

Reviewing the specific research questions proposed by the researchers, as response to the first question, the researchers were able to find out that Company X were able to practice all of the Green SCM activities where 8 statements are being Actively Practiced by the Supply Chain Division of Company X, while the remaining 7 statements are Practiced.

Breaking down further the results of the study as was shown in Table 6.1, when it comes to the Green Procurement, 3 statements were Actively Practicing and the remaining 2 are Practicing. For the Green Manufacturing questions, 3 statements were Actively Practicing while the remaining 2 are Practicing. Lastly, on the Green Distribution section, 4 statements are Practicing while only 1 statement is Actively Practicing. Analyzing the result of the study, it is evident that the company is compliant in such a way where the Vice President of Supply Chain mentioned that one of the objectives of their company is to be able to achieved the objectives of ISO 14000 or the Environmental Management System where they prefer suppliers who are also ISO 14000 certified. With this, the company is able not only comply, but also promote ISO 14000 to other entities where they reach out to other external groups who are environmentally conscious as well. He also added that whenever they ask for pro-forma invoice and other necessary billing statements, they prefer having the soft copy sent to their email instead of having the hard copies in order to comply with one of their objectives which is to have paper-less transaction. With this, the company is moving towards adopting Green SCM which makes them environmentally conscious, considering the fact that not all employees are familiar with other specific Green SCM practices.

As response to the second and third specific research question, when it comes to suggesting other Green SCM practices, majority of the employees from the Supply Chain Division have wanted for Eco-Design where the materials and substances they will use are environmentally friendly which they can reuse or recycle that would lessen their costs. This practice could also be positively associated with the performance of the company. Aside from Eco-Design, the supply chain division could also explore on Investment Recovery and End-of-Life management once they have fully implemented Eco-Design. Implementing the mentioned Green SCM activities may be costly at first, but the return to the company would be much greater in terms of being more sustainable in terms of taking care the environment.

Finally for the last two specific research questions, the researchers were also able to find out that company believes that practicing Green SCM benefits not only their employees, but also the environment (reduces air emission, water waste, solid waste, decreases cost for energy consumption, waste treatment) and government that could



enhance their public relations. Therefore, the findings from this study could serve as a contribution to the existing literature of Green SCM that would help SMEs especially here in the country decide when it comes to greening their supply chain. Lastly, another main finding of this study is that Green SCM practice across all departments have a positive relationship with performance

As the environmental crisis is becoming alarming up to this day, more regulations are being enforced so that corporations can focus their direction towards taking care of the environment. Therefore it is essential for organizations to consider moving towards Green Supply Chain Management. It is not anymore a trend, rather a necessity for all types of organizations to take a step forward towards a greener society. Philippines, as a developing and emerging country should have the desire in discovering the advantages of implementing Green Supply Chain Management. With this, the environment initiatives have evolved in other countries and have extended across to all departments of businesses especially in supply chain. Implementing Green SCM best practices has the potential to provide financial benefits (increased revenue, reduced costs, and enhanced public relations that would benefit other entities), environmental benefits (such as reduced waste, increased energy efficiencies, reduced air and water emissions, and reduced fuel consumption); and social benefits (such as reduced community impacts, minimized traffic congestion through improved transportation management, and better health and safety). It can also enhance a company's brand and reputation.

Greening the Supply Chain of a company requires a long-term commitment especially for the top management. Implementing such practices across all departments is a multi-year program where it takes a significant amount of investment of resources. Going green for companies especially here in the country should not be anymore a slogan, rather it should be considered as an integral part of their business strategies.

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6. REFERENCES

- Boiral, O. (2007). Corporate Greening Through ISO 14001: A Rational Myth? *Organization Science*, 18 (1), 127-146.
- Bowersox, D.J. and Closs, D.J. (1996). *Logistical Management: The Integrated Supply Chain Process*. New York: McGraw-Hill.
- Bowersox, D.J., Closs, D.J., and Cooper, M.B. (2002). *Supply Chain Logistics Management*. New York, NY: The McGraw-Hill Companies, Inc.
- Chaudhary, T., & Chhabra, D. (2015). Performance Improvement in Indian Manufacturing Industries after Implementing Green Supply Chain Management. *Global Journal of Enterprise Information System*, 7(2), 3-10.
- Chin, T. A., Tat, H. H., & Sulaiman, Z. (2015). Green Supply Chain Management, Environmental Collaboration and Sustainability Performance. *Procedia CIRP*, 26, 695-699. doi: 10.1016/j.procir.2014.07.035
- Christopher, M. (1992). *Logistics and Supply Chain Management*. Essex, England: Pearson Education Limited.
- Clemens, B., Douglas, T. (2006), Does Coercion Drive Firms to Adopt 'Voluntary' Green Initiatives? Relationships Among Coercion, Superior Firm Resources, and Voluntary Green Initiatives. *Journal of Business Research*, 59(4), 483-491.
- Dornfeld, D. A. (2010). *Green Manufacturing: Fundamentals and Applications*. New York: Springer. Retrieved February 9, 2017, from https://books.google.com.ph/books?id=XRqHv aKTXZYC&pg=PA225&dq=endof13lifeofpackaging&hl=en&sa=X&redir_esc=y#v=onepage&q=end%20of%20life%20of%20packaging&f=false.
- Geng, R., Mansouri, S. A., & Aktas, E. (2016). The Relationship Between Green Supply Chain Management and Performance: A Meta-analysis of Empirical Evidences in Asian Emerging Economies. *International Journal*



- of Production Economics, 183, 245-258. doi:10.1016/j.ijpe.2016.10.008
- Ghobakhloo, M., Tang, S., Zulkifli, N., & Ariffin, M. (2013). An Integrated Framework of Green Supply Chain Management Implementation. *International Journal of Innovation, Management and Technology*, 4(1), 86-89. doi:10.7763/IJIMT. 2013.V4.364
- Green Jr, K.W., Zelbst, P.J., Meacham, J., & Bhadauria, V.S. (2012). Green Supply Chain Management Practices: Impact on Performance. *Supply Chain Management: An International Journal* 2012; 17/3: 290-305.
- Hart, S. L. (1995). A Natural-Resource-Based View of the RM. *Academy of Management Review*, 20(4), 986-1014.
- Hossein N., Meghad Abbasian F., & Azmawani Abd R. (2016). An Evaluation of Government Role in Green Supply Chain Management through Theories. *International Journal of Economics and Financial Issues*, 2016, 6(S6) 76-79.
- Jabbour, A., Frascareli, F., & Jabbour, C. (2015). Green Supply Chain Management and Firms' Performance: Understanding Potential Relationships and the Role of Green Sourcing and Some Other Green Practices. *Elsevier*, 366- 374.132
- Javaid, M., & Shoeb, M. (2015). Benefits on Implementation of Green Supply Chain Management in Manufacturing Industries *International Journal of Advanced Technology in Engineering and Science*, 3(6), 128-132.
- Khairani, N., Rajamanoharan, I., & Thirumanickam, N. (2012). Green Supply Chain Management Practices: Evidence from Malaysia. *Malaysian Accounting Review*, 11(2), 121-136.
- Klassen R D and Johnson P F (2004), "The Green Supply Chain," in S New and R Westbrook (Eds.), *Understanding Supply Chains: Concepts, Critiques and Futures*, Oxford University Press, New York.
- Kumar, S., Teichman, S., & Timpernagel, T. (2012). A Green Supply Chain is a Requirement for Profitability. *International Journal of Production Research*, 50(5), 1278-1296. doi:10.1080/00207543.2011.571924
- Laari, S., Toyli, J., Solakivi, T., & Ojala, L. (2016). Firm Performance and Customerdriven Green Supply Chain Management. *Journal of Cleaner Production*. v. 112, p. 1960-170. Retrieved from <http://dx.doi.org/10.1016/j.jclepro.2015.06.150>
- Lai, K. H., Cheng, T. C. E., & Tang, A. K. Y. (2010). Green Retailing: Factors for Success. *California Management Review*, v. 29, n.1, p.65-83.
- Lai, K.H., & Wong, C.W.Y. (2012). Green Logistics Management and Performance: Some Empirical Evidence from Chinese Manufacturing Exporters. *Omega Journal*,267-282. Retrieved February 2, 2017 from doi:10.1016/j.omega.2011.07.002 133
- Lee, S.M., Kim, S.T., & Choi, D. (2012). Green Supply Chain Management and Organizational Performance. *Industrial Management & Data Systems* 2012;112(8): 1148-1180.
- Lintukangas, K., Hallikas, J., & Kähkönen, A. (2015). The Role of Green Supply Management in the Development of Sustainable Supply Chain. *Corporate Social Responsibility & Environmental Management*, 22(6), 321-333. doi:10.1002/csr.1348
- Mahmood, W., Rahman, M., Deros, B., Jusoff, K., Saptari, A., & Ebrahim, Z. (2013). Manufacturing Performance in Green Supply Chain Management. *World Applied Sciences Journal*, (21), 76-84. doi: 10.5829/idosi.wasj.2013.21.1010
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Smith, C. D., & Zacharia, Z. G. (2001).



- Defining Supply Chain Management. *Journal of Business Logistics*, 22(2), 1-25.
- Mitra, S., & Datta, P. P. (2013). Adoption of Green Supply Chain Management Practices and their Impact on Performance: An Exploratory Study of Indian Manufacturing Firms. *International Journal of Production Research*, 52(7), 2085-2107. doi:10.1080/00207543.2013.849014
- Ninlawan, C., Seksan, P., Tossapol, K., & Pilada, W. (2010). The Implementation of Green Supply Chain Management Practices in Electronics Industry. *Proceedings of the International MultiConference of Engineers and Computer Scientists*; March 17-19: Hong Kong.134
- Ortolani, C. (2008). Parametric Modelling of Freight Networks: Operational and Environmental Costs. Retrieved from <http://paduaresearch.cab.unipd.it/3309/1/TesiChiaraOrtolani.pdf>
- Özlen, M. K., & Omerhodžić, N. (2013). Green Supply Chain Management: A New Movement Towards Healthier Environment. *European Researcher*, 55(7-2), 1919-1928. doi:10.13187/er.2013.55.1919
- Rao, P.H. (2008). *Greening the Supply Chain: A Guide for Asian managers*. New Delhi: SAGE Publications.
- Rola, R., & Junare, S. O., & Dave, T. N. (2013). A Study on Drivers for Green Supply Chain Management (GSCM) In Chemical Industries: With Reference to Gujarat Region. *Clear International Journal of Research in Commerce & Management*, 4(4), 7-12.
- Seman, N. A., Zakuan, N., Jusoh, A., & Arif, M. (2012). Green Supply Chain Management: A Review and Research Direction. *International Journal of Managing Value and Supply Chains*, 3(1), 1-18. doi:10.5121/ijmvsc.2012.3101
- Simpson, D.F., & Power, D.J. (2005). Use Supply Relationship to Develop Lean and Green suppliers. *Supply Chain Management: An International Journal* 10(1): 60-68.
- Srivastava, S.K. (2007). Green Supply Chain Management: A State of the Art Literature Review. *International Journal of Management Reviews*, Vol.9 No. 1, pp. 53-80.135
- Thoo, A.C., Abdul Hamid, A.B., Rasli, A., & Zhang, D. (2014). The Moderating Effect of Enviropreneurship on Green Supply Chain Management Practices and Sustainability Performance. *Advanced Materials Research, Sustainable Development of Industry and Economy*; 869-870.
- Uchida T, Ferraro PJ. (2007). Voluntary Development of Environmental Management Systems: Motivations and Regulatory Implication. *Journal of Regulatory Economics*; 32(1): 37-65.
- Vachon, S., & Klassen, R. (2006). Extending Green Practices Across the Supply Chain. *International Journal of Operations and Production Management* 26(7): 795-821.
- Varsei, M. (2016). Sustainable Supply Chain Management: A Brief Literature Review. *Journal of Developing Areas*, 50411-419.
- Vijayvargy, L., & Agarwal, G. (2014). Empirical Investigation of Green Supply Chain Management Practices and Their Impact on Organizational Performance. *IUP Journal of Supply Chain Management*, 11(4), 25-42.
- Wong, C. W., Lai, K., Shang, K., Lu, C., & Leung, T. (2012). Green Operations and The Moderating Role of Environmental Management Capability of Suppliers on Manufacturing Firm Performance. *International Journal of Production Economics*, 140(1), 283-294. doi: 10.1016/j.ijpe.2011.08.031
- Yang, C.L., Lin, S.P, Chan, Y.H, & Sheu, C. (2010). Mediated Effect of Environmental Management on Manufacturing Competitiveness: An Empirical Study.



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International Journal of Production
Economics, 123 (1), 210–220.136

Zhu Q., & Sarkis, J. (2004). Relationships Between
Operational Practices and Performance
Among Early Adopters of Green Supply
Chain Management Practices in Chinese
Manufacturing Enterprises. *Journal of
Operations Management*, Vol. 22, No. 3, pp.
265- 89.

Zhu, Q., & Sarkis, J. (2006). An Inter-sectoral
Comparison of Green Supply Chain
Management in China: Drivers and
practices. *Journal of Cleaner Production*
14(5): 472–486.

Zhu, Q., & Sarkis, J. (2010). The Moderating Effect of
Institutional Pressures on Emergent Green
Supply Chain Practices and Performance.
*International Journal of Production
Research*. Vol. 45, Nos. 18-19, pp. 4333-4355.

Zhu Q., Sarkis J., & Geng Y. (2005). Green Supply
Chain Management in China: Pressures,
Practices and Performance. *International
Journal of Operations & Production
Management* 2005; 25(5): 449-468.

Zhu, Q., Sarkis, J., & Lai, K. (2012). Examining the
effects of green supply chain management
practices and their mediations on
performance improvements. *International
Journal Of Production Research*, 50(5),
13771394.doi:10.1080/00207543.2011.57193
7

Zhu, Q., Sarkis, J., & Lai, K. (2007). Initiatives and
Outcomes of Green Supply Chain Management
Implementation by Chinese Manufacturers. *Journal
of Environmental Management* 85(1): 179–189.