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Measuring Sustainability of The Malaysian Halal Warehouses Using Analytic Hierarchy Process Technique

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Abstract

Limitation of resources, global warming, and greenhouse gases (GHGs) have been the main concern all over the world. Due to that, sustainable business practices has been called to be one of the major turning mechanism to the betterment of the world ecology. Halal concept has increasingly attracting firms widely and leads to the emergence of halal logistics. The purpose of the study is to measure and rank the three components sustainability dimensions, namely economic, environmental and social in aspect of halal warehousing. Two case studies from halal certified warehouses were selected to obtain qualitative data. The data was analyzed using the Analytic Hierarchy Process Technique (AHP). Findings shows that in economic perspectives, cost is the most important indicator with 72%, in the environment perspectives, emission & waste with 65% is highest and lastly for social perspectives, halal assurance is the highest with 75% This study fills in the gap through the development of sustainable performance measurement tool that can be used to measure the sustainability of halal logistics companies. It highlights the importance of measuring the sustainability weightage among the halal logistics certified companies.

Keywords: halal logistics, analytic hierarchy process, sustainability, warehousing, halal warehouse

Introduction

The concept of *halal* has increasingly attracting business widely. From a business perspective, it has been considered as a business strategy that would bring market expansion (Nik Muhammad et al, 2009; Zakaria, 2008). In a religious standpoint, the demand is created based on the religious belief that Muslims should consume only *halal* products. The existing literature shows that the expansion of *halal* concept for a product has now expanded to include the movement of the *halal*

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products along the supply chain (Omar and Jaafar, 2011; Bahruddin et al, 2011, Omar et al, 2013; Jaafar et al, 2011). This is because the process of producing *halal* products does not only encompasses the production processes, but also involves all activities throughout the supply chain including the source of supply, handling, storage, warehousing, manufacturing and transportation activities. Throughout these supply chain activities, various circumstances could expose the *halal* product into risks of contamination with *haram* and hazardous products that would affect the status of *halal* product.

On the other hand, growing concerns on the limitation of resources, global warming, and greenhouse gases (GHGs) as well as consumer health have increased the urgency for firms to incorporate sustainability into their company strategies (Dey et al, 2011; Lee, 2010). Concentrating on supply chain approach would allow broader adoption and development of sustainability, since the supply chain encompasses products from sourcing and processing of raw materials to delivery of products to the final consumers (Seuring and Muller, 2008; Linton et al, 2007). For most companies, logistics costs are substantial. Similarly, the impact of logistics to the environment is also significant. I It can produce up to 75 percent of a company's carbon footprint (The Council of Supply Chain Management Professional, 2008). In the context of halal market, it has been valued US$2.3 trillion in 2015 and it is forecasted to be US$6.4 trillion by 2030. Since logistics is a derived demand and there is an increasing demand of halal products , the emergence of halal logistics is obvious. However, the increasing number of halal certified companies are being framed as not sustainable due to the fact that the halal products are not subjected to a prescribed disposal and recycling procedure. Companies may dispose the contaminated products easily.

Sustainability in Supply Chain Management and Logistics

The term sustainability has always been referred as an integration of 3 (three)main components which are social, environmental and economic responsibilities in business disciplines (Figure 1). It has also increasingly appeared as the key topic

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in supply chain management especially in discussing its function in reducing the cost of operation, reducing waste, using more from less and efficiency-oriented planning. As every resource on earth has its limitation, it is without doubt one of the most important challenges of our time and the immediate future to meet the present needs without compromising the ability of future generations to meet their own needs. Many organizations are beginning rapidly to adopt sustainable business practice to lower the cost of business operation and to pursue in 'greening' their business so that the resources for the future will last longer and concurrently meeting the calls of the governments, non-governmental organizations and public pressures to promote efficient use of resources. Optimization of operations has moved from a specific element of supply chain to the entire supply chain and making products to the greatest value and at the lowest possible cost during the last two decades (Moir and Carter, 2012).

Following these developments, the importance of monitoring and steering the process of sustainable development has also grown over the last two decades (Jaafar et al, 2011; Ab Talib et al, 2014; Tiemen, M. (2012). It is because the establishment of performance measurement also promotes innovation, improving work processes, increasing efficiency and at the same time protecting the environment. However, the sustainability assessments are still vary in terms of focus and comprehensiveness. It is claimed that supply chain performance measurement is vital to measure the efficiency of a supply chain management (Balfaqih et al, 2016). Cost/ finance has been the most popular assessment criterion followed by customer, internal processes, innovativeness, flexibility, reliability, time, responsiveness, quality, asset management, efficiency, resource, output and information (Balfaqih et al, 2016). Dey et al (2011) highlighted there are numerous areas where sustainability can be implemented throughout the firm's logistics operations. Several authors agree that for firms to implement a sustainable strategy in their supply chain operations; the logistics functions need to play a prominent role (Mollenkopf et al, 2010; Goldsby and Stank, 2000). This is because logistics operation represents the integrated management of all activities

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required to move products through the supply chain and may exploit huge potential for the achievement of sustainability practice. Conclusively, the purpose of performance measurement is to provide indication on various ways to reduce cost, improve time management and shorten activity process as well as improve the work quality of their employees. This paper focuses on the sustainability (economic, environment and social) indicators for halal warehousing.

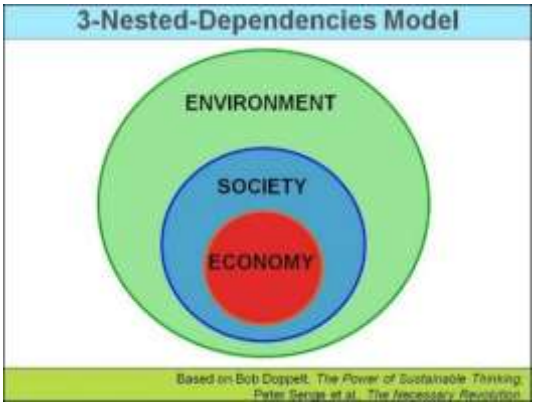

Figure 1: Sustainability Model 3- nested dependencies model

Halal logistics

Halal in an Arabic term, *Al-Halal* (The Lawful), which means 'permitted, with respect to which no restriction exists, and the doing of which the Law-Giver, Allah swt has allowed'. On the other hand, *Haram* or *Al-Haram* (The Prohibited) refers to that the 'Law-Giver has absolutely prohibited. Anyone who commits is liable to incur the punishment in the Hereafter as well as a legal punishment in this world'. Between *halal* and *haram* is *Al-Makruh* (The detestable) denotes 'the disapproved by the Law-Giver but not very strongly'. In the *halal* industry, the handling of food along the logistics and supply chain process is deemed crucial (Al-Qaradawi, 2001) because the *halalan tayyiban* food production will be meaningless if the *halal* and cleanliness of the food is not taken care throughout the process of delivery from the source of supply to the final consumers. Therefore, the status of a *halalan tayyiban* product could be achieved when all possible contamination caused by *haram* and hazardous products could be avoided throughout its supply

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chain process. Therefore, halal process could be viewed from a supply chain perspective because halal product could only be obtained when the entire activities throughout the supply chain process is dedicated or segregated from the haram and hazardous products (Jaafar et al, 2017).

Sustainability in the Halal Logistics Industry

To ensure the implementation of halal, standards have been developed as guidelines for halal certification. It is important to ensure that the industry meets certain standards that have been established by the government. In Malaysia, for example, 14 standards related to halal have been developed including standards related to halal logistics. Halal logistics standard comprises three parts, namely halal transportation, halal warehousing and related activities and halal retailing. Companies, who would like to apply for halal certification, may apply the three standards separately. Halal certified companies need to have comprehensive and robust halal assurance management system because halal products could easily get contaminate if companies do not follow the procedure and system that they have developed. Any occurrence of contamination would mean that the product cannot be consumed. With the absence of disposal and recycling procedure, all of these products can be considered as waste.

In this study, halal logistics certified companies have been selected as sample. In this study, although the data collected for this study were both from halal transport and halal warehouse, however, this paper only reported the analysis of halal warehouses overall perspective on its sustainable performances.

Methodology

AHP is an easy and flexible multi-criteria decision-making technique that combines subjective managerial inputs and objective factors in multiple criteria decision-making, although it is often utilized in survey-based research activities. Selecting the key performance indicators (KPIs) and ranking metrics in supply

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chain is a key to success (Gunasekaran and Kobu, 2007) and AHP can be a good tool to choose and prioritize metrics.

The number of respondents may range from few experts to hundreds of respondents. AHP is viable when element of criteria and alternatives are available. The elements may differ in accordance to the researchers who are doing the research, in which they may add or remove certain elements depending on the situations. The values range from 1 to 10 or x to x situations. For example, 5 to 5, 9 to 9 of as price, weight etc. It can even be put on different range for each factor if it is required. Value that is higher is considered as preferable values, which means the respondents would prefer the products that show higher values. In short, it is a method to derive ratio scales from paired comparisons. AHP allows some small inconsistency in judgment due to human errors.

One of the AHP methods is called Cross Tabulation. It is described as putting all factors/criteria/alternatives in a cross table of multi criteria decision making. Then the table will be filled up with values obtained from the survey. Then, the sum (or normalized sum) of factors for each alternative will be computed. Weighted Criteria is an extension of the AHP, in which it is used when factors have different importance weight.

AHP is a technique that helps managers to understand the tradeoffs between sustainability aspects and allows the active participation of decision-makers in making rational decisions and reaching agreements (Schaltegger and Burritt, 2014). Dey and Cheffi (2013) developed an innovative green supply chain performance measurement framework by integrating supply chain processes with organizational decision levels employing AHP. Singh et al, (2007), for example propose a conceptual performance measurement using AHP.

Table 1: Example of cross-tabulation of AHP (Teknomo, 2006)

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Criteria | Alternatives	Choice X	Choice Y	Choice Z	Range
Factor A	1	4	5	0-5
Factor B	20	70	50	1-100
Factor C	-2	0	1	-2 to +2
Factor D	0.4	0.75	0.4	0 to 1
Sum	19.4	74.75	56.4	
Normalized Score	12.9%	49.7%	37.5%	

Review of literature was conducted to identify the facts and issues underpinning this research as well as identifying the requirements needed to produce a good and reliable survey instrument that suits the AHP approach. The direction of the literature was in line with Carters & Rogers (2008), Carter & Easton (2011) and John & Narayanamurthy (2015), which was within the sustainable supply chain management context. The survey instrument passed through three (3) revisions before it was finally sent out for pilot test to ensure that the survey instrument was relevant to the halal logistics industry. Pilot test was conducted on several participants (10 representatives from 10 different companies) in a Halal Food Fair event in Kuala Lumpur. This step is critical due to the lack of questions developed specifically for the halal logistics industry. The results from the pilot test showed that most respondents do not have problems in understanding the questions. Minor amendments were made particularly on the removal of redundant questions as well as additional of some substantial questions. The final questionnaire was submitted to an academic expert for content validity.

Upon the completion of the survey instrument, the second phase of the research was collecting the main data. Those who are knowledgeable in halal logistics from halal certified logistics companies were selected as respondents. In this study, two halal certified logistics companies, which were named as Company S and Company C, were selected since they have fulfilled the requirements for this study. Finally, for the main data, interviews were conducted with six representatives from two halal certified transportation and warehouse companies. Respondents were from managerial and executive level from Operations Department. Observations were also conducted through site visits at both

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companies to ensure consistency of the data given and conduct further observations to obtain more information. The main data was then transcribed for the third stage of the research, using AHP.

Discussion and Result

Table 2 shows the overall importance of halal implemented warehouse as according to the three dimensions of sustainability, namely economic, environment and social. The consistency weightage for the three dimensions were also below 10%, which is in line with Saaty (2012). Overall, the results for halal warehousing shows that, 60.80% is economics, the second one with social with 26.40% and lastly environment with 12.75%.This shows that economics would be the main dimension need to be taken care in order for a halal warehouse to be able to sustain its businesses. Table 3 shows the indicators of each dimensions and its priority.

Table 2: Overall Warehouse AHP data (dimension)

Dimension	Consistency	Priority	%
Economics	7%	0.608	**60.80%**
Environment		0.128	12.75%
Social		0.264	26.40%

Table 3: Overall Warehouse AHP data (indicator)

Dimension	Consistency	Indicators	Priority	%
Economics	10%	Cost	0.724	**72.40**%
		Timeliness	0.083	8.30%
		Quality	0.193	19.30%
Environment	7%	Renewable energy usage	0.211	21.10%
		Energy consumption	0.133	13.30%
		Emission & waste	0.655	**65.50**%
Social	3%	Customer Satisfaction	0.125	12.50%
		Employee Satisfaction	0.125	12.50%
		Halal Assurance	0.750	**75.00**%

Social

It is expected that in the *halal* implemented warehouse, ***halal* assurance** has been given the highest weightage by the respondents and therefore became the most important indicator i.e. 75% as compared to customer satisfaction (12.5%) and

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employee satisfaction (12.5%). This is because; the results indicated that the establishment of *halal* management assurance system has been the core requirement to be certified *halal* by the authority. The public awareness on the food *halal* requirements has also contributed to its ranking. Thus, in order to be socially sustainable, as per Sen (2000), quality of life and business activities are integrated seamlessly without compromising one another, companies need to develop and comply with the *halal* assurance management system. Company C representatives added that … *"warehouse is our main business so we need to really focus on delivering the best halal and shariah compliance to the customer and consumer, because in Islamic teaching, doing good deeds to the public will benefit us here and thereafter."* This is also indirectly supported by company C representative by saying ... *"since our implementation of halal warehouse in our company, business is coming along very well and we have gotten several contracts from middle east country who prefer to deal with halal certified logistics company."* In line with the core of halal practice and certification, halal assurance has been the most important criteria to be met in order to get certified. In fact, the halal certified companies should develop and maintain a halal assurance management system to ensure the sustainability of the halal business. The fact that halal assurance management system, which has become the key element in running a halal business, justified the reasons why social has been position as the highest priority in this study. As recently, the society are becoming more aware of the need to ensure that they have to consume halal products that have gone through the entire supply chain of halal compliance process, the justifications to put more weightage on the social aspects would be enhanced

Economics

In terms of economics of *halal* implemented warehousing, the highest indicator was **cost,** i.e. 72.4% as compared to timeliness and quality. This means that in ensuring *halal* warehouse to be economically sustainable, the costs of running *halal* warehouse need to be minimized and halal implemented warehouse

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operators need to make sure that *halal* certified warehouse is fully utilized and minimize cost to space ratio. To a certain extent, one of the factors that lead to higher cost in implementing halal warehouse was due to needs to be a dedicated warehouse. In certain circumstances, some of the *halal* products that need special handling may drive to higher costs. The results showed that *halal* warehouse sometimes did not fully utilize as compared to a conventional warehouse. As stated by a representative from Company S… *"The demand for halal warehouse is normally seasonal, thus the cost of maintaining a halal warehouse is more expensive as compared to a conventional warehouse"* This statement is also supported by company C by saying that… *"cost of running a cold chain logistics is higher compared to conventional warehouses, and you added halal management system onto it, surely the cost is high but we forecast the business coming in will certainly be able to help us cover overall operating cost."* As an overall view on halal economic sustainability, company should do a comprehensive study on which part of the operation can be made to be more efficient to reduce cost and control the cost of halal implementation so that even "management" waste can be reduce.

Environment

Among the three indicators of environment, the results demonstrated that **emission and waste** was the most important indicator i.e. 65.5%, as compared to renewable energy usage and energy consumption. It was indicated from this study that in order to be environmentally sustainable, *halal* implemented warehouse should reduce more waste from contaminated *halal* products through a better handling procedure. For example, in *halal* implemented warehouse, *halal* goods may sometimes be tagged wrongly and these *halal* products may be mixed together with non-*halal* products. As one of the representatives from company S said that … *"sometimes alcohol and non-alcoholic product get mixed together due to wrong tagging. And then, the alcoholic drinks may sometimes leak onto other cans of halal products when it got damaged. Thus, it becomes waste and has to be*

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disposed." Thus, several trainings could be conducted to the workers to ensure better understandings on how to improve the handlings of *halal* products so that better quality handling could be achieved.

Conclusion

This study produced several significant results. From the overall study, **cost, emission & waste and *halal* assurance** were the three main indicators that were emphasized by the respondents in assuring *halal* certified warehouse to be sustainable in their practice. The results demonstrated that the emphasis on the economic components of the *halal* certified warehouse should stressed more on reducing or control the costs. If we refer to the nature of activities, warehousing activities were more on the exposure. Contamination for *halal* goods in warehousing activities are lower because it focuses more on storage rather than much movement of the goods. This is in line with any warehousing activity purposes, i.e. to minimize its costs.

However, the weight given to the social and environmental components of *halal* certified warehousing companies need to have a good waste management system and waste reducing measures. This is due to the fact that *halal* goods can get easily contaminated if they are not carefully handled as underlined by the *halal* assurance management and standard guidelines. The contaminated goods will then become waste leading to environmental issues, which was claimed by some other industry practitioners and researchers. Not only the physical handling; values such as integrity should also be inculcated among all workers involved throughout the handling of *halal* goods in warehousing activities. This is the point where customers' trust is gained and the *halal* businesses would be well protected and respected.

The results reported in this paper is a part of an ongoing study on identifying the sustainability performance of *halal* logistics certified companies. The ranking of three significant pillars namely economic, environment and social were examined to identify its importance weightage in *halal* warehousing by using

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AHP method. Consequently, this paper focused on nine main indicators to measure the sustainability, which were quality, timeliness and cost for economic perspective; and renewable energy usage, energy consumption as well as emission & waste for environment perspective. *Halal* assurance, customer and employee satisfaction were measured for social perspective. It has been indicated from the overall results that the most important component in measuring sustainability of *halal* logistics was economics component, in which the indicators were cost, quality and timeliness. The results indicated that even in the *halal* implemented logistics business, the emphasis was still on the basic performance measures of a general logistics services.

This study highlights the importance of measuring the weightage of the sustainability components in *halal* implemented logistics services to respond to some claims that halal logistics certified companies were not sustainable. The results from this study seemed to be in line with the claims. Therefore, more awareness should be created among the *halal* logistics companies so that sustainability measures could be implemented as soon as possible. This study is among the few studies that measure the extent of sustainability practice among the *halal* certified companies by using AHP method.

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References

Al-Qaradawi, Y. (2001), *The Lawful and Prohibited in Islam*, Al Falah Foundation for Translation, Publication and Distribution, Cairo, Eqypt.

Bahruddin, S.S.M., Ilyas, M.I. and Desa, M.I., (2011) Tracking and Tracing Technology for Halal Product Integrity over the Supply Chain, IEEE, Egypt.

Balfaqih, H., Nopiah, Z. M., Saibani, N., & Al-Nory, M. T. (2016). Review of

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/atlr

Supply Chain Performance Measurement Systems: 1998–2015. *Computers in Industry*, 82, 135–150.

Carter,R.C. and Easton, P.L. (2011), Sustainable Supply Chain Management: Evolution and Future Directions, *International Journal of Physical Distribution and Logistics Management*, Vol.41, No.1, pp. 46-62.

Dey, Asoke, LaGuardia, P. and Srinivasan, M., (2011), Building Sustainability in Logistics Operations: A Research Agenda, *Management Research Review*, Vol.34 No.11, pp. 1237-1259.

Dey, P.K. and Cheffi, W. (2013), Green Supply Chain Performance Measurement using the Analytic Hisrarchy Process: A Comparative Analysis of Manufacturing Organisations, *Productivity Planning Contro*l, Vol 24, pp. 702-720.

Elkington, J. (1997), *Cannibals with Forks: The Triple Bottom Line of 21st Century* Business, Capstone, Oxford.

Goldsby, T.J. and Stank, T.P., (2000), World Class Logistics Performance and Environmentally Responsible Logistics Practices, *Journal of Business Logistics*, Vol.21 No.2, pp. 187-208.

Gunasekaran, A. and Kobu, B. (2007), Performance Measures and Metrics in Logistics and Supply Chain Management: A Rewvie and Recent Literature (1995-2004) for Research and Applications, *International Journal of Production Research*, Vol. 45, pp. 2819-2840.

Jaafar, H. S., Rohani Endut, I., Faisol, N., & Normalina Omar, E. (2011), Innovation In Logistics Services – Halal Logistics, *International Symposium of Logistics (ISL)*, Berlin, Germany.

Jaafar, H.S. and Faisol, N., Abd Rahman, F. and Muhammad, A., (2017), Halal Logistics vs Halal Supply Chain: A Preliminary Insight, in Ab Manan, S.K., Abd Rahman, F., Sahri, M., (Eds.), *Contemporary Issues and Development in the Global Halal Industry*, Springer, Singapore, pp.579-588.

John,L. and Narayanamurthy,G. (2015), Converging Sustainability Definitions: Industry Independent Dimensions, *World Journal of Science, Technology and Sustainability Development*, Vol.12, No.3, pp. 206-232.

Lee, H.L. (2010), Don't tweak your supply chain – rethink it end to end, *Harvard Business Review*, Vol.88 No. 10, pp. 62-69.

Linton, J.D., Klassen, R.B. and Jayaraman, V. (2007), Sustainable Supply Chain:

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/atlr

An Introduction, *Journal of Operations Management*, Vol.25 No.6, pp. 1075-82.

Moir, S., & Carter, K. (2012). Diagrammatic Representations of Sustainability ± a Review and Synthesis, 3–5. Retrieved From Http://Www.Arcom.Ac.Uk/-Docs/Proceedings/Ar2012-1479-1489_Moir_Carter.Pdf

Mollenkopf, D.,; Stolze, H., Tate, W.L. and Ueltschy, M., (2010), Green, Lean and Global Supply Chains, *International Journal of Physical Distribution and Logistics management*, Vol.40 No ½, pp. 14-41.

Ngah, A. H., Zainuddin, Y., & Thurasamy, R. (2014). Adoption of Halal Supply Chain among Malaysian Halal Manufacturers: An Exploratory Study. *Procedia - Social and Behavioral Sciences*, 129, 388–395. Https://Doi.Org/10.1016/J.Sbspro.2014.03.692

Nik Muhammad, N.M., Md Isa, F. and Kifli, B.C. (2009), Positioning Malaysia as Halal Hub: Integration of Supply Chain Strategy and Halal Assurance System, *Asian Social Science Journal*, 5(7), 44-52.

Omar, E.N. and Jaafar, H.S., (2011), Halal Supply Chain in the Food Industry – A Conceptual Model, *Business, Engineering and Industrial Applications (ISBEIA),* IEEE Symposium.

Omar, E.N., Jaafar, H.S., Osman, M.R. and Faisol, N., (2013), Halalan Tayyiban Supply Chain: The New Insights in Sustainable Supply Chain Management, *5th International Conference in Logistics and Transport*, University of Marketing and Distribution, Kyoto, Japan.

Qorri, A., Mujkic, Z. and Kraslawski, A. (2018), A Conceptual Framework for Measuring Sustainability Performance of Supply Chains, *Journal of Cleaner Production*, Vol.189, pp. 570-584.

Schaltegger, S. and Burritt, R. (2014), Measuring and Managing Sustainability Performance of Supply Chains: Review and Sustainability Supply Chain Management Framework, *International Journal of Production Development*, Vol. 20, pp. 221

Sen, A.K. (2000) 'The ends and means of sustainability', keynote address at the International Conference on Transition to sustainability, Tokyo, May

Seuring, S. and Muller, M. (2008), From a Literature Review to a Conceptual Framework for Sustainable Supply Chain Management, *Journal of Cleaner Production*, Vol. 16 No,.15, pp. 1699-1710.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/atlr

Seuring, S. and Muller,M. (2008) From a Literature Review to Conceptual Framework for Sustainable Supply Chain Management, *Journal of Cleaner Production*, Vol.16 No.15, pp.1699-1710.

Shahariri, M.Z. and Alinor, A.K. (2013), The Need for a New Definition of Sustainability, *Journal of Indonesian Economy and Business*, Vol.28, No. 2, pp. 257-274.

Singh, R.K., Murty,H.R., Gupta,S.K., Dikshit, A.K. (2007), Development of Composite Sustainability Performance Index for Steel Industry, *Ecology Indicator*, Vol.7, pp. 565-588.

Sloan, T.W. (2010), Measuring the Sustainability of Global Supply Chains: Current Practices and Future Directions, *Journal of Global Business Management*, Vol.6, pp. 92-107.

Syazwan Ab Talib, M., Bakar Abdul Hamid, A., Hafiz Zulfakar, M., & Jeeva, A. S. (2014). Halal logistics PEST Analysis: The Malaysia perspectives. *Asian Social Science*, 10(14), 119–131. https://doi.org/10.5539/ass.v10n14p119

Teknomo, Kardi. (2006) Analytic Hierarchy Process (AHP) Tutorial. http://people.revoledu.com/kardi/tutorial/AHP/ retrieved by: Sep 2017

Tieman, M. (2012). Principles in halal supply chain management. *Journal of Islamic Marketing*, 3(3), 217–243.

Zakaria, Z., (2008), Tapping into the World Halal Market: Some Discussions on Malaysia Laws and Standards, *Shari'ah Journal*, Vol. 16, Special Edition, 603-616