Social and Economic Concern of Supply Chain Sustainability (SCS)

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Abstract. Sustainability issues will provide impact on the environment, social and economy. The importance of these three aspects of sustainability must be look at in tandem. Some issues of these three pillars getting more attention by companies since they are more interested to identify issues that may affect performances related to their people or profit. Through CSRs report released by various international companies, this paper identified the value which companies place for social and economic sustainability. Result shows that human right and, occupational and safety have highest concern by companies while Product Utilities is less concern from other social issues. From an economic aspect, sales and net profit are the most influencing factors of sustainability while the raw material cost is shown as of the least concern. Based on the results, companies should consider the issues on social and economic aspects following these priorities.

1. Introduction

In 2004, around 68 percent from 250 global firms generated separate annual report for sustainability in which 80 percent of these report discussed about supply chain-related issues [1]. Since then, there is a pressing need to improve the supply chain activities for most industries by taking into account the sustainability of supply chain including environment, social and economic aspects. These three aspects of sustainability will have implication on the main performance of the companies, in order to adapt as sustainable organization [2]. Through systematic process of supply chain, the sustainability issue effectively can be improved especially in the social and economic aspects.

Industries nowadays are giving a lot of attention on the supply chain activities which provide maximum performances on the profit, time taken and the quality of the product or services. The challenge has moved from “whether” to “how” to integrate corporate social, environmental, and economic impacts—corporate sustainability—into day-to-day management decisions when managers at all levels have significant incentive pressures to increase short-term earnings [3]. Most established companies have matured on activities on supply chain but are thinking further in order to increase impact of sustainability. By looking at pattern of current industries which have major concerns on environmental issue of sustainability, two pillars of sustainability are identified that can provide impact on the performances concurrently.

To create a truly sustainable organization, all three aspects of sustainability must be practically integrated [3], [4], [5]. Therefore, issues related on the social and economic pillars should get serious concern by companies beside environmental issue. Thus, planning on those pillars by identifying...
issues on following priorities throughout supply chain flow are important to improve the company’s capability.

Corporate Sustainability Report (CSR) is documents provided by companies annually, that can be referred for current social and economic issues. Generally, this document reported the sustainability activities done throughout the year. Therefore, the information on sustainability about related companies can be gathered through the supply chain network that was reported by the company. With this report, they will usually compare all issue of sustainability with previous report, based on their performances of people activities, impact of environmental and profit gain.

With current unstable economic trend, product developments process is also affected on the aspects of performances. People’s needs can’t be satisfied due to this problem which makes the product sale lower. Therefore, the issues involving the economic and social aspects need to be reduced or solve starting by identification based on highest to lowest concern. From the previous weighting of environmental issues [6], this paper continue on identifying of weightage for social and economic issues of sustainability for developing of supply chain sustainability (SCS) index in design phase.

2. **Overview of Corporate Sustainability Report for Social and Economic**

Increasing number of companies in the engineering industry is compelling high competition in developing products. Due to current situation, companies concern inevitably moved to their sustainable development such environment, social and economic. The best practices in corporate sustainability performance are focused on world’s largest corporations that are leading the way with significant financial and organizational commitments to social and environmental issues [2].

CSR become a medium option for the consumers to understand company policies and positively influence consumer response to a product and service [7]. There are five criteria used for assessment using CSR which are inclusivity, discourse, control, transparency and supply chain provide a good basis for the further development of social and environment standards to improve their legitimacy [8]. Thus, CSR document is simply useful in valuation of sustainability information of the companies.

Research extends as the way to improve the world. Industrialist and academician are participating a lot on the research to improve system, tools or method for social and economic with the aim to improve the standard or policies introduced. This can’t be done without good cooperation from both sides especially for accurate improvement on certain issue. CSR provide the information from real industries that can be used by researcher in attempt to address these improvements.

Table 1 showed the list of CSR documents from chosen companies around the world. All of the reports are downloaded from the company’s website which is made public. From the reports, the companies can provide various data of social and economic either in the specific empirical or short data. Because of that, a number of CSR from different type of company is used to find an optimum weightage for those proposed issues. Based on the reports, the data of sustainability for social and economic were extracted.
| No | Company            | Document Name                                                                 |
|----|--------------------|-------------------------------------------------------------------------------|
| 1  | Adidas Group       | Sustainability Progress Report 2014 (Performance Counts)                      |
| 2  | Apple              | Supplier Responsibility 2014 Progress Report                                  |
| 3  | Arcelor Mittal     | 2014 Sustainability Report                                                   |
| 4  | BASF               | BASF Report 2014 (Economic, Environment and Social Performance)               |
| 5  | BP                 | Sustainability Report 2014                                                   |
| 6  | Casio              | Casio Sustainability Report 2014                                             |
| 7  | Coca Cola          | 2013/2014 Sustainability Report                                              |
| 8  | Epson Group        | Sustainability Report 2014                                                   |
| 9  | Ford               | Sustainability Report 2013/2014                                               |
| 10 | Foxconn            | 2014 Social and Environmental Responsibility Report                           |
| 11 | Fujitsu Group      | CSR Report 2014                                                               |
| 12 | Honda              | Honda Sustainability Report 2014                                             |
| 13 | IKEA Group         | Sustainability Report FY14                                                    |
| 14 | LG                 | 2013-2014 LG Electronics Sustainability Report                               |
| 15 | Logitech           | Sustainability Report 2014                                                    |
| 16 | Nestle             | Nestle in Society (Creating shared value and meeting our commitments 2014)   |
| 17 | P & G              | 2014 Sustainability Report                                                   |
| 18 | Panasonic Corporation | Sustainability Report 2014                                |
| 19 | PepsiCo            | Sustainability Report 2014                                                   |
| 20 | Petronas           | Sustainability Report 2014                                                   |
| 21 | Samsung            | Sustainability Report 2014                                                   |
| 22 | Shell              | Sustainability Report 2014                                                   |
| 23 | Sime Darby Plantation | Sustainability Report 2014                                |
| 24 | Smurfit Kappa      | Sustainable Development Report 2014                                           |
| 25 | Sony               | CSR Reporting 2014                                                            |
| 26 | Steelcase          | 2014 Corporate Sustainability Report                                         |
| 27 | Suncor             | Report on Sustainability (Summary Report 2014)                                |
| 28 | TATA Group         | Corporate Sustainability Report 2013-14                                        |
| 29 | Toyota Motor Co    | Sustainability Report 2014                                                   |
| 30 | Vale               | Vale 2014 Sustainability Report                                              |
| 31 | Volkswagen         | Sustainability Report 2014                                                   |
3. Supply Chain Sustainability (SCS) Issues for Social and Economic

Supply chain sustainability (SCS) or sustainable supply chain management (SSCM) is defined as the creation of coordinated supply chains through the voluntary integration of economic, environmental and social considerations with key inter-organizational business systems designed to efficiently and effectively manage the material, information, and capital flows associated with the procurement, production and distribution of products or services in order to meet stakeholder requirements and improve the profitability, competitiveness and resilience of the organization over the short- and long-term [9].

Supply chain sustainability is the term used for sustainability issue for supply chain process. Companies nowadays believe a good supply chain flow should give positive impact on the company overall performances. Sustainability issue for such stage including supplier, manufacturer, retailer, customer and product end-of-life may be categorized as the SCS. Using the current literatures of SSCM, there are four broad categorized including strategic consideration, decisions at functional interfaces, regulation and government policies, and integrative models and decision support tools [10].

Figure 1 shows a proposed issue of sustainability from three classified aspects of sustainability: environment, social and economic.

Figure 1. The sustainability issue of 3 pillars of sustainability

Sustainability assists some of the improvements on the social and economic aspects. Companies should need to consider the performances such as profit, time taken even the quality of products or services as important blueprint that might be impact by those social and economic issues. “Social sustainability is neither an absolute nor a constant…[it] has to be considered as a dynamic concept, which will change over time (from year to year/decade to decade) in a place.” [11], [12]. Because of that, the current issues of sustainability involving the aspects of social and economic are investigated in this paper.

3.1 Social

Over last 10 years, social sustainability has a great intentions by researcher around the world with their contributing on defining the implications and indicators for this “pillar” of sustainability.
This trend contrary with previous decade which attention more on economic and environmental.

Ergonomics can be actively influential within the organization on issues relating to work improvements; it may boost integrated increases in the organization’s performance and in workers’ well-being; it can provide support for changes and new sustainability-related work requirements to be considered; and it can contribute to the definition of the concept of work in a context of sustainable development [14].

Using ISO26000, workers; natural environments and communities improved by encouraging business and other organizations to practice social responsibility through contribution on sustainable development. In the meantime, ISO2009 is obligation on the other proposed issues such as human right, occupational and safety (labour practice), community relationship (community involvement and development).

Global Reporting Initiative (GRI) is independent organization that helps business, governments and other organization on critical sustainability issues. GRI was listed human rights (focusing on workers and suppliers/contractors) as a group of social performance indicators [15]. On the other hand, they are also focusing on the other issues such as ethics and integrity, product utilities or responsibility and society.

Supplier relationship is another important issue of social sustainability and it encompasses business practices related to supplier selection, supplier evaluation and supplier development [16]. Thus, companies should plays role by considering sustainable elements in combination with suppliers. The labour wage can compel people to the company business. The company provides its employees with wages, and the employees, in turn, provide the company with labour, skill, and/or expertise [17]. This indirectly define labour wage as orientation on labour-productivity per hour [18].

3.2 Economic

The economic sustainability element is based upon Solow’s (1974, 1986, 1993) amplified theory on capital convertibility and Hicks-Lindahl concept of maximum income, which can be acquired by saving essential wealth (capital) resources for the benefit of future generations, (implementing the principle of fair distribution among generations) [19]. This defines economic sustainability as to maximize the flow of profit and consumption towards company business.

Accountability is one of a key principle of ISO26000 that cover issues of ethics and governance. Accountability issue should noteworthy as economic issue especially in mounting of sustainable development. Through vast analysis of various CSR report, some companies are report profit margin usually called earnings before interest, taxes, depreciation and amortization (EBITDA). However, EBITDA do not directly express cash flow available to serve financial debt, but they do approximate it [20].

In economic sustainability, there are other cost should be consider so that the sustainable development thorough. This encourages proposing the other issues involving cost such as raw material cost and energy cost. Both costs have distinctive impact on the sales, operation income and net income. This ultimately causes companies encourage to diminish those costs in order to gain optimum profit.

Manufacturing is the industry as a basis rapidly growth and this situation indigenously through R&D. This sector conducts the largest share of R&D and many sophisticated services are based on production [21]. Companies hold the R&D as a medium of improvement on product sales for a long term. Because of that, spending for R&D is the way to ensure innovation always continued.
4. Developing the Weightage

In developing of weightage for supply chain sustainability (SCS), a number of CSRs from different types of international companies were used and analyse on current companies of sustainability issues. This actually the process that is required for developing a score metrics for SCS in design phase. Figure 2 shows the flowchart of overall flow in this research and the current stage for this paper highlighted [22].

In order to measure the issue of sustainability, all the issue are counted following the proposed issues. The data was extracted form CSR based on the company strategies of sustainability. CSR become the medium for most companies to report involving the sustainability especially throughout the supply chain flow. The structure of CSR is different depends on the company perspective and definition about the sustainability. However, the basic issue are still concentrate on the three pillars of sustainability that relates on planet, people and profit. By using the CSR, authors need to deal with the limited and variables data provide from each CSR. It is challenging on part of the accuracy because the information given from each report using different type of unit, currency and etc. Because of that, authors decide to identify proposed issue mentioned from any part in CSR.

![Flowchart](image)

**Figure 2.** Project flow of developing the score metrics based on sustainability supply chain in design phase [22]

There are simple criteria for analysing the CSR. All the sustainability issue that was concern by the companies and mentioned will be taken as company’s interest. The CSR information will be analysed through the proposed sustainability issue in the Figure 1. From each CSR, there are companies that are concerned about sustainability issue by mentioning the strategy, planning and the impact for those issues.
In developing of SCS weightage from 2013/2014 CSR, the counted issue was calculating using equation 1:

$$\sum_{0 \leq x \leq 1} F(x) = 1$$

Total Ev = 0.333

9 issue x 31 companies = 279

Sc = 0.333

9 issue x 31 companies = 279

Ec = 0.333

8 issue x 31 companies = 248

5. Results and Discussion

Figure 3 shows the graph of total SCS issues from each company CSR. From the analysis of CSR data, there are five companies have highest concern on social SCS with 8 issues involving Casio, Samsung, TATA Group, Sony and Volkswagen. However, P&G has lowest concern with1 issues of social. In the economic issue, BASF is the only one shows highest issues on economic aspect while P&G remain shown a lack of concern on the economic aspect of sustainability.

Based on the analysis, there are 29 companies are concern about the social issues involving the issue of human right and, occupational and safety with weightage 0.3461 each. The increasing concern of both issue can be view by the policies from most of the companies that looking forward to minimize any risk in their operating management system. Human right are a big concern by companies because of international policies that introduce declarations, such as Universal Declaration of Human Rights by the United Nations, the ILO Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy, the OECD Guidelines for Multinational Enterprises, the United Nations Global Compact, and the EICC Code of Conduct.

Product Utilities is at less concern from other social issues. Increasing competition causes variety of similar product in the market. This concurrently increases the distributor or wholesaler in order to
ensure the product can be reach by customer in any consequences. This provides customers with a lot of option in choosing their product from various brands in the world market. Table 2 shows the whole result of the weightage for each proposed issue of social based on the CSR. These results are in accord with recent company issue by indicating the social has under concern by most big company by following the sequence of weightages.

| Symbol | Sustainability Issues                                | Weightage |
|--------|------------------------------------------------------|------------|
| Sc1    | Ergonomics                                           | 0.01910    |
| Sc2    | Human Rights                                         | 0.03461    |
| Sc3    | Human Training & Development                         | 0.03342    |
| Sc4    | Occupational Health & Safety                         | 0.03461    |
| Sc5    | Ethics and Integrity                                 | 0.01671    |
| Sc6    | Product Utilities                                    | 0.00835    |
| Sc7    | Community Relationship                               | 0.03223    |
| Sc8    | Supplier Relationship                                | 0.02745    |
| Sc9    | Labor Wage                                           | 0.01671    |

CSRs have provided the economic aspects that shown the sales and net income under highest priorities. The improvement of new technologies cause a lot of companies around the world try to produce competitive product that satisfied the need of user. This surely, in order to increase their sales in the same time their profit from the previous record. From this situation, rise of reputation is the factor that their product accepted by consumers. Companies are improving development efficiency through development. In addition to actively investing in the development of new technologies, companies are carrying out activities that facilitate the effective use of existing equipment.

Raw material cost is the issue that has less concern on the aspect of economic, this is because due to such factors as steep increases in raw materials prices or volatility in foreign exchange rates. From this condition, company amid expectations that market will expand over the medium to long term in addition to putting crisis measures into place, maintaining adequate liquidity is essential to the implementation of forward-looking investment aimed at improving product appeal and the development of next-generation technologies as well as to the establishment of global production and sales structures. Table 3 shows the whole result of the weightage for each proposed issue of economic based on the CSR. These results are in accord with recent company issue by indicating the economic has under concern by most big company around the world by following the sequence of weightages.

| Symbol | Sustainability Issues      | Weightage |
|--------|----------------------------|-----------|
| Ec1    | Accountability            | 0.02129   |
| Ec2    | EBITDA                    | 0.01331   |
| Ec3    | Energy Cost               | 0.02395   |
| Ec4    | Operation Income          | 0.02794   |
| Ec5    | Net Income                | 0.04125   |
| Ec6    | Sales                     | 0.04125   |
| Ec7    | Raw Material Cost         | 0.01065   |
| Ec8    | R & D Expenses            | 0.03194   |
6. Conclusion

The purpose of current study was to determine the weightages of the SCS issue for social and economic using the Corporate Sustainability Report (CSR). This study set out to examine the priorities of proposed SCS issue for social and economic from CSR 2013/2014 session using 31 companies around the world which have systematic and proper supply chain flow.

Social issue of sustainability was examine and finally shown that the human right and safety occupational have a highest concern between the other social issues of sustainability. Product utilities are less concern by most companies under this aspect of sustainability. For economic aspects, the sales and net profit are most influence factors of sustainability while the raw material cost is shown opposite way. The current finding then continues to be use on developing of score metric for supply chain sustainability (SCS) in design phase.

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References

[1] Carter C R and Rogers D S 2008 A framework of sustainable supply chain management: moving toward new theory. *Int J Phys Distrib Logist Manag.* Emerald Group Publishing Limited 38(5):360–87.

[2] Epstein M J and Buhovac A R 2014 Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts. *Berrett-Koehler Publishers.*

[3] Mani V, Gunasekaran A, Papadopoulos T, Hazen B and Dubey R 2016 Supply chain social sustainability for developing nations: Evidence from India. *Resour Conserv Recycl.* Elsevier 111:42–52.

[4] Wilding R, Wagner B, Ashby A, Leat M and Hudson-Smith M 2012 Making connections: a review of supply chain management and sustainability literature. *Supply Chain Manag An Int J.* Emerald Group Publishing Limited 17(5):497–516.

[5] Pagell M and Wu Z 2009 Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. *J supply Chain Manag.* Wiley Online Library 45(2):37–56.

[6] Mokhtar M F, Omar B, Hisyamudin N, Pauzi N F M and Azlinda W 2016 Environmental Concerns of Supply Chain Sustainability (SCS): A Survey. In: Proceeding for ICME 2016 Universiti Tun Hussein Onn, Malaysia.

[7] Choi S and Ng A 2011 Environmental and economic dimensions of sustainability and price effects on consumer responses. *J Bus ethics.* Springer; 104(2):269–82.

[8] Mueller M, Dos Santos V G and Seuring S 2009 The contribution of environmental and social standards towards ensuring legitimacy in supply chain governance. *J Bus Ethics.* Springer 89(4):509–23.

[9] Ahi P and Searcy C 2013 A comparative literature analysis of definitions for green and sustainable supply chain management. *J Clean Prod. Elsevier* 52:329–41.

[10] Gupta S and Palsule-Desai O D 2011 Sustainable supply chain management: review and research opportunities. *IIMB Manag Rev. Elsevier* 23(4):234–45.

[11] Dempsey N, Bramley G, Power S and Brown C 2011 The social dimension of sustainable development: Defining urban social sustainability. *Sustain Dev. Wiley Online Library* 19(5):289–300.
[12] Boström M 2012 A missing pillar? Challenges in theorizing and practicing social sustainability: introduction to the special issue Sustain Sci Pract Policy. ProQuest LLC 8(1).

[13] Koning J 2001 Social sustainability in a globalizing world: context, theory and methodology explored. More Most. National UNESCO Commission The Hague 63.

[14] Bolis I, Brunoro C M and Sznelwar L I 2014 Mapping the relationships between work and sustainability and the opportunities for ergonomic action. Appl Ergon. Elsevier 45(4):1225–39.

[15] Weingaertner C and Moberg Å 2014 Exploring social sustainability: learning from perspectives on urban development and companies and products. Sustain Dev. Wiley Online Library 22(2):122–33.

[16] Schiele H 2007 Supply-management maturity, cost savings and purchasing absorptive capacity: Testing the procurement–performance link. J Purch supply Manag. Elsevier 13(4):274–93.

[17] Hutchins M J and Sutherland J W 2008 An exploration of measures of social sustainability and their application to supply chain decisions. J Clean Prod. Elsevier 16(15):1688–98.

[18] Omann I and Spangenberg J H 2002 Assessing social sustainability. In: Biennial Conference of the International Society for Ecological Economics.

[19] Ciegis R, Ramanauskiene J and Martinkus B 2015 The concept of sustainable development and its use for sustainability scenarios. Eng Econ. 62(2).

[20] Bonazzi G and Iotti M 2014 Interest coverage ratios (ICRs) and financial sustainability: Application to firms with bovine dairy livestock. Am J Agric Biol Sci. Science Publications 9(4):482.

[21] Aiginger K 2014 Industrial Policy for a sustainable growth path. Policy Pap. 4:7.

[22] Mokhtar M F, Omar B, Hisyamudin N and Azlinda W 2016 Supply chain sustainability: methodology of developing the score metrics.; ARPN 11(12) pp 7534-7538.