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Social Indicators for Sustainable Supply Chain Management

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Because of sustainable development has recognized for last 10 years. Most interpretations of sustainable development recognize that there are constraints on long-term human activities consisting of three dimensions: economic, environmental and social. From the literature review, we found that indicators of environmental and economic performance are relatively well established. They can be combined to indicate the sustainability of products, services and supply chains. Meanwhile indicators of social performance are more problematic, particularly indicators to describe the social value of products and services. This paper reviews a context of social indicators and proposes a metric to measure social performance for sustainable supply chain.

Keywords: social indicators, sustainable supply chain, performance measurement

I. INTRODUCTION

The most often quoted definition of sustainability is that of the Brundtland Commission as “*development that meets the needs of the present without compromising the ability of future generations to meet their needs.*” According to this commission, Elkington (1998) developed the idea of the triple bottom line which simultaneously considers and balances economic, environmental and social goals from a micro economics standpoint. The triple bottom line suggests that at the intersection of social, environmental and economic performance, there are activities that organizations can engage in which not only positively affect the natural environment and society, but which also result in long-term economic benefits and competitive for the firm.

While the social and the environmental are clearly associated in the sustainable development context, there is very little research addressing the social dimension. The interconnectedness of social, economic, and environmental factors is the essence of sustainability. Therefore, environmental decision-making tools or practices, such as a life-cycle assessment (LCA), which focuses solely on environmental parameters, may be counterproductive to attaining overall sustainability goals (Matosand Hall, 2007). Consequently, sustainability derives considerably from social engagements such as cultural norms, individual and group behaviors, the role of government and community, the relationship with science, and the relationship with the natural environment (Muller, 2009). While there are a limited number of case studies in the literature that have introduced supplier evaluation schemes that integrate environmental and social criteria (Koplin (2007), Trowbridge (2001)), the practice and understanding of SSCM is still fragmented and heavily oriented to the environmental dimension. For example, a comprehensive literature review on SSCM identified that out of 191 papers, 140 addressed the environmental dimension while only 20 addressed the social dimension (Seuring, 2008).

Therefore, social indicators applicable to products and service are needed but are not generally available. This work reviewed the literature on corporate social performance

measurement and proposed a metric of social indicators for sustainable supply chain performance measurement.

Section II introduces a supply chain management definition and a scope of “supply chain” in this work. Section III introduces a sustainable supply chain definition and a sustainable supply chain performance measurement. Section IV describes corporate social performance (CSP) concept and Section V is a cooperate social performance integrating with a sustainable supply chain perspective.

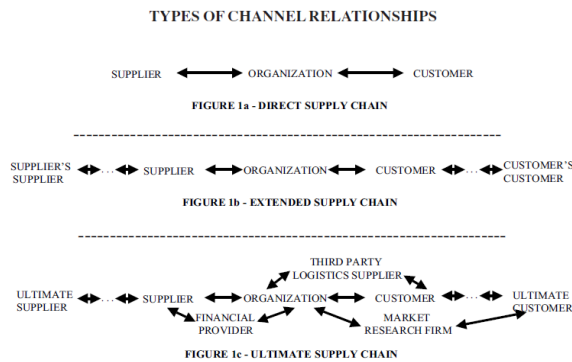
II. SUPPLY CHAIN MANAGEMENT

A. Defining supply chain scope

Mentzer et al. (2001) defined a supply chain as *a set of three or more entities (organizations or individual) directly involved in the upstream flows of products, services, finances, and/or information from a source to a customer.* Moreover, they identified three degrees of supply chain complexity: a direct supply chain, and extended supply chain and an ultimate supply chain. As shown in Fig.1, a direct supply chain consists of a company, a supplier and a customer involved in the upstream and/or downstream flows of products, services, finances, and/or information. (Figure 1a.). An extended supply chain includes suppliers of the immediate supplier and customers of the immediate customer, all involved in the upstream and/or downstream flows of products, services, finances, and/or information (Figure 1b.). An ultimate supply chain includes all the organizations involved in the upstream and downstream flows of products, services, finances, and information from the ultimate supplier to the ultimate customer (Figure 1c.). All of three degrees of supply chain complexity.

Wood (2010) mentioned the supply chain management appeared in the field of the corporate social performance (CSP) research since 2005 as a responsive stakeholder management practices. Merging CSP concept with supply chain management research is in a primary stage. Therefore we scoped a degree of supply chain in the less complexity as a “direct supply chain”. That means we considered the social performance which involved in a company, a supplier and a

customer. For the detail of CSP will describe in section IV.



Source: Mentzer et al. (2001)

Fig. 1

B. Defining supply chain management framework

Firstly, we have to determine a clear understanding of supply chain management (SCM) framework in this research work because without a clear understanding of SCM, we cannot expect wide application of SCM in practice or research. Mentzer et al. (2001) reviewed 64 articles for defining supply chain management. They categorized SCM into three categories: a management of philosophy, implementation of a management philosophy, and a set of management processes.

As a philosophy, SCM has three characteristics: (1) a system approach to viewing the supply chain as a whole, and to managing the total flow of goods inventory from the supplier to the ultimate customer, (2) a strategic orientation toward cooperative efforts to synchronize and converge intrafirm and interfirm operational and strategic capabilities into a unified whole; and (3) a customer focus to create unique and individualized sources of customer value, leading to customer satisfaction.

In adopting a supply chain management philosophy, Mentzer et al (2001) suggested various activities necessary to successfully implement a SCM philosophy i.e. integrated behavior, mutually sharing information, mutually sharing risks and rewards, cooperation, the same goal and the same focus on serving customers, integration of processes, and partner to build and maintain long-term relationships.

To successfully implement SCM, others authors have focused on management processes. All firms within a supply chain must overcome their own functional silos and adopt a process approach (Lambert et al, 1998). Thus, all the functions within a supply chain are recognized as key processes. A process is a specific ordering of work activities across time and place, with a beginning, and end, clearly identified inputs and outputs, and a structure for action. The key processes include customer relationship management, customer service management, demand management, order fulfillment, manufacturing flow management, procurement, and product development and commercialization

According to three categories of supply chain definition, Mentzer et al. (2001) defined two concepts with term of supply chain management. The idea of viewing the coordination of a supply chain from an overall system perspective, with each of the tactical activities of distribution flows seen within a broader strategic context is called **Supply Chain Orientation (SCO)**. The actual implementation of this orientation, across various companies in the supply chain is called **Supply Chain Management (SCM)**. Thus, supply chain orientation (SCO) is defined as *the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain*. That means a company processes a supply chain orientation (SCO) if its management can see the implications of managing the upstream and downstream flows of products, services, finances, and information across their suppliers and their customers. In the other words, a supply chain orientation is a management of philosophy, and supply chain management is the sum total of all the over management actions undertaken to realize that philosophy.

Supply chain relationships are typically long-term and require considerable strategic coordination. SCO is a willingness by one company to address the importance issues involved relationship management across company (i.e. trust, commitment, interdependence, organizational compatibility, vision, key processes, leader, and top management support). When contiguous companies in a supply chain each achieve a SCO, they can begin the implementation process to realize SCM. Management of the supply chain is only accomplished when several companies in line in the supply chain have that orientation and move toward implementing the management philosophy of SCO.

Mentzer et al (2001) defined a supply chain management as *the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole*.

This research work, we scoped a supply chain boarder in SCO perspective to determine corporate social performance indicators for contiguous companies which willing to address their long-term relationships with an upstream and downstream orientation.

III. SUSTAINABLE SUPPLY CHAIN MANAGEMENT

As the traditional supply chain management concept focusing on economic issue, but the only economic dimension is not sufficient condition for the overall sustainability of a corporation. A single-minded focus on economic sustainability can succeed in the short run. But in the long run sustainability also requires environment and social view (Elkington et al., 1998). Seuring et al. point out that the triggers for sustainable supply chain management are external pressure and incentives from government, customer and stakeholders (Seuring, et al., 2008). The focal company is pressured by legal demands/regulation, responses to the stakeholders, the

competitive advantage, the customer demands, the reputation loss, and the environmental and social pressure groups. The legal demands are the most frequently mentioned, closely followed by customer demands and response to stakeholders. When the focal company is pressured, it usually passes this pressure on to supplier. Here, one distinctive feature of sustainable supply chain management emerges.

A. Scope and definition

Sustainable Supply Chain Management (sSCM) has defined by Carter and Rogers [9] as *the strategic achievement and integration of an organization's social, environmental and economic goals through the systematic coordination of key inter-organization business processes to improve the long-term economic performance of the individual company and its value network*. This definition of sSCM based on the triple bottom line and the four supporting facets of sustainability – risk management, transparency, strategy, and culture.

While the publications in term of sustainable (either environment or social) and supply chain context were found in 1990s but the first published papers found were from the year 1994 (Seuring and Müller, 2008). Indeed, while the social and the environmental issues are clearly associated in the sustainable supply chain definition, a recent comprehensive literature review (Seuring and Müller, 2008) revealed a deficit on the social dimension in sustainable supply chain research papers. Specifically, only 10 percent of the 191 studied papers are addressing social issues while over 73 percent are focused on environmental issues and 16 percent on both social and environmental issues.

Therefore, the social issue is also needed to be developed as a framework and indicators. As mentioned above that the environment issue is well established. Corporate social responsibility is an issue that has been receiving greater attention in discussions on business and sustainability. Thus, our research focused only the social issue and proposed a metric of social indicators in the framework of corporate social performance which will be explained in section IV.

B. Sustainable performance measurement

There are various approaches to measuring, monitoring, and assessing a company's progress towards sustainability e.g. using standards and codes, sustainability indicators, metrics for sustainability performance.

For using standards and codes, companies adopt international standard, codes or guideline to meet legal compliance requirements, to build trust and credibility, to gain certification, to gain or restore stakeholder confidence, and to improve management systems through the use of standards and processes. The most adopted standards or guideline involved with sustainability context as ISO 14000, ISO 26000, AA1000, SA8000.

Numerous organizations are presently trying to develop a set of indicators to state the progress of a company towards sustainability. Veleva and Ellenbecker (2001) have analyzed four of the best-known indicator frameworks:

- International Organization for Standardization

(ISO14031)

- Global Reporting Initiative (GRI)
- World Business Council for Sustainable Development (WBSD)
- Center of Waste Reduction Technologies (CWRT)

Results demonstrate that most indicator frameworks are still under development and none is applicable as a whole to evaluate sustainable supply chain. Unlike environmental indicators, social issues receive the least attention in existing indicator frameworks.

Whereas economic performance can be measured easily by internationally accepted standard measures, and environmental performance can be evaluated through input-output measurements, it is difficult to measure social performance and the intangible assets of a company (Székely and Knirsch, 2005)

IV. CORPORATE SOCIAL PERFORMANCE (CSP)

A. CSP's concept and definition

The concept of corporate social performance (CSP) is similar with corporate social responsibility (CSR), corporate social responsiveness, and socially responsible behavior (Fauzi et al (2010), Wood (2010)). Generally, the terms social and environment are covered in the concept of CSP (Carroll, 1979, Wartick and Cochran, 1985, Wood, 1991, Clarkson, 1995).

Carroll (1979) defined CSR as the intersection of three dimensions (1) corporate social responsibility – principles to be perceived in four dimensions (i.e. economic, legal, ethical, and discretionary), (2) the social issues that a firm should be concern (consumerism, environment, discrimination, product safety, occupational safety, and shareholders), and (3) the philosophies of responsiveness.

Wartick and Cochran (1985) updated Carroll's model and folded in some additional concepts that made the CSP model more robust and logical (Wood, 2010, Fauzi et al, 2010). They presented what they saw as three challenges to CSR: economic responsibility, public responsibility, and social responsiveness. For the economic responsibility, the principles of CSR were taken from Carroll (1979): economic, legal, ethical and discretionary. The processes of responsiveness were, also following Carroll, reactive, defensive, accommodative and proactive. Finally, were proposed to manage social issues, including policies of issue identification, issue analysis and response development.

Wood (1991) proposed a CSP-model which became a one of the most influential and comprehensive conceptualization of CSP (Orlitzky et al., 2003, Fauzi et al., 2010). Wood (1991) defined CSP as *a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as the relate to the firm's societal relationship*.

Clarkson (1995) suggested applying stakeholder theory as a framework to model CSP, which would then be defined as a company's ability to manage its stakeholders in a way that is satisfactory to them.

B. CSP's model

From Carroll's (1979)'s article laid out the first conceptual model of CSP. Wood (1991) modified a CSP-model from Carroll's. She organized the literature into structural principles of responsibility as inputs, and finally outputs and outcomes. Her elements, as revised in 1994, are shown in Fig 2.

Corporate social performance is a set of descriptive categorization of business activity, focusing on the impacts and outcomes for society, stakeholders and the firm. Types of outcome are determined by the linkage, both general and specific, defined by the structural of CSR. The processes by which these outcomes are produced, monitored evaluated compensated and rectified are defined by the processes of corporate social responsiveness.

The CSP model which proposed by Wood (1991) is one of the most influential, helpful, parsimonious, and comprehensive conceptualizations of CSP (Orlitzky et al., 2003). Therefore, our research used Wood's CSP model as a framework to determine a metric of social indicators for sustainable supply chain. Note that in our research we only focused on a social dimension, an environmental dimension is not in our scope.

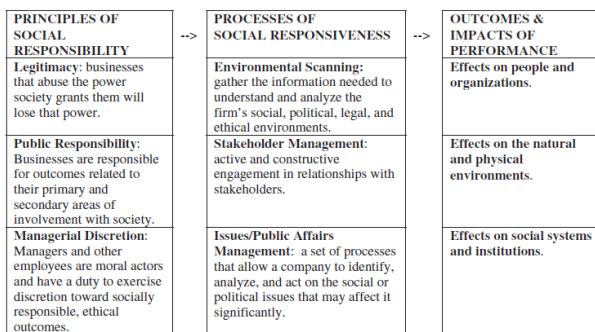


FIG 2 Wood's CSP Model

V. CORPORATE SOCIAL PERFORMANCE IN SUSTAINABLE SUPPLY CHAIN PERSPECTIVE

A. Sustainable supply chain framework and social metric

As described in section II, this research work scoped a supply chain boarder in supply chain oriented perspective to determine corporate social performance indicators for contiguous companies which willing to address their long-term relationships with an upstream and downstream orientation.

Székely and Knirsch (2005) proposed the 5 areas of social indicators for measuring and managing companies' social performance as follow:

- Human rights: with the rapid globalization of business, human rights performance in several countries is under scrutiny.
- Labor/employment issues: standard issues such as health and safety, education, training, industrial relations, wages, benefits, conditions of work/employment, accountability, image/reputation and harassment.

- Supplier relationships: contractual agreements with suppliers, supplier diversity and company policies on the screening of suppliers.
- Community initiatives: involvement in local communities, contribution to the local economy, ensuring local wealth and skills.
- Corporate philanthropy: donations, pre-tax profits and grant programs.

The most popular guideline for measure sustainability performance is using the Global Reporting Initiative (GRI) as a guideline. It is useful to precede from board categories though definite aspects to specific indicators, interpreted as:

- *Categories:* board areas or groupings of economic, environmental or social issues of concern to stakeholders.
- *Aspects:* general types of information related to a specific category (e.g. labor management, customer health and safety or donations to host communities)
- *Indicators:* specific measurements of an individual aspect that can be used to track and demonstrate performance.

In term of social category in GRI, divided into 4 categories: labor practices and decent work, human rights, society, and product responsibilities.

- *Labor practice and decent work category* consists of 4 aspects i.e. employment, labor management/relation, occupational health and safety, and education and training.
- *Human rights category* consists of 7 aspects i.e. investment and procurement practices, non-discrimination, freedom of association and collective bargaining, child labor, forced compulsory labor, security practices, and indigenous rights
- *Society category* consists of 5 aspects i.e. community, corruption, public policy, anti-competitive behavior, and compliance.
- *Product responsibility* consist of 5 aspects i.e. customer health and safety, product and service labeling, marketing communications, customer privacy, and compliance.

Our research work used GRI and other literatures (Veleva and Ellnbecker, 2001, Clift, 2003, Kranjac and Glavic, 2003, Olugu et al, 2010) as a guideline of social indicators.

B. Social indicators for sustainable supply chain

According to the supply chain oriented definition and the CSP model, we define our scope in this research work as follow:

- The social indicators which we have proposed focused in one company as a focal company. Measuring the social performance of focal company activities involved a relationship management in both suppliers and customers side.
- A focal company has a willingness to address the

importance issues involved relationship management across its supplier and customer i.e. trust, commitment, interdependence, organizational compatibility, vision, key processes, leader, and top management support.

We categorized the social indicators into 3 categories following CSP's model: Principle of social responsibility, processes of social responsiveness and outcome and impacts of performance.

1) *Principle of social responsibility*

Wood (1991) structured the principles of CSR include a 'legitimacy principle', which addresses business as a whole, a 'public responsibility principle', which applies to particular organizations, and a 'discretionary principle', which refers specifically to the duties of individual employees as a moral agent. The social indicators related to social responsibility as shown in Tab1.

According to the principle of legitimacy, society has the right to establish and enforce a balance of power among its institutions and to define their legitimate functions. Society has available refusal that can be used when business's obligations as a social institution are not met. One way to test the principle of legitimacy is to analyze what happens to companies that violate social expectations. Thus, we can measure how the company applies a legal on its duty or we can measure how often and how much is a monetary value of its sanctions with laws and regulations.

The principle of social responsibility is the organization's duty to act affirmatively for social well-being (Wood, 1991). This principle establishes that content of CSR will move from company to company because every firm is responsible for fixing what it has broken, for avoiding future breakage, and for helping to solve those social problems that effect it. This is a relationship principle, emphasizing each firm's relationship to its own specific environment. This principle operates at the organizational level of analysis, connecting the individual firm to a nexus of stakeholders set within a larger sociopolitical environment. For example, an automobile maker is rightly held responsible for helping to solve problems of vehicle safety and air pollution, and such a company might reasonably become involved with driver's education program and public transportation policy. Therefore, we can measure this principle by the level of management effort to involve a local community or the impact of product or service.

The principle of managerial discretion is based on human choice and will, focusing on the options and opportunities available to individual actors within their organizational and institutional contexts. The domain of discretionary responsibility typically has been operationalized as corporate philanthropy, or occasionally as corporate involved in public-private partnerships or collaborative social problem-solving ventures. Wood (1991) phrasing this principle: 'Managers are moral actors. Within every domain of corporate social responsibility, they are obliged to exercise such discretion as is available to them, toward socially responsible outcomes'. Thus, the managerial discretion is not only philanthropy or

community involvement programs but also a moral choice decision in organizations. The individual's right and responsibility to decide and to act are affirmed within the bounds of economic, legal and ethical constraints. Therefore, we can measure how the company involves with a local community or the others activity which is not directly affected from company's product or service, and how the company encourages an ethical issue in its operation.

Tab 1 Social responsibility indicators

Sub-Category	Indicators
Legitimacy	<ul style="list-style-type: none"> Total number of standard or guideline involved employment and labor management. Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.
Public Responsibility	<ul style="list-style-type: none"> Level of management effort to improve an employee well-being Level of management effort to concern about health and safety impacts from product and Service Public policy positions and participation in public policy development and lobbying.
Managerial Direction	<ul style="list-style-type: none"> Level of management effort to involve a local community Level of management effort to recognize an ethical issue in organization Percentage of employees trained in organization's anti-corruption policies and procedures. Level of management effort to concern about human rights policy Percentage and total number of business units analyzed for risks related to corruption.

2) *Processes of social responsiveness*

Responsiveness contributes an action dimension that is needed to complement the normative and motivational concept of corporate social responsibility. Fredrick (1978) defined corporate social responsiveness as 'the capacity of a corporation to respond to social pressure'. As the second facet of the CSP model, responsiveness provides an action counterpoint to the principle reflection of social responsibility. Ackerman (1975) suggested three characteristic behaviors of a responsive company: (1) it monitors and assesses environmental conditions, (2) it attends to the many stakeholder demands placed on it, and (3) it designs plans and policies to respond to changing conditions. Thus, the processes of social responsiveness is a "how to" component, how managers and companies act regarding environmental and stakeholder conditions and expectations. Social responsiveness consists of three main areas: environmental assessment, stakeholder management, and issues management. The indicators of processes of social responsiveness are shown in Tab 2.

According to environmental assessment, it is a process which gathers the information needed to understand and analyze the firm's social, political, legal and ethical environment. As we mentioned on the scope of this research, we are focusing on only social dimension thus the environmental or ecological issue will not address in this work. Our point of view for environmental scanning is the general data which reflects how the company manages and provides the benefits to its employees.

Stakeholder management facet is active and constructive engagement in relationships with stakeholders. We divided stakeholders into two levels: internal stakeholder and external stakeholder. Internal stakeholder is a company's employees who directly affected from a company's policy. The indicators for internal stakeholder are involved how a company manages the relationship with its employees and how it improves the employee's skill and knowledge. External stakeholder includes both supplier and customer side. Our research concentrates on how company manages stakeholder relationships in the context of social and public policy and how does the company manage both of supplier and customer demands which involved a social issue. Therefore the indicators for external stakeholder management are about, for example, level of commitment with supplier on social and public policy in supply chain, level of commitment with customer on social and public policy in supply chain, practices related to customer satisfaction, including results of surveys measuring customer satisfaction

The third facet of social responsiveness in the CSP model, issues/public affair management, is a set of processes that allow a company to identify, analyze and act on the social or political issues that may affect it significantly (Wood, 1991). Issues management involves devising and monitoring internal and external processes for managing a company's responses to social issues (Brown, 1979), with the purpose of 'minimizing surprise' (Wartick and Cocharan, 1985). In their conceptualization, issues management is further classified as issues identification, issues analysis, and response development. Corporate behavior relevant to issues management that has been studied is crisis management (Srivastava, 1987), in the other word, issues management can consider as a risk management in the social issues of a company. The indicators for issues management are assessment/risk management costs (the cost of risk assessment and management activities for a specific area, supplier, product, etc.) and nature, scope, and effectiveness of any programs and practices that asses and manage the impacts of operations on communities, including entering, operating, and exiting.

Sub-Category	Indicators
Stakeholder Management	<ul style="list-style-type: none"> • Benefits provided to employees • Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases. • Average hours of training per year per employee by employee category. • Level of commitment with supplier on social and public policy in supply chain. • Total number of incidents when contracts with business partners were not renewed due to violations related to corruption. • Level of commitment with customer on social and public policy in supply chain. • Practices related to customer satisfaction.
Issues/Public Affair Management	<ul style="list-style-type: none"> • Assessment/risk management costs (The cost of risk assessment and management activities for a specific area, supplier, product, etc.) • Nature, scope, and effectiveness of any programs and practices that asses and manage the impacts of operations on communities, including entering, operating, and exiting.

3) Outcome and impact of performance

The outcomes of corporate behavior are direct and obvious interest in the assessment of corporate social performance. Corporate social performance is a set of descriptive categorizations of business activity, focusing on the impacts and outcomes for society, stakeholders and the firm (Wood, 2010). Wood divided the outcomes and impacts into three categories, effects on people and organizations, effects on the natural and physical environments, and effects on social systems and institutions. The effects on natural and physical environments are generally measured by a corporate environmental performance such as pollution emission (CO₂ emission, green house gas emission, BOD, COD, etc.), energy utilization, material use, etc. Because of the environmental performance is out of our research scope thus we have not proposed the indicators for the effects on natural and physical environments in this work. Therefore we have proposed the indicators for the effects on people and organizations, and the effects on social systems and institutions which shown in Tab 3.

According to the effects on people and organization, we considered the 'people' of organization as the employees of the company. Measures of employee satisfaction have occasionally been used as substituted of CSP. Further, Longo *et al.* (2005) extended to measure effects on employee by examining a number of employee-related issues as indicators of CSP, including employees health and safety at work, development of worker's skills, and wellbeing and satisfaction of workers (cited in Wood, 2010). The employee health and safety can be measured by rate of injury, occupational diseases, lost days, and absenteeism. The development of worker's skills and satisfaction of workers can be measured by employee training's satisfaction and employee job's

Tab 2 Social responsiveness indicators

Sub-Category	Indicators
Environmental Scanning	<ul style="list-style-type: none"> • Total workforce by employment type, employment contract, and region. • Total number and rate of employee turnover by age group, gender, and region.

satisfaction respectively.

According to the effects on social systems and institutions, measurement this type of these categories is especially important for understanding how business activity benefits and harms stakeholders and the larger society. The corporate behavior impacts of social systems can be measured by the result of life cycle assessment in which health and safety impacts of products and services. For stakeholder's impacts, we considered direct stakeholders in both customers and suppliers side. Wood (2010) found from her literature reviewed that measurement efforts on the outcomes and impacts related to customers have taken two paths – one employing various kinds of perceptual or attitudinal data and one using objective indicators from the regulatory requirements such as safety recall. So the effects on customer side can be measured by customer satisfaction and the number of compliance related with safety recalls, false advertising, and product-related regulatory. Corporate social effects on supplier side recently appeared on supply chain management research field as examples of responsive stakeholder management practices (cited in Wood, 2010). The phenomenon of supplier capture, for example, is well-known in strategy, but rarely as having CSP consequences. Wood (2010) suggested that global supply chain issues such as product safety and information transparency, child labor, and other practices considered exploitative deserve to be considered in CSP research. Thus, we can be measured the effects of supplier side in term of total number of compliance related with product safety, child labor and human rights which caused by supplier's operation. Further, we can measure the outcomes from supplier management by the supplier satisfaction and percentage of suppliers that meet labor and human right screening condition.

Tab 3 Outcome/Impacts indicators

Sub-Category	Indicators
Effects on People and Organization	<ul style="list-style-type: none"> Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region. Employee training satisfaction (level of satisfaction) Employee job satisfaction (level of satisfaction) Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.
Effects on Social Systems and Institutions	<ul style="list-style-type: none"> Result of life cycle assessment in which health and safety impacts of products and services. Supplier satisfaction. %of suppliers meeting labor and human rights screening criteria. Total number of compliance related with product safety, information transparency, child labor, human rights which caused by supplier's operation. Results of surveys measuring customer satisfaction. Total number of compliances related with safety recalls, false advertising.

Sub-Category	Indicators
	and product-related regulatory violations.

VI. CONCLUSION

This work has proposed the metrics of social indicators for sustainable supply chain. In the sustainable supply chain perspective a company should recognizes not only economic benefit of organization but also the social and environment impacts of managing the upstream and downstream flows of products, services, finances, and information across their suppliers and their customers. From the literature review, we found that the social issue still in an embryonic stage and involve with many domains and disciplines e.g. stakeholder management, business relations, business ethics, strategy, etc. Social performance need to make a concerted effort to accommodate the suitable indicators in such related investigation.

Our research work used Wood's CSP model as a framework to determine a metric of social indicators for sustainable supply chain. This model consists of three facets: principle of social responsibility processes of responsiveness, and outcomes and impacts of performance. The first facet, principle of social responsibility, implies the motivation level of implementing social responsibility into organization. Such companies motivated by the principle of legitimacy, they response to society's expectation and obey the law. Such companies motivated by the principle of public responsibility they more focus on an organizational level and try to improve their impacts and effects involved with their stakeholders. But such companies motivated by the principle of managerial direction, they focus not only society and organizational level but also an individual level of employees such as an ethical issue of manager and employee. The social responsiveness indicators measure how managers and companies act regarding stakeholder conditions and expectations. This matrix related with stakeholder management in both supplier and customer sides. Finally, the outcome or impacts indicators measure understanding how business activity benefits and harms stakeholders and the larger society.

The social indicators in this work considered by motivation principles, processes of company's behavior, and impacts of company's behavior. And we scoped the framework of supply chain as the supply chain oriented (SCO) which recognize the implementation of company's supplier and customer. In the future work, we will extend these indicators to cover the implementation across various companies in the supply chain.

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