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A Corporate Social Responsibility Indicator System for Construction Enterprises in Vietnam

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Abstract. Corporate social responsibility (CSR) is now being valued as a factor that will contribute to the sustainable development of businesses, especially businesses in the construction industry. However, understanding the meaning of CSR in the construction industry and how it is practiced is currently limited. This paper aims to develop a framework for CSR indicators related to construction businesses in Vietnam to further clarify the content and aspect of the CSR conceptual framework. Based on stakeholder theory, CSR issues to stakeholders were developed to address key elements of CSR of construction companies. The indicators are then extracted to reveal the specific content contained in these performance issues. The indicator system provides guidance on the implementation of CSR in the construction industry, allowing construction businesses to evaluate the effectiveness of CSR scientifically, thereby supporting the sustainable development of enterprises.

Keywords: CSR, CSR index, construction industry, CSR in construction, stakeholder theory, Vietnam.

1. Introduction

Currently, Vietnam is a developing country, so the demand for infrastructure and facilities is increasing, which is a premise for the construction industry in Vietnam to develop. In the world, the growth of construction industry will develop society, according to (construction industry report, 2015), the construction industry will grow about 4.5% per year. In Vietnam, according to the General Statistics Office, the contribution of the construction industry ranked 3rd in the contribution to GDP growth, particularly in 2018, the industry and construction sector increased by 8.85%, contributing 48.6% to the economy (General Statistics Office 2018). The construction industry brings a lot of benefits to the society such as creating jobs for workers, building infrastructure to meet the needs of people and social organizations, and supporting the community such as building gratitude houses, supporting victims of natural disasters, floods ...

However, in addition to positive contributions, there are many issues related to the construction industry that are criticized for being less concerned about the environment and society (Barthorpe, 2010). Construction has affected the health and life of the people around the site such as: dust and gas emissions, noise pollution, waste generation, resource abuse and pollution (Tam et al., 2002, 2006; Wu, 2008). Construction businesses often use large amounts of resources and energy but the efficiency is low, especially in developing countries. Research from WBCSD (2009) shows that more than 50% of natural raw materials are used to construct buildings, these buildings themselves consume more than 40% of global energy when they are built and operated. In Vietnam, the amount of minerals exploited as construction materials has been constantly increasing, from 2006 to 2017, the exploitation and processing output increased nearly 3 times, specifically in 2017, about 530 million tons. The annual amount of industrial waste is about 27 million tons, of which the proportion of construction waste is about 20% (Vietnam Journal of Construction Materials, 2018). A number of organizations

have implemented ISO 14000 International Environmental Management (EMS) standards to improve environmental performance, however, many construction enterprises have not shown their adequate attention to the environmental issues (Tam et al., 2006; Turk, 2009).

From a social perspective, the construction industry is a high-risk occupation, especially labor insecurity, causing great economic losses. Statistics show that fatal accidents for construction workers in construction companies are often much higher than for other industries with main causes such as falling from above, operating machinery and equipment (Jones. et al., 2006). For example, in the UK, research conducted by the Health and Safety Administration (HSE) has shown that occupational accidents and health damages (delayed, insurance and compensation costs accidents, etc.) accounting for about 8.5% of the project cost (Qu, 2007). According to the statistics of the Labor, Invalids and Social Affairs Inspectorate of Ho Chi Minh City, among the 160 labor accidents in the construction industry in recent years, up to 65-70% of the errors are attributable to employers. They hire seasonal workers, do not have health insurance, social insurance, contractors are not equipped with knowledge of occupational safety, leading to problems during the construction process such as: collapse of scaffolding, partial collapse of a house or structure ...

Quality issues in construction projects and lack of awareness about social responsibility also occur in many construction enterprises. KPMG (2018) reports that the construction industry is one of the slowest sectors to realize their CSR obligations compared to other sectors.

Therefore, the trend of sustainable construction is being carried out by many countries, among which is the leading of European countries towards construction enterprises focusing on implementing their social responsibility in the process of implementing, operating and maintaining projects. In 2005, 64% of the 250 largest companies published reports related to pollution reduction, waste, carbon emissions and energy use, etc. (PetrovicLazarevic, 2008). An increasing number of organizations have adopted Social Responsibility 8000 (SA8000) to audit their social responsibility performance (Maxwell et al., 2006). Other similar activities are carried out by organizations with the purpose of identifying challenges and formulating key strategies for the implementation and reporting of social responsibility in the sector (Szekely and Knirsch, 2005; AA1000, 2008; Li , 2009.).

So what is sustainable development? How to develop sustainably in the construction industry is an issue of concern for Vietnamese businesses today. With competition in the construction market becoming increasingly fierce, construction industry enterprises are turning to social responsibility as a means to enhance their brand.

2. Concept framework and theoretical Background

2.1 The CSR concept

Bowen (1953) first mentioned the social responsibility of business owners as "the responsibility of business owners does not damage the rights and interests of others; business owners must have charitable lines and make up for the damages their businesses cause when harming society ... ".

Carroll (1979, 1991) argues that CSR includes economic, legal, ethical and charitable expectations that society wants organizations to do to at a given time. Carroll (1991) presenting the pyramid of CSR, which emphasizes the combination of entrepreneurial ethical views on the four key aspects of social responsibility, include: charity responsibilities, ethical responsibilities, legal responsibilities and economic responsibilities (Fig.1).

Figure 1. Carroll's Pyramid of Social Responsibility (1991)

Currently, a number of organizations in the world have introduced CSR conceptual frameworks for social responsibility to provide ways to assess and implement social responsibility in enterprises such as the European Commission: managing human resources, health and safety at work, adapting to changes, managing environmental impacts and natural resources or measures, outside the enterprise, including: local communities, partners, suppliers and customers, human rights, global environmental frameworks.

Meanwhile, the Global Reporting Initiative (GRI) has developed the most popular global sustainability reporting framework, which provides a set of operational principles and indicators for the implementation of social responsibility. The AA1000 Standard of Accountability Principles is based on the principle of increasing accountability for multinational organizations towards responsible business as well as more sustainable development. The Organization for Economic Co-operation and Development has guided responsible business practices for multinational enterprises regarding contents: human rights, employment and labor, environment, exchange, and labor relations, benefits of consumers, science and technology, competition and tax calculation (BIAC 2012). ISO international standard organization for management system related to social responsibility is included in the ISO 26000 series, for ISO organization issued in 2010 mainly providing guidance on how enterprises can operate, how to have social responsibility. The main contents of the concept of social responsibility concept of organizations in the world are shown in the Table 1 below.

Table 1. Framework for CSR concept of organizations in the world

Content	EU	GRI	OECD	AA10000	IIRC	IFC	CDP	ISO	GIIRS
Employees	✓	✓	✓	✓	✓	✓			✓
Customer	✓	✓		✓		✓			✓
Product		✓	✓	✓	✓		✓	✓	✓
Environment	✓	✓	✓		✓	✓	✓	✓	✓
Energy	✓	✓		✓	✓		✓		
Community	✓	✓			✓	✓		✓	✓
Goverment		✓							
Compete	✓	✓	✓				✓		✓

Because the concept of CSR is so diverse and inconsistent, there is little uniformity in the CSR frameworks, so the implementation and reporting of CSR have developed in a manner specific to needs. Therefore, the main objective of this study is to develop a CSR indicator system that can be used to evaluate the performance of CSRs of construction companies and to guide scientific considerations of social responsibility. The theory of stakeholders is applied as a conceptual basis for the development of the CSR framework. The application of this theory provides a link between the concept and the selection of indicators, providing a definition of measurement and the concept of social responsibility. In order to develop an appropriate and meaningful CSR indicator, the first phase of this study is to identify stakeholders in the implementation of social responsibility of construction enterprises.

2.2 Theory background

Stakeholder theory reflects the concept of governance and ethics, first introduced by Freeman (1984). The theory is that for businesses to survive, they must get the approval and continued support of their stakeholders, and as a result businesses will tailor activities to maintain support (Clarkson, 1995; de Villiers and van Staden, 2006; Mitchell et al., 1997; O'donovan, 2002). The main content of this theory is that the success of an organization depends on the relationship between the manager and the stakeholders such as investors, employees, creditors, customers, contractor /suppliers, the state and the social community that are concerned with achieving the goals of the business. In which the level of contribution of each related party will have different moves to care about the business results of the enterprise such as: investors want to get the maximum profit for the money they invest in the enterprise; employees want businesses to compensate in a way that is worth their efforts through

compensation, reward, assessment of skills, position, working environment...; customers are interested in product quality and price of goods supplied by enterprises; suppliers pay attention to solvency, ability to consume goods, and services they provide; State management agencies are interested in whether enterprises carry out legal responsibilities on people, products, taxes ..., the social community is interested in how businesses' business activities have an impact on the environment..... It is because the interest of the stakeholders involved in the business at different angles and levels makes managers to consider the interests of all groups and to balance their interests in the decision making process.

The identification of relevant stakeholders is closely related to the conceptual framework, which is a conceptual framework for building CSR efficiency issues. This study is a global approach to identify stakeholders affecting CSR in construction activities. Due to the nature of the industry, construction companies operate at two different levels: the corporate and project level. Corporate level is often related to enterprise interactions in the broader political, economic, social, technological, environmental and legal context (Moodley et al., 2008). Project level involves interactions that arise from the implementation of a particular project. Previous studies have mainly focused on social responsibility issues at the corporate level. However, the construction industry is a project-based industry, in which projects are often long-term, geographically dispersed and fixed in terms of completion time and results (Liu, 2002). Therefore, the stakeholders involved in each construction project differ significantly from the parties involved in each construction corporate.

Stakeholders in the conceptual framework and process project can be divided into two levels: stakeholders at the corporate level and stakeholders at the project level.

Stakeholders at the corporate level are meant to meet the requirements of employees and customers, shareholders and government related to the enterprise. Thus the social responsibilities that enterprises must fulfill include legal, economic and moral responsibilities (Carroi, 1991). For example, the economic responsibility of an enterprise is to ensure that its continuous operation generates profits, to provide dividends to shareholders, to repay debt to creditors, and to pay salaries and allowances to employees. Ethical responsibility has implications for public welfare, such as participating in charitable activities, sponsoring social community activities, and supporting disadvantaged groups (Wang and You, 2008). Legal responsibilities related to enterprises must comply with laws and regulations such as the Law on construction, Construction codes. Stakeholders at the corporate level are not only related to the whole organization. such as shareholders, employees, creditors, etc. that have direct economic or commercial interests in the company, but also include people who are concerned or complain about the company's operations, such as local communities, state management agencies and local governments, non-governmental organizations (NGOs).

It is possible to generalize stakeholders at the corporate level as shown in Fig. 2.

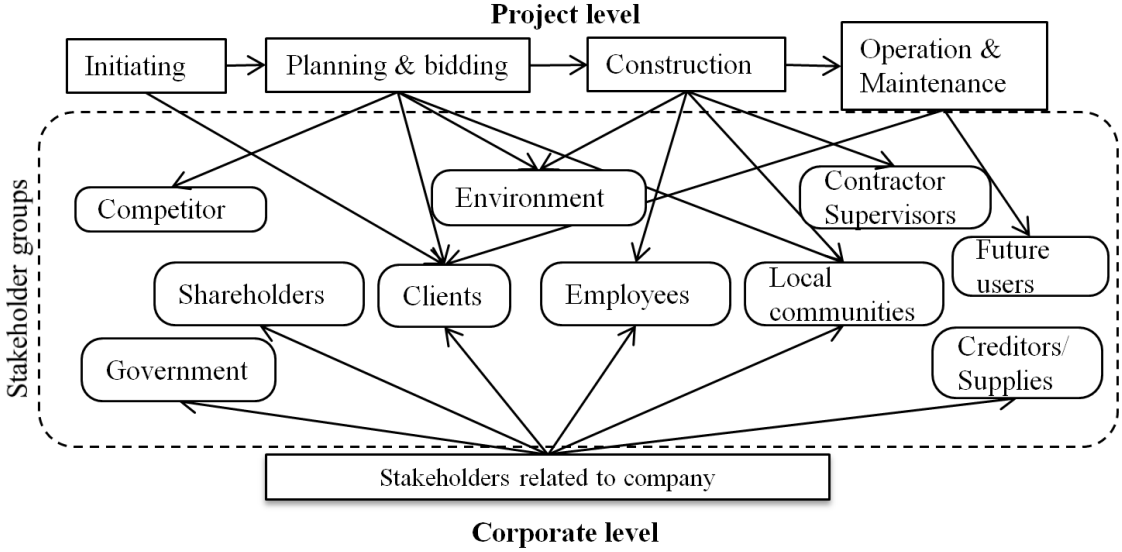


Figure 2. Stakeholder groups mapped into contruction enterprise

3. Method of measuring CSR indicators inconstruction enterprises

Based on the conceptual framework and background theory of stakeholders, in this study, the author determines social measurement indicators based on the following steps (Fig. 3).

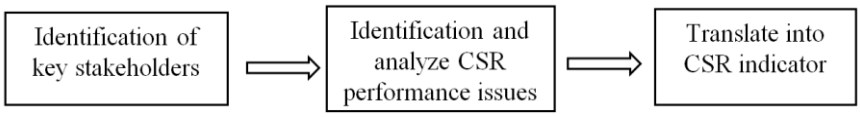


Figure 3. Research process

In general, construction projects progress through the following stages: Project intiation, Project planning, Project execution, and finally acceptance and maintenance (Fig.4 Project life cycle).

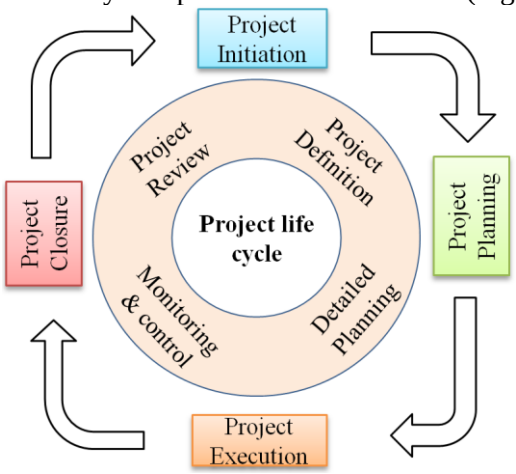


Figure 4. Project life cycle

The initiation stage was carried out from activities such as investment intent research, opportunity research and project approval. During this period, customers need to discuss the necessity of the project, the feasibility of construction conditions, profitability and the impact of the project on the surrounding environment.

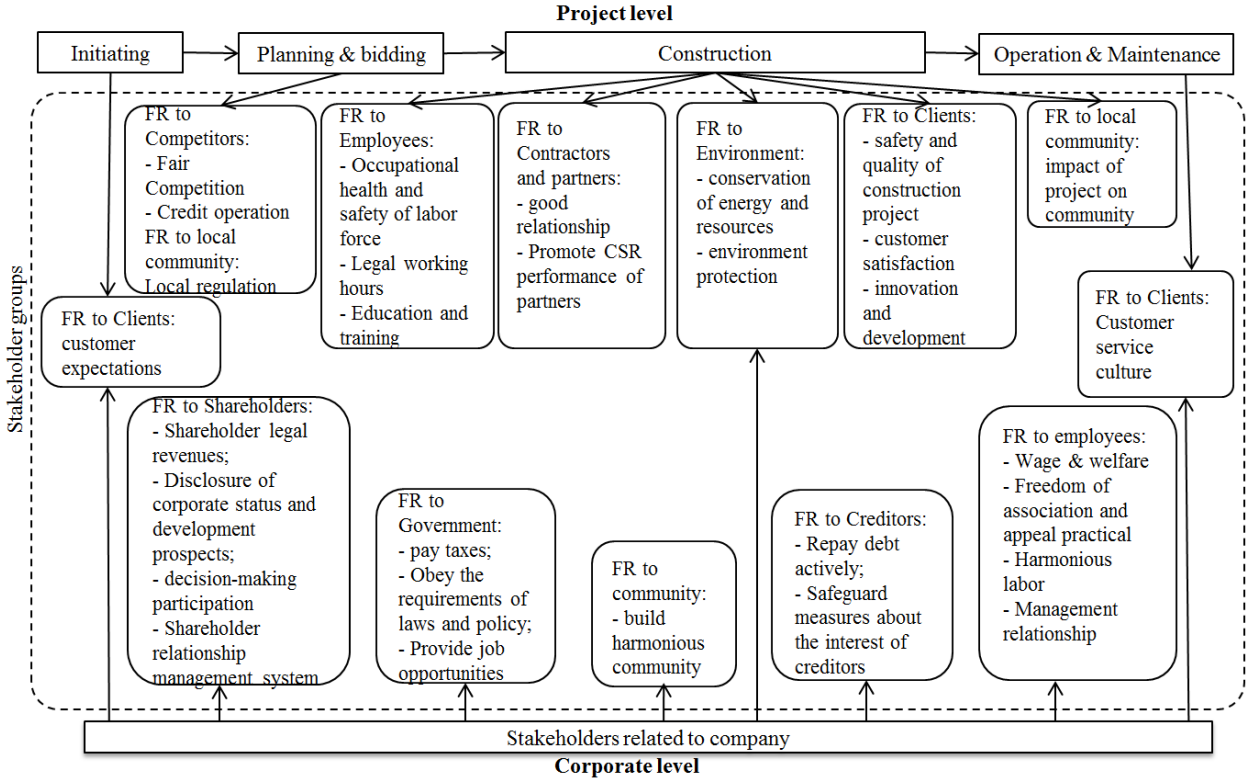
The technical design stage is greatly influenced by customers' wishes and aspirations, total investment, project progress, construction stability, security issues, energy saving and environmental protection.

At the construction preparation stage, the impact of the project on the surrounding environment and fair competition during the process should be considered. Therefore, at the planning and bidding stage, stakeholders are customers, local communities and competitors.

After winning the bid, the construction stage must ensure the project quality, period, cost and safety, and environmental protection objectives. During this period, the enterprise's social responsibility will be influenced by stakeholders such as: officers and employees directly and indirectly participating in the project, suppliers/contractors, partners, customers, related issues. Environmental concerns and local communities are involved in this process. Finally, the time to complete the handover of the project and the warranty is primarily the responsibility of the customer. Fig. 5 shows the interaction of stakeholders in the life cycle of construction projects at each stage of the project process.

Based on Table 1, combined with the theory of stakeholders with the characteristics of construction enterprises (Fig. 2), the author has determined the framework of CSR indicators by capturing benefits and concerns of stakeholders of enterprises in the construction industry.

These social responsibility indicators will be the basis for identifying the issues of social responsibility of enterprises in the construction industry from which to use quantitative and qualitative methods to supplement the solutions for determining operational efficiency of businesses in economic, environmental and social aspects. The development of these indicators is also intended to help address the main concerns of each stakeholder and guide businesses to more effectively manage. Therefore, in order to develop the index framework, it is imperative to identify issues of social responsibility effectiveness related to stakeholders in construction companies.



Firgure 5. CSR performance factors relevant for construction companies

In fact, Vietnamese construction enterprises when implementing projects will have to comply with the standards to ensure the quality of works as well as safety for the community, these are also the main evaluation systems related to social responsibility of businesses. In Table 2, the evaluation systems related to the performance of enterprises are summarized as follows:

Table 2. Documentation system of social responsibility assessment

Treaties and standards	Evaluation indexes	Content index	Related research
GRI	- DJSI - FTSE- All index - Domini Index - KLD - Content analysis method	Energy; Product Environment; Employees; Social community	Moodley et al., 2008; Shen et al., 2007; Petrovic-Lazarevic, 2008; Presley and Meade, 2010; Meanwhile, Mitchell et al, 1997, Agle and Mitchell, 1999, Rowley, 1997 ; Jones et al., 2006; Shen et al., 2007; O 'Connor and Spangenberg, 2008
FTSE4good		Environment; Stakeholders ; Community; Human rights	
Business Ethics 100		Environment; Employees; Social community; Diversity; Customer	
WBCSD		Energy; Environment Employees; Social community; Anti-corruption	
UNGlobal Compact		Environment; Employees; Human rights; Anti-corruption	
GIIRS		Environment; Employees; Social community; Governance structure	
ISO 26000:2010		Human right; Human; Environment; Product; community; Fair	
AA10000 series of standards	Quality of published information about CSR		
Viet Nam Building codes - QCVN 02:2009/BXD	Natural Physical & Climatic Data for Construction.		

- QCVN 05:2014/BXD	Dwellings and Public Buildings - Occupational Health and Safety.
- QCVN 06:2010/BXD	Fire Safety of Buildings.
- QCVN 09:2013/BXD	National technical regulartion on energy efficiency buildings
- QCVN 10:2014/BXD	National Technical Regulation on Construction for Disabled Access to Buildings and Facilities.
- QCVN 16:2011/BXD	Products, Goods of Building Material.
- QCVN 18:2014/BXD	National technical regulation on Safety in Construction

From Fig. 5 (a system of relevant assessment standards), the characteristics of construction enterprises have been described in the operation process to reflect the requirements of stakeholders that enterprises must implement social responsibility, from that will determine the effectiveness of social responsibility of construction enterprises. In addition to general standards, a number of specific regulations that construction industry enterprises must meet to ensure the reflection of the effectiveness of production activities as well as the effectiveness of social responsibility.

Combining Table 2 and Fig. 5, the author aims to identify key factors affecting social responsibility of construction corporates. The author will conduct statistics and build indicators for each factor based on an overview of previous studies and background theory of stakeholders (Table 3).

Table 3. The factors affect to the stakeholders

No	Impact factor	CSR efficiency	Treaties and standards	CSR indicator	
				Corporate level	Project level
1	Shareholder	Financial performance	GRI	- The value of financial results such as maintaining and improving the indicators of revenue, profit, - Stock value, - Company reputation, - Construction market share.	- The value of financial results such as maintaining and improving the indicators of revenue, profit, - Construction market share.
		Efficiency on management		-Management effectiveness is assessed on indicators related to the organization in construction enterprises, - Organizing and coordinating between departments, corporate culture, building relationships and images of businesses with customers and partners	- Organizing and coordinating between departments, corporate culture, building relationships and images of businesses with customers and partners
2	Employees	Health and labor safety	GRI, Business Ethics 100, WBCSD, GIIRS, UN Global Compact, SA8000, OHSAS18001, OHSAS18002, QCVN 05: 2014 / BXD, QCVN 18: 2014 / BXD	- Having a safe and healthy working environment; - Organizing medical examination and treatment for employees. - Raising awareness and responsibility for construction safety. - Regular maintenance of construction machinery and equipment; - Management process of labor safety supervision.	- Having a safe and healthy working environment; - Organizing medical examination and treatment for employees. - Raising awareness and responsibility for construction safety. - Regular maintenance of construction machinery and equipment; - Management process of labor safety supervision.
		Wages and		- Ensuring the minimum	-Ensuring the minimum

		benefits		wage as prescribed; - Clear salary, bonus, allowance and social security policies. - Resort according to regulations	wage as prescribed; - Clear salary, bonus, allowance and social security policies. - Resort according to regulations
		Training and promotion		- Training suitable for the job, as well as OHS training; - Employees are aware of the rules, company culture; - On-site career guidance plan for employees	- Training suitable for the job, as well as OHS training; - Employees are aware of the rules, company culture; - On-site career guidance plan for employees
		Fairness of rights and obligations		- Human rights policies and procedures to assess and deal with the exercise of human rights; - Regulations on corporate cultural environment, -Purchase policy for employees.	Human rights policies and procedures to assess and deal with the exercise of human rights; - Regulations on corporate cultural environment, -Purchase policy for employees.
3	Products	Quality and safety of construction products	ISO, QCVN 1: 2008/BXD, QCVN 05: 2014/BXD, QCVN 10: 2014/BXD, QCVN 16: 2011/BXD.	- The quality and durability of the entire building; - Meet legal and safety requirements; - Eliminate potential safety threats for customers and the community; - Establishing a project quality management system.	- The quality and durability of the entire building; - Meet legal and safety requirements; - Eliminate potential safety threats for customers and the community; - Establishing a project quality management system.
		Customer satisfaction		- Complete the project within the budget; - Complete the project on time;	- Complete the project within the budget; - Complete the project on time;
		Customer service culture		- Process of resolving customer complaints; - Maintenance procedure; - The attached after-sales services.	- Process of resolving customer complaints; - Maintenance procedure; - The attached after-sales services.
		Innovation and development		- Investment in developing creative construction materials; - New construction method and technology	
4	Environment and Resources	Conserve energy and resources	ISO 14000, QCVN 02: 2009 / BXD, QCVN 06: 2010 / BXD, QCVN 09: 2013 / BXD, QCVN	- Saving water in construction and building operation; - Land use efficiency; - Minimize construction waste and energy consumption;	-Saving water in construction and building operation; - Minimize construction waste and energy consumption;

			18: 2014 / BXD.	- Development of renewable energy and alternative energy, - Saving resources and awareness about environmental protection.	- Development of renewable energy and alternative energy, - Saving resources and awareness about environmental protection.
		Environmental Protection		- Recycle and treat waste appropriately, reduce pollutant emissions; - Use of environmentally friendly products;	- Recycle and treat waste appropriately, reduce pollutant emissions;
5	Social community	The impact of the project on the community	GRI, QCVN 01: 2008 / BXD, QCVN 03: 2012 / BXD, QCVN 07: 2013 / BXD, QCVN 08: 2009 / BXD, QCVN 14: 2009 / BXD, QCVN 17: 2013 / BXD.	- Provide employment opportunities for local communities, - Commitment to protect the local environment; - Minimize safety hazards to the community;	- Provide employment opportunities for local communities, - Commitment to protect the local environment; - Minimize safety hazards to the community;
		Join the community activities		- Participate in community support activities, - Construction of community welfare facilities, - Training human resources for localities.	Participate in community support activities, - Construction of community welfare facilities, - Training human resources for localities.
		Contribution of businesses to the community		- Tax rates paid to the State, - Compliance with laws and State policies.	- Tax rates paid to the State, - Compliance with laws and State policies.
6	Suppliers and contractors	Legal records	GRI, TCXDVN 340:2005, TCVN 5671:2012 System of regulations and standards related to construction licensing, pre-acceptance test of components, work items and the whole project	- Accurate information on credit records, corporate finance, product quality - Accuracy of the credit contract compliance;	
		Progress of loan repayments and payment		- Pay on schedule; - Strictly comply with commitments with suppliers (partners);	- Pay on schedule; - Strictly comply with commitments with suppliers (partners);
		Maintain relationships with partners		- Level of increase in the number or value of contracts - Attachment and association shown by the number of new customers introduced	

4. Discussion

Based on the methodology of an overview of the concept of CSR and the application of stakeholder background theory, the study proposed a CSR indicator system at different levels of a construction project. The establishment of an indicator framework will guide all stakeholders to contribute to CSR effectiveness at two different key levels: project phase and enterprise management. In essence, the conceptual framework provides a system for selecting indicators. A conceptual framework embedded in the theory will provide a method to convey the selection and arrangement of CSR issues covered in the assessment. A comprehensive approach on both the enterprise and project levels proposed in this study will provide useful inputs for construction companies to incorporate CSR into their business

strategies as well as process manage projects. It will enhance the reporting process by having index lists for companies or projects and clarifying the input direction to the CSR index at each level.

5. Conclusions

Previous studies on CSR show that the CSR conceptual framework is multidimensional and complex. Therefore, CSR measures are also developed in specific ways in each country to ensure the harmony between economic development issues but still bring the nuances, customs and practices of each country. Using the review method of previous studies, this study refers to the background theory of stakeholders to evaluate the CSR effectiveness that construction businesses need to perform according to the scope of impact on stakeholders in the role of enterprises and the project. It is this approach that concretizes the factors that affect CSR, thereby detailing the relevant CSR indices based on conceptual frameworks as well as measurement methods and guidelines on national standards and Vietnam that enterprises need to implement.

The approach to developing and evaluating these indicators is based on the principle of selecting the most common elements of CSR conceptual models that are widely and publicly applied throughout the world. Different perspectives are unavoidable because CSR concepts can be considered from many aspects such as institutional theory, legal theory … affecting the effectiveness of construction industry CSR. Moreover, most of the conceptual framework as well as index measurement methods reflect the benefits of both tangible and intangible benefits of CSR such as community partnerships, investment in local communities, job creation and quality of life ... The study contributes to clarify the relationship as well as responsibilities of each stakeholder in implementation and control of CSR implementation of construction enterprises. Make more clear about CSR awareness and practice through building CSR index framework for construction industry such as: legal issues, CSR efficiency as well as CSR obligations of construction industry with stakeholders. From the perspective of stakeholders, the selection of indicators to meet CSR effectiveness is still limited. The next research direction will focus on more relevant subjects such as competitors, non-governmental organizations and state management agencies.

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