EFFECTIVE CORPORATE SOCIAL RESPONSIBILITY (CSR) AND THE ROLES OF MANAGEMENT ACCOUNTANTS FOR A CREATION OF CORPORATE SHARED VALUE

RESEARCH REPORT

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Preface

The study of 'Effective corporate social responsibility (CSR) and the roles of management accountants for a creation of corporate shared value' aims to examine environmental and social information in annual reports and corporate social responsibility (CSR) provided on the Stock Exchange of Thailand. The results of the study reveal that environmental and social information in the reports was relevant to the indicators of the Global Reporting Initiatives (GRI). Companies captured environmental and social data from all sources of expenditures paid for improvement in environmental and social performance. The results of the study are employed to support the design of the sustainability management accounting framework (SMAF) for cost identification and measurement of environmental and social factors. It is hoping that the SMAF can be of benefits to accountants to incorporate more accurate environmental and social data in a company' report. By having the SMAF, sustainable companies enables more effective decision-making and improve data available to stakeholder and public, thus creating shared value in long-term.

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ABSTRACT

Nowadays, three areas of performance – economic, environmental, and social are of significant concerns to stakeholders and public to see where investment decision can be made. Accounting data on environmental and social aspects is required to incorporate in both mandatory and voluntary disclosures to create shared value on sustainable development. International measure and its framework such as Global Reporting Initiatives (GRI) and sustainability accounting practices can lead to preparation of sustainability reporting. Management accountants' roles drive as collaboration to companies to provide more accurate accounting on environmental and social aspects when promoting how a company's sustainability is achieved. A sustainable company not only enables more effective decision-making but also improve the data available to stakeholders and public for value creation. This study investigates an integration of environmental and social data in annual reports that link with the information in a voluntary disclosure to enable more effective decision-making and improve the information needs to stakeholders. Mixed method is employed to collect and analyse data as triangular findings. Legitimacy theory and stakeholder theory are employed to explain the findings.

Research Question1 is set to examine environmental and social data captured by a company's accountants based on the requirements of the Global Reporting Initiatives, while relying on

sustainability accounting practices to create an effective corporate social responsibility (CSR). Hypotheses are posted to partly answer Research Question1; H1: Environmental and social performance in a corporate social responsibility (CSR) is relevant to the environmental and social indicators of the Global Reporting Initiatives. The results of the study reveal that environmental and social data incorporated in a corporate social responsibility (CSR) disclosure are based on the indicators of the Global Reporting Initiatives (GRI) at statistically significant level of 0.01. To seek where companies identified environmental and social performance along with sustainability accounting practices to create more effective corporate social responsibility (CSR). H2: Environmental and social indicators in a corporate social responsibility (CSR) are associated with environmental and social data disclosed in annual report to support stakeholders' and public's interests are addressed. The demands of stakeholders have put on companies to incorporate environmental and social data in CSR disclosures that link with the information in annual reports. The results show that a significant relationship between environmental and social in CSR disclosures and the information in annual reports is statistically significant at the 0.01level. The linkage between information in CSR and annual reports enables more effective information available to stakeholders when their investment decisions need to be made. Thus, current management accounting practices with a company capture and identify environmental and social data based on sustainability accounting concepts – environmental management accounting (EMA) and social management accounting (SMA). H3: Environmental and social indicators captured by current management accounting system of a Thai company is associated with environmental and social performance indicators required by the sustainability accounting practices is created. Environmental and social data captured by current management accounting practices should rely on environmental management accounting and social management accounting. The results reveal that environmental and social indicators captured by current management accounting system of a Thai company is positively associated with the

information required by the sustainability accounting practices at statistically significant level of 0.05. Management accounting practices within companies identified environmental and social data to enable more effective decision-making thus improving positive impacts on the environment and society.

This study further examines management accountant's roles in capturing and identifying environmental and social data to create more effective sustainability reporting. Research Question2: To what extent do management accountants of Thai companies capture environmental and social indicators thus acting as collaborators in driving towards effective sustainability disclosures to create shared value both immediately and in the future? is posted. Proposition1; Environmental and social indicators captured by Thai companies are based on the sustainability accounting concepts/practices when incorporated in annual report and a corporate social responsibility disclosure is provided to partly answer Research Question 2. The results are the answer to P1 that environmental and social indicators was captured based on environmental management accounting and social management accounting concepts/practices to incorporate in annual reports and CSR disclosures. Management accountants identify and measure environmental and social data to add sustainable value in market place. Proposition2: Environmental and social indicators identified by current practices within a company fulfill its sustainability accounting practices, thus acting collaborators in driving towards sustainable development in long-term is created. The results are the answer to P2 that environmental and social data identified based on sustainability accounting concepts/practices in many areas. Management accountants collated non-financial information (environmental and social data) to guide the strategic direction of effective corporate social responsibility (CSR) disclosures. Proposition3; Environmental and social performance disclosed in annual reported meets the needs of sustainable development to create shared value (CSV) – economic, environmental, and social performance of firms in the eye of stakeholders and market place is posted. The results are the answer to P3 that

environmental and social information in annual reports and CSR disclosure create data accuracy available to stakeholders when their investment decisions need to be made. Environmental and social performance in annual reports and CSR disclosures support sustainable development of firms for value creation in the long-term.

Keywords : Corporate social responsibility (CSR), Creating shared value (CSV), Stakeholders' interests, Environmental data, Social data, Sustainability Management Accounting Framework (SMAF)

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Chapter 1

Introduction

Background of the study

In Thailand, corporate social responsibility (CSR) has become a growing public awareness for decades regarding the roles of the corporate in the development of society and environment where companies operate. The evidence of growing concerns for CSR has been widely shown from reporting environmental and social performance associating with eco-efficiency in the form of a triple bottom line reporting and the global reporting initiatives (Hall, 2002; O'Dwyer, 2001). Previous studies claims that (Nickie Petcharat, 2013; Yodprutikarn, 2010) Thai companies have, however, reported environmental and social data in a corporate social responsibility (CSR) disclosure against the backdrop of environmental and social issues affecting Thai community in surrounding areas. Most companies in Thailand intended to primarily disclose on social issues while often ignoring environmental aspects (Prayukvong & Olsen, 2009). Environmental and social indicators appear inconsistency when incorporating in annual reports and CSR disclosures (Nickie Petcharat & Mula, 2013). Management accountants have not much roles in providing accounting information to support sustainability disclosures (Nickie Petcharat & Mula, 2013). As a result, companies are faced with several challenges regarding the new global economic order which results in the exports, growing social division, deteriorating environmental condition, and deteriorating health condition are affected (Yodprutikarn, 2010). All this could be from lacking attention to take environmental and social responsibility and accountability (Yodprutikarn, 2010). Companies have paid less intention to integrate neither environmental nor social data in their annual report that results in increased interests of stakeholders have required companies to ensure that they have met international and social

environmental standards (Thapanachai, 2000; Tungrhapheephakorn, 2001cited in Kuasirikun and Sherer (2004) . Stakeholder has paid more attention to the corporate social responsibility reporting of Thai companies reporting environmental and social data to support its investment decision.

To date, CSR in the Thai context, however, is known as a contribution to the competitiveness of sustainable companies from improving environmental and social performance along with reducing operational risks. An initial aim of CSR in Thai context is to add shareholder value in the eye of stakeholders and market place (Nickie Petcharat & Mula, 2013). A company reports eenvironmental and social performance in a sustainability report to simply create a positive image and reputation in the eyes of its stakeholders and market place (Nickie Petcharat & Mula, 2013). A company has, however, paid less attention to accurately disclose environmental and social data in their CSR reports or financial statements (Nickie Petcharat & Mula, 2013; Yodprutikarn, 2010). Management accountants should take environmental and social cost identification and measurement into account (CIMA, 2005; Collins, Lawrence, Roper, & Haar, 2011) to create more accurate environmental and social information in a company's reports (Nickie Petcharat & Mula, 2013). This can help firms to create corporate shared value when disclosing three areas of performance – economic, environmental and social in the eyes of stakeholders and the public (M. Porter & Kramer, 2006)

In addition, little is known about sustainability accounting concepts containing environmental and social accounting in Thai context. The demands, however, have placed on management accountants that have grown in identification and measurement of environmental and social performance indicators to incorporate in a sustainability disclosure (Burritt, Hahn, & Schaltegger, 2002; Ratanajongkol, Davey, & Low, 2006). Management accountants' roles in capturing and creating quality data of environmental and social data have been lacking knowledge of expanding sustainability accounting concepts and practices. Sustainability accounting concepts in

Thai context appear to show less intention to capture and measure environmental and social data to disclose in a company's reports both internally and externally (Burritt & Schaltegger, 2010; Nickie Petcharat & Mula, 2013). This results in the development of CSR in Thailand having been piecemeal while a theoretical framework developed to deal with environmental and social data is not clear and helpful (Nickie Petcharat & Mula, 2013). CSR in Thai context is unable to be effectively used to support stakeholders' interests in a collaborative way – reducing operational risk, economic growth, how resources are managed, and how social and communities where companies operate are developed (Nickie Petcharat & Mula, 2013). Based on environmental and social indicators of international measures such as ISO 14000 for Environmental Management and ISO 18000 for Health and Safety at Work Management, international measures are introduced as guidelines to help reporting employee friendliness and environmental awareness in order to ensure that business practices meet environmental and social development requirements (Trotman, 1981).

This study, therefore, explores environmental and social performance indicators in Thai context disclosed in a corporate social responsibility (CSR) and annual reports. This is to see where accuracy and appropriateness of data is used to support the demands of the stakeholders and the public. Environmental and social data in a company's reports need to respond to the efficiency of accounting data, as well as meeting the requirements of the Global Reporting Initiatives(GRI, 2011b). This, in turn, assists companies to become more socially and environmentally aware organizations while creating a positive reputation as a 'green producer' in a global market. Thus, CSR reports provided on the companies' websites (a sampling group) are targeted for an investigation. Legitimacy theory is considered appropriate to explain where environmental and social data accuracy should be disclosed in a CSR report. In relation to this, stakeholder theory examine ethical and moral obligation of Thai companies to address the demands of the stakeholders, thus reporting more accurate and appropriate environmental and social performance in the form of a CSR report in the Thai context.

Research problem and its definitions

In achieving CSR activities, companies in Thailand have paid more attention to report social well-being including education supports, quality of life of employee, and community development, while ignoring consumer demand for socially and environmentally responsible business (Neungruthai Petcharat, 2012b; Nickie Petcharat & Mula, 2013; Prayukvong & Olsen, 2009). This results in CSR in Thai context appears unlikely to the environmental and social indicators required by the Global Reporting Initiatives (Nickie Petcharat & Mula, 2013). In addition as CSR concepts have been driven from Western ideas relating to ethical and moral business practices, Thai companies view different ways in taking environmental and social issues into account (Prayukvong & Olsen, 2009). It significantly alters business behavior or make valuable contribution to society and environmental efficiency (Prayukvong & Olsen, 2009). Several companies in Thailand have found their own ways to reduce use of natural resources, environmental damages, social impacts, harmful community, while others are looking for creation of images and reputation in market places (Nickie Petcharat & Mula, 2013). Companies appear to report unfaithful information on environment and social aspects in CSR disclosures (Nickie Petcharat & Mula, 2013; Prayukvong & Olsen, 2009). This results in CSR in Thai context would not be able to accurately integrate environmental and social data in prior to creating shared value in global market.

Moreover as little is known about sustainability accounting concepts/practices in Thailand, management accountants of a Thai company appears lacking knowledge and skills in capturing environmental and social indicators (Nickie Petcharat & Mula, 2013). They could not hold with respect to sustainability accounting and collaboration of non-financial information (Collins, et al., 2011) and non-financial information in relation to environmental and social aspects (Nickie Petcharat & Mula, 2013). Such information relating to a company's effective sustainability report to create

shared value, management accountants should realize the link between environmental and social concerns and sustainability accounting practices as providers (Collins, et al., 2011). Management accountants' roles should be ideally placed to provide accurate environmental and social information while having knowledge of, and skills in sustainability accounting concepts/practices (ICAEW, 2004). This would help a company to fully capture accounting information on environmental and social factors to integrated in a company's internal reports and voluntary disclosures to fulfil the needs of stakeholders and public (ICAEW, 2004).

Research question and its hypotheses and propositions

This study seeks to examine an effective corporate social responsibility (CSR) and the roles of management accountants for a creation of corporate shared value. A Thai company discloses environmental and social performance to fulfil the needs of its stakeholders to add shared value in market place. Environmental and social information provided in the CSR reports of Thai companies and the requirements of the Global Reporting Initiatives is primarily concerned. Further, the roles of a company's management accountants in providing environmental and social information based on sustainability accounting concepts/practices are also studied. As stakeholders are interested in the development of environmental and social performance along with economic growth, environmental and social data needs to be identified, measured, and collected to incorporate in CSR in order to support stakeholders' demands (Rob Gray & Bebbington, 2001; RH Gray, Owen, & Maunders, 1987; IFAC, 2005). Thus, research question **(RQ1)** is posed to seek an association between environmental and social information reported in CSR of Thai companies and the requirements of the Global Reporting Initiatives to support stakeholders' interests. To partly answer **RQ1**, its hypotheses are tested.

RQ1. Is environmental and social data captured by of a company's accountants based on the requirements of the Global Reporting Initiatives, while relying on sustainability accounting practices to create an effective corporate social responsibility (CSR)?

H_1. *Environmental and social performance in a corporate social responsibility (CSR) is relevant to the environmental and social indicators of the Global Reporting Initiatives*

H_2. *Environmental and social indicators in a corporate social responsibility (CSR) are associated with environmental and social data disclosed in annual report to support stakeholders' and public's interests*

H_3. *Environmental and social indicators captured by current management accounting system of a Thai company is associated with environmental and social performance indicators required by the sustainability accounting practices*

Little is known about how CSR in Thailand creates shared value in long-term. Companies are having difficulty in identifying and reporting environmental and social data in a CSR disclosure in prior to creating shared value in market place. Environmental and social data shown in a CSR report in the Thai contexts does not seem like a full representation of overall performance (economic, social, environment) (Nickie Petcharat & Mula, 2013). Management accountants should have a significant role in providing environmental and social data, thus creating consistency of accounting information in a company's disclosures (CIMA, 2006; Collins, et al., 2011; Nickie Petcharat & Mula, 2013) Thai companies mainly provide CSR disclosures to create positive images in the "green" markets, thus identifying CSR as a business strategy to create long-term economic development (Sumatheeprasit, 2011; The Stock Exchange of Thailand, 2013).Thai companies have been less intention to create accurate accounting information on environmental and social factors to support CSR disclosures(SCG Thailand, 2012) in order to meet the requirements of Global Reporting Initiatives. Thus, research question **(RQ3)** is addressed and its propositions are posted.

RQ2. To what extent do management accountants of Thai companies capture environmental and social indicators thus acting as collaborators in driving towards effective sustainability disclosures to create shared value both immediately and in future?

P1. *Environmental and social indicators captured by Thai companies are based on the sustainability accounting concepts/practices when incorporating in annual report and a corporate social responsibility disclosure*

P2. *Environmental and social indicators identified by current practices within a company fulfil its sustainability accounting practices, thus acting collaborators in driving towards sustainable development in long-term*

P3. *Environmental and social performance disclosed in annual reported meets the needs of sustainable development to create shared value (CSV) – economic, environmental, and social performance of firms in the eye of stakeholders and market place*

Whilst stakeholders and investors looking at efficiency of economic, environmental, and social performance to see where investment decisions can be made, environmental and social data reported by Thai companies appears inaccuracy when disclosing to create shared value (Nickie Petcharat & Mula, 2013). Management accountant's roles in providing accounting data to support a company's disclosures can clearly delineate judgements about data accuracy of environmental and social facets. Within a company, management accountants and/or others those are having responsibility for collecting and verifying information need to create quality data to support a company's financial disclosures and corporate social responsibility (CSR) reports (Collins, et al., 2011). A company needs a environmental management accounting concepts/practices that can be integrated with its exiting accounting systems and practices to create more accurate environmental information (Setthasakko, 2010). In addition, social information should be also incorporated in a company's financial reports and voluntary disclosure. So social management accounting should be

developed as a conceptual model to help in cost identification and measurement (Neungruthai Petcharat, 2012a). Thus, an effective conceptual framework designed by this study would provide management accountants of a Thai company to fully capture environmental and social data based on sustainability accounting concepts/practices. The framework would report environmental and social indicators required by the Global Reporting Initiatives to add shared value in the eye of stakeholders and market place.

Theoretical framework and its theoretical perspectives

This study examines an effective corporate social responsibility (CSR) reporting environmental and social performance to create shared value in the eye of stakeholders and public. Environmental and social data captured by a company's management accountants and/or other relevant departments should be associated with environmental and social performance indicators required by the GRI. Environmental and social performance in a corporate social responsibility (CSR) should be associated with the environmental and social indicators of the Global Reporting Initiatives **(H_1).** A company reports environmental and social data based on the requirements of the Global Reporting Initiatives to add shareholder value in the eye of stakeholders and market place. In relation to this, environmental and social indicators in a corporate social responsibility (CSR) need to be associated with environmental and social data disclosed in annual report **(H_2).** The association with environmental and social performance indicators in a corporate social responsibility (CSR) disclosure and annual report can address stakeholders' and public demands. Thus, management accountants should play an important role in capturing environmental and social indicators relying on sustainability accounting concepts/practices **(H_3).** Thus, management accountants' knowledge of, and skills in capturing environmental and social data based on sustainability accounting concepts/practices are explored.

This study, further, investigates management accountants' roles and responsibility for identifying and capturing environmental and social data reported in a company's disclosures. Thus, knowledge of, and skills in environmental management accounting (EMA) and social management accounting (SMA) concepts/practices are questioned to seek where appropriate accounting data identified and captured by management accountants within a company. Research question2 is set to examine to what extent management accountants of Thai companies capture environmental and social indicators thus acting as collaborators in driving towards effective sustainability disclosures to create shared value both immediately and in future. Management accountants can play an important role in providing environmental and social indicators to create effective corporate social responsibility report **(P1)**. Environmental and social data reported in both financial statements and corporate social responsibility (CSR) provides a company's with a way to add shared value by creating effective voluntary disclosures to fulfil the needs of its stakeholders and market place. Management accountants capture environmental and social indicators based on sustainability accounting concepts/practices to incorporate in annual report and a corporate social responsibility disclosure **(P2)**. This study expects that management accountants employ sustainability accounting concepts/practices to measure and collect environmental and social indicators to support a company's disclosures internally and externally. Even though companies in Thailand are at early stage of being leaders in providing transparency into the environmental and social aspects of their operations, a sustainability accounting framework designed by this study would help a company to turn to its own sustainability transformation. The results of the study employ to support the design a sustainability accounting framework to fulfil their sustainability accounting practices, thus acting collaborators in driving towards sustainable development in long-term **(P3)**. A company that embeds sustainability management practices into its cost identification and measurement framework can take a leadership position in reporting more accurate accounting data on environmental and social factors. A proactive

strategy for enterprise environmental and social measurement and sustainability accounting practices can enhance internal and external disclosure effectively. A sustainability accounting framework can bring benefits to management accountants to capture environmental and social data in order to respond to sustainability disclosure risks with widely varying degree. A company can disclose environmental and social performance disclosure in annual report, thus taking a leadership position in measuring and capturing environmental and social data along with significantly creating shared value (CSV) and driving better market performance.

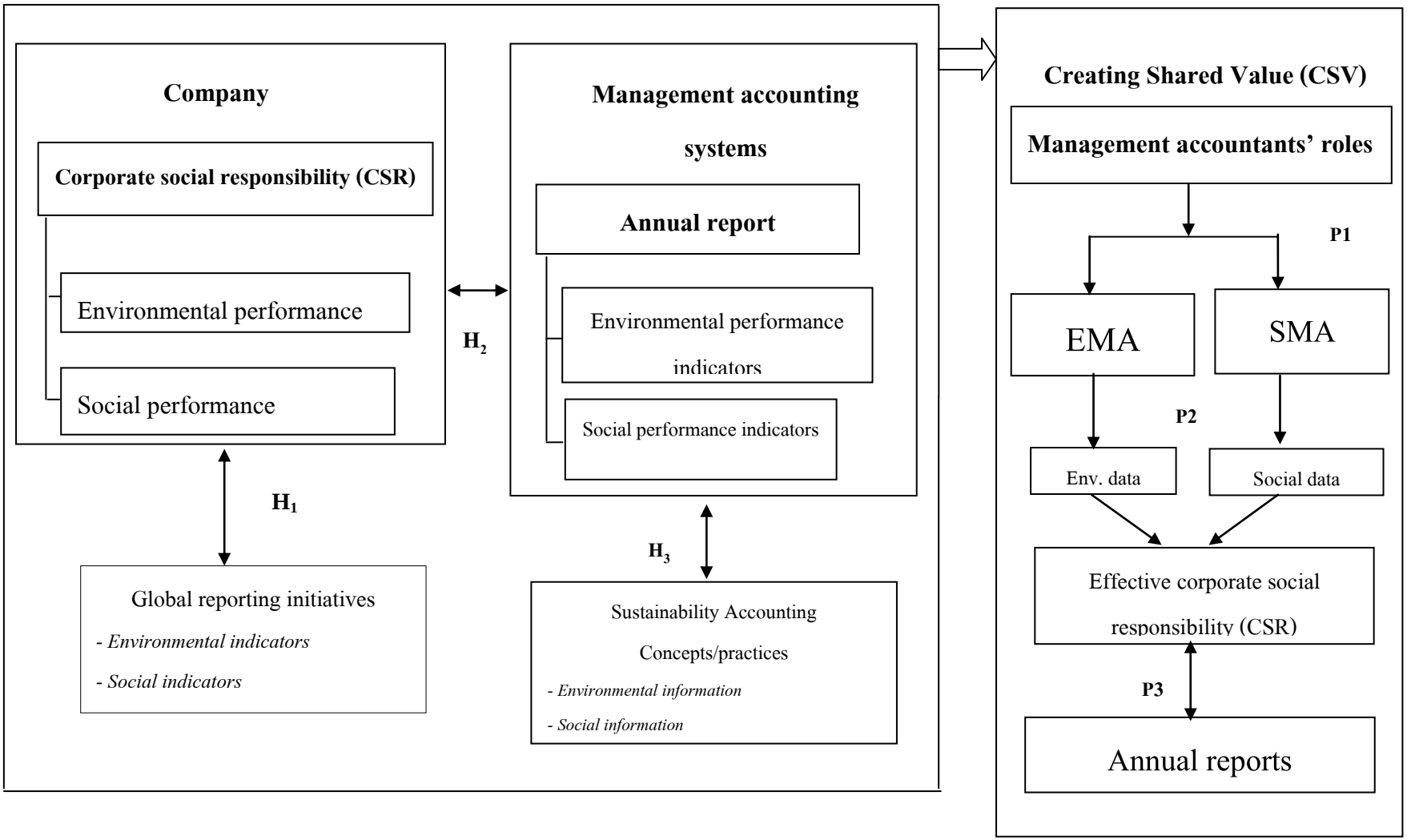

Figure 1 A Sustainability Management Accounting Framework for environmental and social indicators

Chapter 2

Literature review

Chapter 2 provides the review of relevant literatures that show the impetus for the development of economic, social, and environmental performance for decision-making and reporting purposes. CSR provided to create shared value (CSV) in global market is discussed. The dimensions of environmental and social performance indicators in a company's reports are described. Two prior theories—stakeholder theory and legitimacy theory—were fused to examine the ethical and moral obligations on companies when making an association with data in annual reports and CSR disclosures.

Corporate social responsibility (CSR) in Thailand

Sustainable growth organizations can be a confluence of business opportunities from compelling operational outcomes and enhancing competitive advantage in 'green' markets. At a boardroom level, sustainability is elevated to a way to create eco-efficiency—along with the development of environmental and social performance (Epstein & Roy, 2001). In this regard, market drivers and competitive differentiations are major environmental and social issues that companies need to consider (Laszlo, 2008). Companies' responsibilities are relevant to improving ecological and environmental patterns and enhancing the quality of life of employees, and the community and society in which they operate (Rob Gray, Javad, Power, & C.Sinclair, 2001). In order to add shareholder value, companies need to promote themselves as sustainable organizations, thus minimizing their use of natural resources (material, energy, and water), creating less emission and waste, and developing social well-being as a whole (Berkel, 2003). Furthermore, stakeholders are

concerned with disclosure reporting on three performance indicators—economic, environmental, and social development in the form of a triple bottom line (Berkel, 2003). As a result, company costs (environment and social impacts) are required to be measured and reported as intangible costs (IFAC, 2005) in a corporate financial report (Gadenne & Zaman, 2002). Such reporting will create compliance with sustainable development legislation and enhance investment decisions to build economic, environmental, and social value adding (Figge & Hahn, 2004)

Over decades, Thailand has been known as one of the most attractive countries in Southeast Asia for foreign investors due to cheaper labour rates and rich in natural resources. In Thailand, corporate social responsibility (CSR) is defined as a business strategy that helps create long-term economic development while building positive reputation in the eye of stakeholders and market place so that Thai companies have been less intention to move towards environmental and social issues (Sumatheeprasit, 2011; The Stock Exchange of Thailand, 2013). Thai companies have, also, been found to be primarily focused on human resources, providing "declarative" good news disclosures, rather than creating accurate accounting information of environmental and social factors to support CSR disclosures and/or financial reports (SCG Thailand, 2012). Nonetheless, Virakul et al. (2011) claimed that corporate social responsibility (CSR) activities in the top Thai companies were based on moral motivations and ethical obligations to protect environment and society while focusing on both production processes and philanthropic outcomes. The CEO leadership, company performance, and stakeholders' expectations have significantly driven forces behind CSR activities which arranged into five main categories including education, arts and culture, sports, environment, and public welfare (Sumatheeprasit, 2011). Moreover, the study of Kraisornsuthasinee and Swierczek (2009) found that a small group of Thai companies those have been recognized as CSR leaders in Thailand have started incorporating CSR activities into their corporate strategies. They aimed to create competitive advantages in market place, as well as gaining various benefits gradually in future.

As an international market has been concerned about social well-being and environmental awareness from companies in Thailand since the last decade (Trotman, 1981), companies are required to ensure that they have met international and social environmental standards (Thapanachai, 2000; Tungrhapheephakorn, 2001cited in Kuasirikun and Sherer (2004)). Environmental and social data needs to be precisely reported in a company's financial statement associating with voluntary disclosures in the form of a corporate social responsibility (CSR). Based on environmental and social indicators of international measures such as ISO 14000 for Environmental Management and ISO 18000 for Health and Safety at Work Management, international measures are introduced as a guidelines to help reporting employee-friendly and environmentally aware in order to ensure that business practices meet environmental and social development requirements (Trotman, 1981).

In Thailand, corporate social responsibility (CSR) agenda, however, is mainly driven by the concerns of developed countries to broaden the scope and content of mainstream CSR disclosures incorporating three areas of the development – economic, environmental, and social performance (Taweephol, 2000). In Thailand, a corporate social responsibility (CSR) report has been of considerable importance for a decade (The Stock Exchange of Thailand, 2012). The emergence of CSR and variations in its implementation has become increasingly important to sustainable development of firms. The linkage between CSR and good corporate governance has been recognized as an important role of stakeholders engagement initiatives (Department of Water Resources, 2010). In the context of world's environmental and social concerns, Thai companies have intended to create positive impacts on environment and society by reducing high levels of energy consumptions, as well as polluting less carbon emission in the air (Neungruthai Petcharat & Mula, 2009b). Companies have mainly collected environmental costs from energy uses, petroleum use, carbon emissions, and NO_x emissions; meanwhile, total social impact costs have been identified from direct production costs

including external costs of other air emissions such as CH_4, N_2O, CO, SO_2, VOC and PM_{10} (Neungruthai Petcharat & Mula, 2009b).

Moreover, a survey of corporate sustainability of MIT showed that executives in all segments identified that Thai companies (more than 59%) were of attention and investment to the corporate sustainability while only 3% mentioned as less important. The remaining 34% reported no change in the years since 2010. This proportion subjected to increase companies' investment in sustainability (Sumatheeprasit, 2011). Social and environmental reporting in the Thai context is, however, needed to further develop to incorporating in CSR reporting. Meanwhile cost information of social and environmental factors needs to be accurately identified and measured, especially the factors of determining ways in which companies disclose their environmental and social performance to the stakeholders and public (Department of Water Resources, 2010). Corporate social responsibility (CSR) disclosures of Thai companies are explored fall short of companies' potential to function as enabling accounting communication in the Thai context (Sumatheeprasit, 2011; Trotman, 1981). In addition, Rittippant et al.'s study reveals that the level of employee involvement in the CSR including environmental protection and social development programs significantly affects employee satisfaction and organizational' commitment that results in employee's perceptions (Rittippant, Tangthuttong, Sinyodyeam, & Aurjongmanee, 2011). The implementation of CSR to report a environmental and social performance of a company should be related to the participation of employees, community development, and environmental and social development programs (Rittippant, et al., 2011).

It can be seen that much less is interested in an integration of environmental and social data in corporate sustainability reporting. Little research has been undertaken on corporate social responsibility (CSR) with a focus on the social and environmental aspects of accounting in Thailand, and in this respect the main aim of this study is to describe and evaluate Thai corporate social and

environmental disclosure practices. Future research is also necessary in this respect to explore how the Thai accounting profession and relevant governmental agencies might be engaged in exploring and developing a more enabling accounting practice which accommodates and provides balanced representation in both numerical and narrative forms (Kuasirikun, 2005). This would be the ways in which the further development of environmental and social accounting concepts can be given impetus for environmental and social aspects to the Thai context (Kuasirikun, 2005). Furthermore, as the needs of CSR reporting should be included social and environmental factors to address stakeholders and public interests, CSR in the Thai context needs to examine the various dimensions of social and environmental issues, especially the factors determining ways in which corporations disclose their social and environmental information.

According to Porter and Kramer (2006), CRR can help a company to improve its image and reputation, as well as strengthening brand and enlivening morale to add shareholder value in market place. As the principle of sustainability concepts aims to enlightened self-interests when disclosing three areas of performance – economic, environmental and social which it is so called triple bottom line (Porter and Kramer, 2006). A firm should operate in a way that creates economic efficiency along with long-term benefits for environmental performance and social well-being as a whole (Porter and Kramer, 2006). CSR provided by companies along with a good corporate governance and social responsibility can be significantly perceived by internal and external stakeholders, investors, public (Petersen & Vredenburg, 2009). This is because CSR can create a better reputation and goodwill between firms and stakeholders, thus building positive image that yield financial efficiency for the companies (Chambers, Chapple, Moon, & Sullivan, 2003; Nickie Petcharat & Mula, 2013).

In Thailand, CSR is known as the showcase of a company' s social responsibility that increases in image awareness and reputation (Prayukvong & Olsen, 2009). This study, therefore,

appears to be first attempt to examine effective corporate social responsibility (CSR) and integration of environmental and social data in prior to creation of corporate shared value in the eye of stakeholders and public. Environmental and social data in a corporate social responsibility (CSR) in the Thai context should be considered for more full representation, thus making data available to the stakeholders and investors. As CSR does not mean to excuse what business has done is right or wrong to the environment and society, it is about making a greater contribution to the needs of environment and society from a business activities. Thus, in achieving CSR, companies need to address stakeholders' and public's interests – expectations, constraints or limitations – in prior to developing CSR activities and practices (Prayukvong & Olsen, 2009). Companies report environmental and social performance along with eco-efficiency in the CSR should be solely take full responsibility of community involvement and environmental solutions. By having an appropriate CSR, this would create shared value in the eye of stakeholders and public.

Creating shared value (CSV) in Thai context

Creating shared value (CSV) is a connection between societal and economic progress which its central promise is the linkages between business strategies and corporate social responsibility (CSR). Whilst CSR is more likely to capture and report cost information based moral and ethical obligation with in a firm, CSV aims to create relationship between a company and its stakeholders regarding with enhancement of investment decision. Porter and Kramer (2006) has introduced creating shared value (CSV) to the business focusing on the mutual dependence of firms and society while implying principle of shared value to support business decision-making regarding with social policies. An initial aim of this is to create benefits for both sides (M. Porter & Kramer, 2006). Creating shared valued would be, therefore, balance with the health of the society and communities where a company operates. Creating shared value, mainly, focuses on the success of a firm in the long

term while adding shareholder value for its stakeholders and the same time for communities and society at large. According to Porter and Krame (2011), corporate social reasonability (CSR) aims to create a company's reputation and have only limited connection to the business, while creating shared value (CSV) focuses on a company's profitability and a competitive position. In relation to this, laws and ethical standards need to be complied with corporate activities to reduce harmful environment and society for both CSR and CSV (M. E. Porter & Krame, 2011).

Creating shared value aims to add value to three areas of performance – economic, environmental and social which it is so called triple bottom line. Business activities should be involved with a healthy society and environmental efficiency while making a high profit in market. Education, health care and safety, equal opportunities of employees, and environmental performance are essential to a productive workforce within a company (Porter and Kramer, 2006). In developing countries, however, society and community has not been recognized as viable markets due to the profits for companies are highly substantial while creating benefits for society and communities become less attention (M. E. Porter & Krame, 2011). Firms, recently, has been recognized as a major cause of creating negative impacts on social, environmental, and economic performance. The viewpoint of a company narrowly focuses on optimizing a short-term financial outcomes while ignoring the environmental and social benefits that influence their long-term success (M. E. Porter & Krame, 2011).

Creating shared value that creates positive impacts on economic, environmental, and social performance can lead to the sustainable organizations efficiency which a company is independent to the private and/or government subsidies (Porter and Kramer, 2006). A company can set a business goal and objective to reduce negative impacts on environment, society, community where it operates. In doing so, a company will become more talent in improving environmental and social well-being

itself than others. This is because strategic CSR is for more selective when responsive CSR depends on being a good company that addressing social harm and environmental damage in its report (Porter and Kramer, 2006). As a result, only few companies in Thailand report environmental and social performance to create better business opportunities to make a real difference to society and/or to confer a competitive advantage in market place. Thus, by introducing CSV to the companies in Thailand, this would encourage firms to be more aware of social and environmental development. Firms should be independent in setting policies or practices as self-sustaining solutions in relation to reduction in negative impacts on environment, society, and local community in which it operates.

Although, several companies in Thailand have found their own ways to reduce use of natural resources, environmental damages, social impacts, harmful community (e.g. Siam Cement Group (SCG), Bangchak Petroleum, PTT Public Company Limited, and Kasikorn Bank), others are looking for creation of images and reputation in market places. This results in environmental and social information in their CSR disclosures are unrealizable to the stakeholders and public. Most companies in Thailand report environmental and social performance to create better attitude of their customers to purchase products and investors or stakeholders to invest in their stocks. Accounting to Pirsch et. Al., (2007), CSR is more effective at customers' and stakeholders' attitude towards a company' policies and practices, thus reducing customers' and stakeholders' concerns about products or services that might harm environment and society. Thus, by reporting unfaithful information in the sustainability disclosures would not improve a company's image and/or reputation in long-term while creating shared value in the eye of stakeholders and market place would not be possible.

As a consequence, shared value creation relies on firms that do not have only fully knowledge of ways to develop social dimensions but they also have policies and practices based on business activities including research or financial role (Rhod, 2013). This can create an inspiration for

sustainability practitioners to build the idea to lead to measure or identify social value along with economic efficiency. Creating shared value should bring together leaders from firms, civil society, and governments to build strong sustainability knowledge and practices that engages global community and 'green' organizations (Prayukvong & Olsen, 2009). This would support companies in Thailand to add shareholder value by reporting more accurate accounting data on environmental and social facets to address stakeholders' and public's demands (Nickie Petcharat & Mula, 2013). As stakeholders and CSR are associated with each, companies should be able to identify needs, expectations, and constraints or limitation of stakeholders in prior to creating shared value based on effective CSR other (Nickie Petcharat & Mula, 2013; Prayukvong & Olsen, 2009).

This study employs creating shared value (CSV) concepts to support the sign of a sustainability accounting framework that explain why a company needs to create more accurate accounting information on environmental and social factors. Environmental and social data disclosed in a company's annual report is consistent with information reported in CSR. Thus, by employing sustainability accounting concepts/practices, management accountants ensure that environmental and social data captured and measured to support a company's disclosures are accurate.

Management accountant's roles in sustainability accounting

Management accountants can play an important role in encouraging a company to report accurate environmental and social information in sustainability reporting and financial statements. Environmental and social accounting should be developed or designed as a business tool and mechanism such a conceptual model or framework to support their firms in achieving sustainability targets (Collins, et al., 2011). Management accountant's roles should, also, drive as collaborators with

a company in capturing, identifying, and measuring environmental and social data using sustainability accounting concepts/practices (Nikcie Petcharat & Mula, 2012).

Sustainability accounting (SA)

What is sustainability accounting? Sustainability accounting is a key driver of explaining and determining a company's reputation and positive image through corporate disclosure quality. It also refers to the representing the process of data collection of environmental and social facets to support the demands of a company's stakeholders and enhance management decisions to ensure corporate sustainability is achieved (Burritt & Schaltegger, 2010). Sustainability accounting is business tool that provides a sustainable company with a way to move towards the kinds of management decisions in relation to economic, environmental, and social sustainability (Ball, 2004). Lamberton (2005) claimed that sustainability accounting creates transparency of the full disclosures of processes, procedures, and assumptions in a company's disclosures and inclusiveness of the reporting that systematically engages the demands of stakeholders to enhance the quality of corporate sustainability disclosures. As a company moves towards imbedding sustainability into the very fabric of their operations, accountants and financial reporting systems are increasingly being required upon to fully prepare environmental and social data thus assuring information for investment decisions and stakeholders' concerns (Neungruthai Petcharat, 2012b). This results in environmental, social and economic sustainability has become a dominant theme in mainstream corporate strategy and operations. Environmental and social information in a sustainability report is used by management and external stakeholders to make informed decisions regarding the positive impact of the company's operations including economic profitability, environmental friendly, and social well-being (Mula & Petcharat, 2010; Neungruthai Petcharat, 2012b).

A number of recent studies (e.g Lamberton, 2005; Stefan Schaltegger & Wagner, 2006; Taplin, Bent, & Aeron-Thomas, 2006) examined sustainability accounting in terms of physical and monetary measurements to improve financial management. The suggestions emanating from these studies show the need for sustainability accounting to include improvements in the quality of society, humans, the environment, and natural capital—rather than just focusing on a company's economic performance. Gray (2006) pointed out that sustainability accounting should incorporate improvements in social and environmental reporting in terms of external disclosures to meet shareholder expectations of sustainable organizations. Sustainability accounting also provides a company with the measurement of external (environmental and social) and internal (financial) costs, and full cost accounting is implemented to support internal and external disclosure such as sustainability reporting and corporate social responsibility reporting (CSR) (ICAEW, 2004; Lamberton, 2005). Likewise, sustainability accounting deals with the practices, procedures, and methods that assist a company to record, analyse, and report the integration of social, environmental and economic facets of organizational activities into a corporate sustainability report (Burritt & Schaltegger, 2010). This approach helps support management decision to improve corporate sustainability and reliability including disclosure quality regarding stakeholders' interests to add shareholder value in the turbulent and uncertain markets (Adams, 2010). Thus, users such management accountants need to understand tools and/or accounting techniques that can be employed to measure and identify costs or expenditures to improve environmental and social performance of firms. This can help a company to integrate non-financial information – environmental efficiency and social performance to the financial information in its annual reports (Nickie Petcharat & Mula, 2013).

Sustainability accounting in the Thai context is however not widely well-known (Nickie Petcharat & Mula, 2013). Companies appear lack intention to report environmental and social performance along with eco-efficiency in the form of a triple bottom line and or a corporate social

responsibility (CSR) report. Management accountant's roles in sustainability accounting should be involved in setting sustainability strategies, thus supporting firm to achieve the best sustainability outcomes (Cullen & Whelan, 2006). Management accountants need to provide environmental and social information reported in both internal and external reports to support management decision-making and stakeholders when decision needs to be made (Neungruthai Petcharat & Mula, 2009a; Nikcie Petcharat & Mula, 2012). In Thailand, foreign investors have noticed that Thai economic and manufacturers have resulted in the depletion of natural resources including forests and rivers which create serious pollution in surrounding areas (Trotman, 1981). Environmental and social issues of Thai companies have been significantly concerned by foreign investors, particularly those related to quality of life and working standards of employees and environmental pollution. In dealing with this issue, governmental agencies have provided a better framework for more effective business practices when reporting accounting information on environmental and social effects.

Thus, environment management accounting (EMA) and social management accounting (SMA) are considered appropriated to incorporate in the design of a sustainability management accounting framework designed for cost identification and measurement of environmental and social indicators. This framework would help management accountants in Thailand to provide more accurate accounting data of environmental and social aspects in the Thai context incorporated in a CSR report and/or other voluntary report manner. Given the importance of sustainability to accounting practice, it is critical that sustainability should be incorporated in the a current financial reporting system for enhancement in corporate shared values and increase in stakeholders' trusts in a company's reports (Nickie Petcharat & Mula, 2013). Companies should be introduced to the idea of the triple bottom line, whereby a company's performance is evaluated based not only on profitability, but also on its social and environmental impact (Nickie Petcharat & Mula, 2013). In addition, sustainability initiatives are able to reduce operating costs, generate new revenue streams, result in

regulatory compliance, and favorably respond to stakeholder concerns that makes a good business sense (Adams, 2010).

Environmental management accounting (EMA)

Environmental management accounting (EMA) is a subset of environmental accounting – environmental management accounting and environment financial accounting. Environmental accounting a key concept of business decision-making in relation to the environmental cost analysis when correctly allocating costs to products (Căpusneanu, 2008; EPA, 1995). Environmental accounting (EA) is considered appropriate to evaluate internal and external costs of the environment resulting from production and service processes (Burritt & Saka, 2006; The Sigma Project, 2003; UNDSD, 2001), thus meeting the concerns of stakeholders in incorporating environmental costs into financial reporting. As a result, environmental management accounting (EMA) is designed as a business tool to not only manage costs of environmental protection, but also to provide financial reports for business management of environmental performance (Burritt & Saka, 2006). Environment management accounting (EMA) provides a company with a way to identify and measure environmental indicators within and external organizations to support significant concerns of external stakeholders (governments, shareholders, etc.) (Burritt & Saka, 2006). It aims to deal with cost identification and measurement of environmental transactions and other events that could have impacts on financial position and/or financial performance of firms (Moisescu & Mihai, 2006).

Although there is no present obligation and/or legal obligation in identifying or measuring environmental factors, under International Accounting Standard (IAS), companies are expected to take responsibility to reduce negative impacts on environment, as well as providing environmental expenditures in companies' disclosures (Moisescu & Mihai, 2006). Environment management accounting provides companies with a way to give better information of environmental costs to

enhance both internal and external decision-making (Borges & Bergamini, 2001). In addition, financial disclosures of companies are also required to briefly report environmental factors including amount of the expected timing of any environmental expenditures and amount of any expected recompenses (Moisescu & Mihai, 2006). According to IFAC (2005), environmental costs are classified into four categories widely accepted by international organisations as best practice, namely:

1. *Environmental costs incurred from environmental activities such as waste management and control and/or pollution prevention;*
2. *Costs identified from materials and/or labour by traditional accounting;*
3. *Environmental domain costs calculated from use of water, air, and/or land size; and*
4. *Hidden costs that are visible in accounting data.*

However, these environmental cost categories are not easy to identify and measure to support each production activity (IFAC, 2005). Therefore, IFAC's (2005) categories provide a clearer identification of environmental costs in order to meet the needs of production processes while providing comprehensive information to accountants, firms, countries, and/or stakeholders, as shown below:

1. *'Material costs of product outputs* – costs of water, materials, and/or energy purchased to support production processes;
2. *Material costs of non-product outputs* – costs of wastes and/or emissions created from use of material, energy, and water;
3. *Waste and emission control costs* – costs of waste and emission management, pollution reductions, and/or environmental treatment;
4. *Prevention and other environmental costs* – costs of environmental prevention, environmental management, and/or environmental protection;

5. *Research and development costs* – costs of environmental concerns in relation to preventing environmental damages; *and*
6. *Less tangible costs* –internal and external costs that are related to improvement in product quality, companies' images, companies' reputations, and/or stakeholders' relations' (IFAC, 2005, p.38)

In Thailand, environmental reporting is relevant to accounting performance disclosures along with a good environmental reporting policy that enable companies to effectively create long-term profitability of the 'green' organizations (Connelly & Limpaphayom, 2004). However, as the measurement and identification of environmental costs are difficult and complex (IFAC, 2005), companies have seemingly disclosed environmental information as little as possible (Moisescu & Mihai, 2006). Environmental performance is reported to address increased concerns of stakeholders and public while creating companies images of environment-friendly organizations in market place (Connelly & Limpaphayom, 2004; Yongvanich & Guthrie, 2006). It would be greater benefits for a company, if management accounts would be able to provide environmental information that it having consistent standards for financial statements and sustainability repots such corporate social responsibility (CSR) disclosures (ICAEW, 2004). This would give environmental information accuracy when reporting in both financial statements and other sustainability disclosures. Thus, it is a matter for concern that providing more effective accounting framework can help recognize, identify, and measure environmental data. By adopting such a framework, it would help support to meet the concerns of stakeholders in incorporating environmental costs into sustainability disclosures (SCG Thailand, 2012; The Sigma Project, 2003; UNDSD, 2001). In relation to this, a properly designed a sustainability reporting model (SRM) for environmental standards can enhance productivity and competitiveness, while maximizing shareholder wealth in the eye of stakeholders and a global market. As CSR reports socially responsible actions in relation to the improvement in the quality of life of

employees, community, and social well-being as a whole, social financial accounting concept is considered appropriate for the design of a sustainability reporting model (SRM).

Social management accounting (SMA)

Social management accounting is a subset of social accounting – social management accounting and social financial accounting. As traditional management accounting has tended to ignore social and public interest, social accounting has been introduced to companies as an essential accountability tool, underpinned by concerns for improvements in the quality of employees, the community, and society as a whole (C. E. Lindblom & Tinker, 1984). The key element of social accounting is to provide social cost information to address stakeholders' and public concerns, while conventional accounting has focused more on economic performance (C. E. Lindblom & Tinker, 1984). The consideration of social issues in accounting practices has been around for many decades, a situation that remains unchanged today where companies are required to be increasingly concerned about reducing negative impacts on society, employees and the environment (Raynard, 1998). This requires companies to incorporate development in social performance into financial reports in the form of a corporate social responsibility (CSR) report.

Social management accounting (SMA) is designed to help identify social information on their social performance in the form of corporate social responsibility (CSR) reporting (Rob Gray & Bebbington, 2001; Rob Gray, et al., 2001). By encompassing social accounting, companies are able to deliver more accurate corporate social responsibility (CSR) reports to address stakeholders' interests in relation to improvement in society as a whole (Rob Gray, 2002). This is because stakeholder power has resulted in companies needing to take social responsibility into account when selling large volumes of products to gain higher profits (Rob Gray, 2002). Owen and Swift (2001) also believe that firms need to take more responsibility in reducing negative impacts on society and to report on social

performance to create value for their stakeholders. In addition, firms can employ cost information to support social decision-making, as well as addressing stakeholders' demands (Owen & Swift, 2001).

Social management accounting (SMA) creates more social data to incorporate in a company's report, as well as improving external reporting relating to the significant interests of stakeholders (Cullen & Whelan, 2006; Richmond, Mook, & Quarter, 2003). During the 1970s and 1980s, social accounting was not necessarily a consideration in the public debate, due to complexities in practices (Rob Gray, 2002). This resulted in companies recording social costs as overhead expenditures, rather than allocating them to a single product (Hazilla & Kopp, 1990). Subsequently, disclosure of social performance in the form of corporate social responsibility (CSR) reporting still has elements of inaccuracy when disclosing cost information on social impacts (Tinker, Lehman, & Neimark, 1991). Gray (2006), who has been interested in social and environmental issues for 30 years, mentioned that firms provide social disclosures to enhance companies' images and/or reputations (Owen & Swift, 2001).

Social data is collected from all expenses paid to the support of employees' health and safety, training, working conditions, and/or some elements of environmental and natural systems (Bovea & Vidal, 2004). These expenditures have been identified as private costs that could result in increases in the total cost of products, therefore, companies have an ethical and moral obligation to measure these costs (Hazilla & Kopp, 1990). Companies need to be more aware of taking responsibility for their employees, society, and the environment (Mook, Quarter, & Richmond, 2003). This results in companies most likely providing disclosures to create enhanced images of their organizations in providing accurate cost information for disclosure (Owen & Swift, 2001). In addition, this becomes the reason why social costs are of significant concern to stakeholders who are increasingly pushing

companies to disclose developments in social performance in the form of corporate social responsibility (CSR) reporting (Geibler, Liedtke, Wallbaum, & Schaller, 2006).

Nonetheless, in Thailand, little is known about social accounting concepts/practices and/or possibility of corporate social disclosure (Kuasirikun & Sherer 2004). This results in social accounting for corporate social responsibility has been ignored by Thai companies to report fully social information in a company's disclosure (Kuasirikun & Sherer 2004). Social accounting in the Thai contexts is more likely to disabling communication in relation to social development between a company and its stakeholders (Kuasirikun & Sherer 2004). According to Spence (2009), social accounting has not demonstrated to companies how they could benefit by providing expenditures such as social costs to improve the quality of life for employees, society, and some parts of the environment (Spence, 2009). Thus, most companies do not intend to employ social accounting to capture costs of these social impacts (Tinker & Gray, 2003). As a result, disclosure of social performance in the form of corporate social responsibility (CSR) reporting appears inaccurate when disclosing social impact information to stakeholders and/or the public (Tinker, et al., 1991).

According to Gray (2006), social accounting is a significant accounting tool for organizations to identify and measure expenditures involved with developing society, employees and/or the environment. By encompassing social accounting, companies are able to deliver more accurate corporate social responsibility (CSR) reports to address stakeholders' interests in relation to improvement in society as a whole (Rob Gray, 2002). This is because stakeholder power has resulted in companies needing to take social responsibility into account when selling large volumes of products to gain higher profits (Rob Gray, 2002). Owen and Swift (2001) also believe that firms need to take more responsibility in reducing negative impacts on society and to report on social performance to create value for their stakeholders. In addition, firms can employ cost information to

support social decision-making, as well as addressing stakeholders' demands (Owen & Swift, 2001). Kuasirikun and Sherer (2004) also claimed that environmental and social accounting in the Thai context needs to be explored the various dimensions in relation to social reporting, particularly.

As a consequence, management accountants of a Thai company should fulfill their roles in comprehension of sustainability accounting concepts/practices to capture and provide accurate environmental and social data. They should also act as collaborators in driving towards an effective corporate social responsibility (CSR) report in Thai context to create shared value both immediately and in future. For example, environmental and social information captured from expenditures paid on environmental and social issues should be involved with the treatment of transactions providing to support internal and external reports (ICAEW, 2004). Thus, management accountants should employ sustainability accounting concepts to identify and measure such issues to have an impact on balance sheet and results (ICAEW, 2004). In the meantime, the same environmental and social information in annual reports should be consistent with information reported corporate social responsibility (CSR) disclosures (Nickie Petcharat & Mula, 2013).

Theoretical perspective

Several theories have been developed to examine the behaviours of voluntary corporate disclosures including legitimacy and stakeholder theories. These two theories are derived from political economic perspectives which are commonly offered as explanations of motivations for corporate social disclosures (Laan, 2009). The theories have been widely used to explain reporting eco-efficiency along with environmental and social performance in a company' reports while offering an explanation of accountability to stakeholders and public (Cormier, Gordon, & Magnan, 2004; Laan, 2009). Legitimacy and stakeholder theories are considered appropriate for this study to explain

how firms take environmental and social issues into account and how firms communicate their actions to society, thus maintaining its social legitimacy.

Stakeholder theory

Stakeholder theory helps in the identification of stakeholders and explains the ethical and moral obligations of management in considering stakeholders' interests (Freeman, 1984; Freeman & Reed, 1983). It describes stakeholders of a business and how a business caters to the needs of its stakeholders. Donaldson and Preston (1995) indicated that, originally, stakeholder theory emphasized shareholders' interests, and they made a case for the theory's normative base where the moral, ethical, and legal claims of all stakeholders of organizations are advocated. Previous studies (e.g. Buchholz & Rosenthal, 2004; Cormier, et al., 2004; Schwarzkopf, 2006) point out that stakeholder theory helps explain improvements in business decision-making, as well as providing disclosures to create better relationships between companies and their stakeholders. Freeman (1994) described significant roles and duties of management in the welfare of an organization's members, as well as maintaining greater relationships between the company and its stakeholders. However, this results in firms' wage rates becoming higher while qualities of products are low, suppliers are affected, and stock markets being more difficult to increase in value. Freeman argued that stakeholder theory of firms is totally different and advocates that stakeholder theory needs to rely on 'normative core', which is related to ethical and moral obligations in decision-making processes of firms and/or managers when acting on behalf of their stakeholders, customers, and/or suppliers (Freeman, 1994, p.44).

Buchholz and Rosenthal (2004) believe that stakeholder theory has no critical role in, or formal process for, making decisions to support the demands of stakeholders—which is problematic. This results in some stakeholders being given more power to support their own interests, while firms and managers need to make decisions in order to maintain relationships (Buchholz & Rosenthal,

2004). Hasnas (1998) questioned whether financial performance can be increased through stakeholder management, and whether firms should place equal weight on all stakeholders' demands. This would ensure that firms view their responsibilities to society as normative (ethical) (Hasnas, 1998). Donaldson and Preston (1995), in describing why stakeholder theory should be taken into account, believe it helps explain firms' behaviours and characteristics in supporting stakeholders' demands or interests.

Ullmann (1985) employed stakeholder theory to explain associating social disclosures with economic and social performance by combining three dimensions—stakeholder power, strategic posture, and economic performance—to develop a framework. Ullmann indicated that stakeholder power helps in the identification of stakeholders' interests which need to be considered by companies; strategic posture describes companies' concerns about environmental and social issues emanating from stakeholders' demands; and economic performance is concerned with social issues—all three support companies in their endeavours to add value to their environmental performance (Elijido-Ten, 2005). Regarding stakeholder power, stakeholder theory explains stakeholders' interests in the development of social and environmental performance (Schwarzkopf, 2006). It also explains the relationship between a company and its stakeholders by providing disclosures of environmental and social performance to help address stakeholders' concerns (Cormier, et al., 2004; Schwarzkopf, 2006).

Roberts (1992), in his study, employed economic performance, strategic posture, and stakeholder power from Ullmann's (1985) framework. He found that in the context of social disclosure, stakeholder theory helps in the identification of economic and social performance in relation to social responsibilities, as well as strengthening stakeholder power. In the meantime, companies can improve business decision-making using accurate cost information of environmental

and social impacts to develop economic performance (Buchholz & Rosenthal, 2004). Gilbert and Rasche (2008) suggested ways to create enhanced organizational performance in relation to increased stakeholder trust, to develop product quality, and to reduce government fines/penalties. Ruf et al. (2001) employed stakeholder theory to investigate the complicated relationship between corporate social performance (CSP) and financial performance in relation to changes in society and the economy. Their findings showed that although improvement in CSP has positive impacts on financial performance, economic and social performance needs could still be enhanced. This, in turn, would benefit companies in meeting the significant concerns of their stakeholders (Ruf, et al., 2001).

This study utilizes stakeholder theory examine ethical and moral obligation of a Thai company to capture environmental and social indicators in order to incorporate in a company's reports. Environmental and social indicators in a corporate social responsibility (CSR) disclosure should be consistent with environmental and social performance in annual report when addressing stakeholders' and public's interests. These interests are translated to measures by companies which, in turn, are incorporated as system characteristics for data inputs required for reporting and internal decision-making. This process could help create more accurate cost information to support environmental and social internal decision-making and external disclosures. As stakeholder theory relies on ethical and moral obligations (Freeman, 1994), such a sustainability accounting framework could also assist a company in Thailand in determining the accuracy of cost information for environmental and social performance disclosures. Legitimacy theory is, further, employed to examine environmental and social data in a company's reports discussed next.

Legitimacy theory

Legitimacy theory is derived from political economy theory which is the social, political and economic framework within which human life takes place. Economic issues cannot be investigated in

the absence of considering the political, social and institutional framework within which economic activity takes place (Campbell, 2000). Corporate social responsibility reports are not considered neutral and unbiased, but are a product of the interchange between the corporation and its environmental aspects (Springett & Kearins, 2001). Legitimacy theory can be applied to help explain why an entity might elect to make particular voluntary disclosures. The theory indicates that companies are keen to maintain their legitimacy within society while fully reporting accounting information in relation to their performance (e.g. environmental and social) (Cormier & Gordon, 2001). The study of Cormier and Gordon found that environmental performance in a company's disclosures more likely relates to information costs and benefits, while social disclosures do not. However, environmental and social disclosures can be used as management decision tools to deal with stakeholders and public interests (Freedman & Jaggi, 2005). Legitimacy theory assumes that a company disclosure more accurate information on environmental and social aspects in its voluntary disclosure (Freedman & Jaggi, 2005). Thus, social and environmental information in a voluntary disclosure can be used by an organization as a business tool to deal with society' s demands and needs (Freedman & Jaggi, 2005; C. K. Lindblom, 1994). The theory suggests that companies would voluntarily report on activities relating to improvement in environmental and social performance where they operate (Cormier & Gordon, 2001; Craig Deegan, 2002). Economic, social, and environmental performance in a voluntary disclosure can provide a company with a way to support significant interest of its stakeholders (C Deegan, 2009). Firms can mitigate pressure that is exerted on them from stakeholders and public when fully reporting information on environmental and social performance. Thus, the main idea of legitimacy theory is that political, environmental, and social activities cannot be separate from one of these elements (Cotter, Najah, & Wang, 2011).

Campbell (2000) studied textual examination of the social disclosures that reported upon in terms of their volumes. Campbell found that the company may have made some disclosures in respect

to self justification or in order to garner societal support. Environmental information in CSR disclosures may change based on societal opinions such as the disclosures reported above in response to oil price rises and high unemployment (Campbell, 2000). Legitimacy theory explained that a company reports environmental performance disclosures and social well-being based on societal opinion while creating shared value in market place (Campbell, 2000). Corporate social reporting is analysed from different perspectives of voluntary reports – economic, environmental, and social performance, legitimacy theory explains dominating perspectives (Hooghiemstra, 2000). Social and environmental disclosures are responses to the public awareness that can increase in media attention resulting from major social incidents (Hooghiemstra, 2000). According to Gray et al., (1995), complementary to the political economy understanding of CSR regarding with environmental and social solutions is legitimacy theory. The theory explains that firms exist in society under an expressed of implied social contract while reporting environmental and social performance to support stakeholders' and public's concerns (Hooghiemstra, 2000). Deegan et al., (2002) employed legitimacy theory to explain a trend in providing environmental and social information in annual report of BHP Ltd from 1983 to 1997 found that legitimation motives for a company's social and environmental disclosures was greater in recent years. BHP Ltd's annual reports disclosed environmental and human resources significantly regarding with particular concerns of community and society. Managements also released accurate social and environmental information reported in its annual report, thus responding to unfavorable media attention (Craig Deegan, et al., 2002).

In Thailand, legitimacy and/or legislation to encourage corporate responsibility does not stand to significantly alter business behaviour in order to reduce negative impacts on society (Prayukvong & Olsen, 2009). Environmental and social information in CSR reports often appears to create benefits from the increase of corporate image awareness and reputation as a sustainable company (Prayukvong & Olsen, 2009). Legitimacy theory explains some aspects of environmental

and social data that should be integrated in a company's reports and linked in financial statement in the Thai context (Nickie Petcharat & Mula, 2013). Legitimacy theory explains that companies disclose their activities based on the bounds and norms of respective societies and environmental efficiency. Companies mainly aim to report environmental and social data to maintain their legitimate with society, government policy, and stakeholders' demands (Craig Deegan, 2002; C Deegan, 2009). However, CSR in the Thai context is more likely to create positive reputation in the eye of stakeholders and market place while having been less intention to move towards environmental and social issues(Sumatheeprasit, 2011; The Stock Exchange of Thailand, 2012). Legitimacy theory is considered appropriate for this study to explain way to capture environmental and social information incorporating in the CSR reports to create corporate shared value. The theory examines environmental and social indicators in a company's annual report along with the requirements of the Global Reporting Initiatives. Environmental and social performance reported in an annual report should be captured based on sustainability accounting concepts/practices. A company reports its environmental and social performance relying on the bounds and norms of respective societies and environmental efficiency within a company. In the context of CSR disclosure, environmental and social information is reported to either support or mitigate pressure from stakeholders' and public's interests. This information would tend to be disclosed in a positive light in both CSR and annual reports. A lack of accurate information in a company's disclosures could be interpreted as indicating that environmental and social performance is not being exerted or that voluntary disclosure is not seen as suitable way to mitigate this pressure or seek the support of stakeholders.

Chapter 3

Research methodology

Approach

The study applied mixed methods (quantitative and qualitative research approaches) to collect and analyse data using triangulation for credibility. The choice of method selection aims to avoid social bias while building strong results from the study (Creswell, 2009; Gorard, 2004; Neuman, 2006). A quantitative approach is employed to conduct survey from two-hundred of Thai companies providing annual reports in the Stock Exchange of Thailand. Regarding with research focus, environmental and social expenses reported by companies are targeted. For quantitative study, two-hundred companies in Thailand that have reported environmental and social performance both in annual reports and corporate social responsibility disclosures are investigated. This is to seek where the relationship between environmental and social data reported by companies and the requirements of the Global Reporting Initiatives (H_1). Environmental and social indicators in a corporate social responsibility (CSR) is examined to seek where an association with information disclosed in annual report to support stakeholders' and public's interests (H_2). An investigation, further, discovers to see where the relationship between environmental and social indicators captured by management accountants of a Thai company and information required by the sustainability accounting practices (H_3).

This study, further, examines environmental and social performance reported by fifty companies in Thailand and the collaborations of management accountants in knowing and having skills in sustainability accounting concepts/practices. Coding approach is employed to analyse environmental and social concerns within companies while counting words that are relevant to

identifying and measuring environmental and social expenditures. An investigation is related to the knowledge, experience, skills, training, and other comprehension of management accountants in applying sustainability accounting concepts/practices to identify, measure, and capture environmental and social information. Questions are created based on the concepts and/or practices of environmental management accounting (EMA) and social management accounting (SMA) for cost identification and measurement of environmental and social facets.

In a consequence, by using mixed research methods for data collection and analysis, this study is expecting that it would create productive in analysing various sources of data and in supporting the interpretation between the two methods (Creswell, 2009; Somekh & Lewin, 2005). The implementation of mixed methods can be flexible and depended on the research design and/or researcher first collecting data by either qualitative or quantitative methods (Creswell, 2003). Creswell (2009) also claimed that mixed methods enable the application of quantitative results to support the interpretation of qualitative results. This creates reliability and trustworthiness of data collection (Somekh & Lewin, 2005). Swanson and Holton (2005) illustrated sequential designs and concurrent designs of quantitative and qualitative in mixed methods that mainly differ in the sequence, priority of data collection, and/or investigation, as shown below.

Data collection and procedures

Selection of a sampling group

This study employed purposive sampling methods to select two-hundred companies reporting environmental and social expenses in both annual reports and corporate social responsibility (CSR) disclosures. Thus, annual reports of a sampling group provided in the Stock Exchange of Thailand will be surveyed as secondary data in quantitative study. In addition, this study also selects twenty

management accountants those capturing and providing environmental and social indicators. Knowledge and skills in environmental management accounting (EMA) and social management accounting (SMA) in Thai context are expected for investigations of this study. Thus, management accountants from the same sectors identified in a survey are selected based on purpose of the study. Purposive sampling provides this study with a way to conveniently obtain essential information from a specified sampling group (Cavana, Delahaye, & Sekaran, 2001) using judgement sampling design to assist in selecting a sampling group that is able to provide required information while involving the choice of subjects. A study provides certain types of research questions to question individually in order to obtain information being sought. A judgement sampling design can be useful when certain questions are created to investigate a specific group of the population. In addition, this design facilitates selecting a sampling group from a specific population that is difficult to reach (Neuman, 2006). Thus, a sampling group selected is based on the knowledge of, and skills in environmental management accounting (EMA) and social management accounting (SMA) for cost identification and measurement of environment and social factors.

Sampling group

This study is limited to the Thai companies that have reported environmental and social expenses in annual reports from the Stock Exchange of Thailand and environmental and social indicators reported in corporate social responsibility (CSR) provided on the companies' websites (Sumatheeprasit, 2013). One-hundred and fifty companies in Thailand are selected from a manufacturing sector: (1) Industrial products, (2) Consumer products, (3) Construction, (4) Agriculture and food product, and (5) Technology to be surveyed (Department of Employment Ministry of Labour of Thailand, 2010). For qualitative study, management accountants from twenty companies from the same sector identified in a survey are expected to be interviewed.

A sampling group is selected from the companies that have provided environmental and social expenditures in annual reports online on the Stock Exchange of Thailand's website. Listed companies those reporting their environmental and social performance for creation of shared value are expected to indicate their indicators in a survey. For management accountants, participants are selected based on their roles in providing environmental and social data to support a company's reports. Thus, their knowledge and skills in sustainability accounting concepts/practices – environmental management accounting and social management accounting, are questioned. This is to seek where quality data of environmental and social factors can be made.

Measurement and instrumentation

Quantitative research methods

A set of questions in a survey is created from environmental and social performance indicators based on the requirements of the Global Reporting Initiatives to investigate annual reports and corporate social responsibility disclosures provided on the companies' websites (Sumatheeprasit, 2013). A set of survey instruments is divided into two sections. In the first section, the questions seek to elicit information about company profiles and background. In the second section, a set of questions created based on Global Reporting Initiatives is employed to collect environmental and social information of Thai companies provided in corporate social responsibility (CSR) and in responses to the carbon disclosure project (Sumatheeprasit, 2013).

Targeted information focused on cost identification and measurement of environmental and social factors that companies have captured to report both internally and externally.

Qualitative research methods

Qualitative questions are created to investigate roles of management accountants in driving as collaborators towards an effective corporate social responsibility (CSR) disclosures in Thai context. Thus, knowledge and experience in training and study's backgrounds of sustainability accounting concepts/practices relating to environmental management accounting (EMA) and social management accounting (SMA) are questioned. The questions are designed as two parts –participants' backgrounds, education and work experience in environmental and social issues in Thailand and knowledge of, and skills in cost identification and measurement of environmental and social facets.

Data analysis

Before testing $\mathbf{H_1}$, $\mathbf{H_2}$, and $\mathbf{H_3}$, quantitative data was detected to check missing values and outliers. If data appeared missing, it was imputed with mean values from the rest of the responses. Normality is assumed for testing data using univariate outlier detection to screen outliers in order to deal with significant skewness and kurtosis when data appears as positive or negative values in the distributions (Hair, Anderson, Tatham, & Black, 1998). A large number of missing values within a survey instrument were not included, while remaining missing values were not imputed—thus avoiding potential bias. In addition, outlier cases were not considered for inclusion in data analysis. On investigation, a large number of observations were classified into manageable groups while performing data reduction from an entire population (Hair, et al., 1998). This helped ensure the data analysis of responses to H_1, H_2 and H_3 are reliable and trustworthy. Correlation analysis is , then, applied to test H_1, H_2 and H_3 as it is a measure of the statistical relationship between two comparable variances (Hair, et al., 1998).

Testing hypotheses, Pearson's zero order correlation is applied to test H_1. This is to examine the relationship between environmental and social performance in a corporate social responsibility (CSR) and environmental and social data required by the Global Reporting Initiatives. Correlation analysis method, further, is re-run the relationship between environmental and social indicators in a corporate social responsibility (CSR) and environmental and social data disclosed in annual report to support provided to support stakeholders' and public's interests (H_2). Then, the relationship between environmental and social indicators captured by management accountants and environmental and social performance indicators required by the sustainability accounting practices is tested to see where appropriate management accounting roles in capturing environmental and social data based on sustainability accounting concepts and practices (H_3). Since environmental and social data in a company reports are expected to be associated with indicators required by the Global Reporting Initiates, they are combined (Nickie Petcharat & Mula, 2013; Nikcie Petcharat & Mula, 2012). In relation to this, management accountants' roles in providing environmental and social data need to be associated with environmental and social information based on sustainability accounting practices.

For qualitative data, content analysis is applied to analyse environmental and social performance provided in annual reports of fifty companies to answer P1, P2, and P3. The numbers of words relating to environmental and social management are coded and tested theoretical issues regarding knowledge of, and skills in the concepts/practices of environmental management accounting and social management accounting. Words answered to the interview questions are classified into the same categories, thus analysing the similar words and phrases to support the results of the study (Cavanagh, 1997). Counting words of interviewees such management accountants and chief financial officers can create appropriate accounting practices for cost identification and measurement of environmental and social indicators in Thai contexts. The number of words regarding with environmental and social performance disclosed in annual reports and CSR are measured

(Purushothaman, Tower, Hancock, & Taplin, 2000). The themes are set based on environmental indicators and social indicators required by the requirements of the Global Reporting Initiatives to expand the pool of knowledge about cost identification and measurement on environmental and social facets (Ratanajongkol, et al., 2006).

Chapter 4

Results of the study

The sampling group (200 companies) was selected from a total population of 1,250 companies in Thailand that provided annual reports on the website of the Stock Exchange of Thailand as a sampling frame. These sectors were drawn from 250 Thai companies as a sampling frame based on the purpose of the study and findings. Quantitative results are shown below.

Quantitative results

Companies from local and international sector were analysed to seek environmental and social performance in their annual reports. Company sectors were analysed from primary geographic where companies are based. One-hundred and sixty-five companies were from local (n=165, 82.5%) and thirty-five companies from internationally (n=35, 17.5%).

Table 1 Descriptive statistic results of operational sector

Operational Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Locally	165	82.5	82.5	82.5
	Internationally	35	17.5	17.5	100.0
	Total	200	100.0	100.0	

This further examined companies disclosing environmental and social performance in their annual reports. The results of the descriptive analysis shows that n=65, 32.5 % of constructions

reported environmental and social performance to their stakeholders and public, follow by industrial product (n=54, 27.0%), technology (n=34, 17.0%), and agriculture and food product (n=30, 15%). Whilst, there was only 17 companies (n=17, 8.5%) of consumer products disclosed environmental and social performance in their annual reports to add shareholder value in the eye of stakeholders and market place (Table 2).

Table 2 Descriptive statistic results of company sector

Company Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Industrial product	54	27.0	27.0	27.0
	Consumer product	17	8.5	8.5	35.5
	Construction	65	32.5	32.5	68.0
	Agriculture and Food Product	30	15.0	15.0	83.0
	Technology	34	17.0	17.0	100.0
	Total	200	100.0	100.0	

It can be seen that Thai companies from Industrial products, Consumer products, Construction, Agriculture and food product, and Technology were intending to report their environmental and social performance to add shareholder value in the eye of stakeholder and public. Correlation analysis was employed to analyse the relationship between environmental and social performance in CSR disclosures and environmental and social performance required by the Global Reporting Initiatives (GRI).

H_1. *Environmental and social performance in a corporate social responsibility (CSR) is relevant to the environmental and social indicators based on the requirements of the Global Reporting Initiatives*

Table 3 illustrates that there is a significant correlation between environmental performance reported in the CSR of Thai companies (a sampling group) and environmental indicators required by the GRI (p=.000, at 0.01 alpha level). Likewise, social performance disclosed in the CSR of Thai companies is associated with social indicators required by the GRI (p=.000, at 0.01 alpha level). This indicates that Thai companies reported their environmental and social performance based on the requirements of the Global Reporting Initiatives. Thus, H_1 is supported.

Table 3: The test of correlation of environmental and social performance in CSR and GRI

Correlations					
		EN_CSR	EN_GRI	SO_CSR	SO_GRI
EN_CSR	Pearson Correlation	1	.946**	.622**	.517**
	Sig. (2-tailed)		.000	.000	.000
	N	200	200	200	200
EN_GRI	Pearson Correlation	.946**	1	.573**	.466**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200
SO_CSR	Pearson Correlation	.622**	.573**	1	.919**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200
SO_GRI	Pearson Correlation	.517**	.466**	.919**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

This study further examined the relationship between environmental and social indicators in the CSR disclosure of a sampling group and environmental and social data in its annual report. This is see where data accuracy employed to support stakeholders' and public's interests.

H_2. *Environmental and social indicators in a corporate social responsibility (CSR) are associated with environmental and social data disclosed in annual report to support stakeholders' and public's interests*

The result is supported H_2 that there is a significant correlation between environmental indicators reported in the CSR of Thai companies (a sampling group) and environmental indicators in their annual reports (p=.000, at 0.01 alpha level). Likewise, social performance disclosed in the CSR of Thai companies is correlated with social data reported annually (p=.000, at 0.01 alpha level). This indicates that Thai companies disclosed environmental and social data in the CSR disclosures fully related to the data identified in their annual reports to add shareholder value in the eye of stakeholder and public.

Table 4: The test of correlation of environmental and social performance in CSR and Annual report

Correlations

		EN_CSR	EN_ Annual report	SO_CSR	SO_ Annual report
EN_CSR	Pearson Correlation	1	.973**	.622**	.620**
	Sig. (2-tailed)		.000	.000	.000
	N	200	200	200	200
EN_ Annual report	Pearson Correlation	.973**	1	.635**	.622**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200
SO_CSR	Pearson Correlation	.622**	.635**	1	.908**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200
SO_ Annual report	Pearson Correlation	.620**	.622**	.908**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

To seek where data accuracy, this study analysed the correlation between environmental and social data identified by current practices companies and environmental and social information identified by sustainability accounting concepts.

H_3. *Environmental and social indicators captured by current management accounting system of a Thai company is associated with environmental and social performance indicators required by the sustainability accounting practices*

Table 5 shows that there is a significant correlation between environmental data captured by management accounting systems of Thai companies (a sampling group) in annual reports and environmental data identified by environmental management accounting practices (p=.000, at 0.01 alpha level). Likewise, social data collected by management accounting systems of Thai companies reported annually is associated with information identified by social management accounting practices (p=.000, at 0.01 alpha level). This indicates that environmental and social data captured by management accounting systems of Thai in annual reports is fully associated with information identified by sustainability accounting practices. Thai companies reported environmental and social performance annually to support investment decisions internally and externally. H_3 is also supported.

Table 5: The test of correlation of environmental and social data identified by companies and sustainability accounting concepts

Correlations					
		EN_MA	EN_SA	SO_MA	SO_SA
EN_MA	Pearson Correlation	1	.992**	.556**	.629**
	Sig. (2-tailed)		.000	.000	.000
	N	200	200	200	200
EN_SA	Pearson Correlation	.992**	1	.560**	.631**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200
SO_MA	Pearson Correlation	.556**	.560**	1	.942**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200
SO_SA	Pearson Correlation	.629**	.631**	.942**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Qualitative results

As stated in the previous section, this study aimed to examine management accountant roles in identifying and capturing environmental and social data reported annually. Environmental and social information provided in annual reports of a sampling group was collected to see where data accuracy reporting to create shareholder value (CSV) in market place.

P1. *Environmental and social indicators captured by Thai companies are based on the sustainability accounting concepts/practices when incorporating in annual report and a corporate social responsibility disclosure*

The results of qualitative analysis show that management accountants of fifty companies in Thailand as a sampling group has played different roles in capturing and identifying environmental and social data reported annually (Table 6). The measurement of environmental and social indicators within a company was based on environmental management accounting and social management accounting concepts/practices (N=46, 16%). Companies provided environmental and social indictors to support both annual reports and corporate social responsibility (CSR) disclosures to create shared value (N=45, 16%). In relation to this, companies collected and captured environmental and social data to support annul reports and corporate social responsibility (CSR) to create share value in the eye of stakeholders and public (N=28, 10%). Environmental and social expenditures reported annually aimed to reduce negative impacts on environment and society as a whole (N=31, 11%).

This study further examined environmental and social indicators captured by management accounting system of a company to report annually. This is to see how environmental and social data fulfil sustainability accounting practices while acting collaborators in driving towards sustainable development in long-term.

P2. *Environmental and social indicators identified by current practices within a company fulfil its sustainability accounting practices, thus acting collaborators in driving towards sustainable development in long-term*

The results of qualitative analysis shows that environmental and social information captured by a company can be described as a distinct divide between information that is integrating with

sustainability accounting concepts/practices (N=30, 11%). A company disclosed environmental and social expenditures annual reports and corporate social responsibility (CSR) disclosures to create shared value in global market (N=28, 10%). In addition, management accountants' roles can perform a more active responsibility in collating non-financial information (environmental and social data) to guide the strategic direction of effective corporate social responsibility (CSR) disclosures (N=25, 9%) (Table 6). This study then analysed how environmental and social performance in annual reported meets the needs of sustainable development of firms to add shareholder value in three areas of performance – economic, environment, and social well-being.

> ***P3.*** *Environmental and social performance disclosed in annual reported meets the needs of sustainable development to create shared value (CSV) – economic, environmental, and social performance of firms in the eye of stakeholders and market place*

The results reveal that management accountants' roles responsible within firm for driving sustainability accounting as a collaborators to create shared value when providing environmental and social information in a company's report (N=29, 10%). In relation to this, management accountants' roles in identifying environmental and social data to support annual reports and/or corporate social responsibility (CSR) disclosures can potentially create shared value in the eye of stakeholders and market place (N=20, 7%) (Table 6).

Table 6: Management accountants' roles in capturing and identifying environmental and social data in annual reports

Management accountants' roles	Number of words and percentage of responses
Capturing and collecting environmental and social data to support both annul reports and corporate social responsibility (CSR)	N=28, 10%
Identifying and measuring environmental and social expenditures provided by your company to reduce negative impacts on environmental and social issues	N=31, 11%
Providing environmental and social indictors to support both annual reports and corporate social responsibility (CSR) disclosures to create shared value	N=45, 16%
The measurement of environmental and social indicators within your company based on environmental management accounting and social management accounting concepts/practices	N=46, 16%
Environmental and social expenditures reported in annual reports and corporate social responsibility (CSR) disclosures are able to create shared value in global market	N=28, 10%
Management accountants' roles perform a more active responsibility in collating non-financial information (environmental and social data) to guide the strategic direction of effective corporate social responsibility (CSR) disclosures to add shared value in global market	N=25, 9%
Environmental and social information captured by firms can be described as a distinct divide between information that is integrating sustainability accounting	N=30, 11%
Management accountants' roles create potentially shared value by identifying environmental and social data to support annual reports and/or corporate social responsibility (CSR) disclosures	N=20, 7%
Management accountants' roles responsible within firm for driving sustainability accounting as a collaborators to add shared value by providing environmental and social information in a company's report	N=29, 10%

Chapter 5

Discussion of the findings

Purpose of the study

As this study aimed to explore environmental and social indicators reported by Thai companies, environmental and social information in Thai context in annual reports and corporate social responsibility (CSR) were targeted for investigation. This study has attempted to address some of the recommendations identified from the literature for further research. Such recommendation are for instance made by Petcharat and Mula (2012) on identifying and capturing environmental and social data based on sustainability accounting concepts/practices, Prayukvong and Olsen (2009) on reporting environmental and social performance together along with eco-efficiency to add shareholder value, Collins et al., (2011) on sustainability accounting and collaboration of non-financial information and non-financial information in relation to environmental and social aspects, ICAEW (2004) on management accountants' roles in fully capture accounting information on environmental and social factors to integrated in a company's internal reports and voluntary disclosures to fulfil the needs of stakeholders and public.

Thus, the hypotheses were developed to test the relationship between environmental and social data reported in annual disclosures and indicators required by the Global Reporting Initiatives to create shared value in the eye of stakeholders and market place. Environmental and social indicators in a corporate social responsibility (CSR) should be associated with data disclosed in annual reports when reporting to support stakeholders' and public's interests. Management accounting system within a company should capture and identify environmental and social data that is

relevant with information identified by the sustainability accounting concepts/practices. In relation to this, propositions were addressed to discover management accounting system that identified and captured environmental and social data should be acting collaborators in driving towards sustainable development in long-term. Environmental and social performance disclosed in annual reports of Thai companies should be able to meet the needs of sustainable development to create shared value (CSV) – economic, environmental, and social performance of firms in the eye of stakeholders and market place.

Discussion of major findings

Quantitative major findings

Environmental and social data in annual reports and corporate CSR based on the requirements of the GRI and sustainability accounting practices (H_1, H_2, and H_3)

As Thai companies provided environmental and social performance in annual reports and CSR, accounting information in relation to environmental and social factors needs to be adequate. The requirements of the Global Reporting Initiatives provide a company with a way to disclose environmental and social indicators to potentially create shared value in the eye of stakeholders and public. Environmental and social data reported internally and externally should rely on sustainability accounting concepts/practices when building an effective corporate social responsibility (CSR) in Thai context. By reporting effective CSR, a company create a positive image and reputation in the eye of its stakeholders and market place (Nickie Petcharat & Mula, 2013) upon creating shared value (CSV) in market place (M. E. Porter & Krame, 2011). This study posed a general research question **(RQ1):** *Is environmental and social data captured by of a company's accountants based on the requirements of the Global Reporting Initiatives, while relying on sustainability accounting practices*

to create an effective corporate social responsibility (CSR)?. To partly address research question1, the relationship between environmental and social data in CSR disclosure and indicators based on the requirements of the GRI was examined using H_1**:** *Environmental and social performance in a corporate social responsibility (CSR) is relevant to the environmental and social indicators of the Global Reporting Initiatives.*

The results of the $\mathbf{H_1}$ testing were statistically significant. Environmental and social data in CSR disclosure is positively associated with indicators based on the requirements of GRI. Thai companies reported total direct and indirect energy consumption by primary energy source, total volume of energy saved due to conservation and efficiency improvements, initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives. Companies also disclosed initiatives to reduce indirect energy consumption and reductions achieved, total water withdrawal by source, water sources significantly affected by withdrawal of water, and percentage and total volume of water recycled and reused. Companies disclosed significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce, as well as providing total environmental protection expenditures and investments by type in annual reports.

Social data in the corporate social responsibility (CSR) was relating to the total workforce by employment type, employment contract, region, and by gender, total number and rate of new employee hires and employee turnover by age group, gender, and region. Companies provided benefits provided to full-time employees, return to work and retention rates after parental leave. Minimum notice period(s) regarding operational changes, percentage of total workforce represented in formal joint management, rates of injury, occupational diseases, lost days, and absenteeism, and

total number of work-related fatalities, by region and by gender were also disclosed. Companies provided education, training, counseling, prevention, and risk-control programs, health and safety, and average hours of training per year per employee by gender. Social data in the CSR was involved in programs for skills management and lifelong learning and percentage of employees receiving regular performance and career development. Environmental and social performance in a corporate social responsibility (CSR) is relevant to the environmental and social indicators of the Global Reporting Initiatives. Companies in Thailand aimed to create data available to a company's stakeholders to support their investment decisions (Nickie Petcharat & Mula, 2013; Prayukvong & Olsen, 2009). Consistent with stakeholder theory, environmental and social data was identified based on international measure such GRI's guideline to enable more effective decision-making at boardroom levels (Buchholz & Rosenthal, 2004; Cormier, et al., 2004; Schwarzkopf, 2006). As the significant roles and duties of management are relevant to the improvement in the welfare of an organization's members and environmental sustainability (Freeman, 1994), environmental and social data captured based on the GRI create and maintain greater relationships with their stakeholders and public. In relation to this, environmental and social data in the CSR should be relevant to the data reported in annual reports. **H_2:** *environmental and social indicators in a corporate social responsibility (CSR) are associated with environmental and social data disclosed in annual report to support stakeholders' and public's interests,* was tested.

The results of the **H_2** testing were also statistically significant when environmental and social data in the CSR is positively associated with data in annual reports of a sampling group. Thai companies reported their environmental performance in relation to the total direct and indirect energy consumption, energy saved due to conservation and efficiency improvements, initiatives to provide energy-efficient or renewable energy, initiatives to reduce indirect energy consumption and reductions achieved, total water withdrawal by source, and water sources significantly affected by

withdrawal of water. This includes air quality, noises, waste water, solid wastes, gas emission, and other environmental care missions. For social data, companies reported social activities relating the community and social development, religion, tradition and local culture, public health care program, educational supports and youth development program. This includes health and family welfare, infrastructure assistant, social causes, policy on drug abuse preventions and solution, and company's products safety to the consumers. All environmental and social data provided in CSR was positively relevant to the data in annual reports when employing to support stakeholders' and public's concerns. Stakeholders are looking for more accurate accounting data on firms' performance – economic, environment, and social well-being to support their own interest (Buchholz & Rosenthal, 2004). Environmental and social data in a company's reports are therefore created based on the stakeholders' power and interests. Managers need to make decisions and look for way to maintain the relationships between a company and its stakeholders (Buchholz & Rosenthal, 2004). In this relation, to increase stakeholder trust, companies need to promote how they create enhanced organizational performance from developing product quality, reducing government fines/penalties, and improving environmental friendly, for instance. This not only help improve business decision-making but also strengthening stakeholder power (Gilbert & Rasche, 2008). Thus, management accountants need to encourage a company to disclose more accurate accounting data on environmental and social aspects. This aims to identify how firm achieves its sustainability targets (Collins, et al., 2011). Management accountants should also have ability to identify and capture environmental and social information from all sources of expenditures paid for improvement in better quality of environment and social well-being as a whole (Nikcie Petcharat & Mula, 2012). Thus, management accounting system within a company should identify and capture environmental and social to create data accuracy when decision needs to be made. **H_3:** *Environmental and social indicators captured by current management accounting system of a Thai company is associated with environmental and social performance indicators*

required by the sustainability accounting practices was tested. This aimed to seek where accurate information on environmental and social facets captured and identified by a sampling group meets the need of sustainability accounting concepts/practices.

The results of the H_3 testing were statistically significant. Environmental and social data in annual reports provided by a sampling group is positively associated with the data identified by environmental management accounting (EMA) and social management accounting (SMA) practices. Management accounting practices within companies identified environmental data including energy conservation projects, measure on energy consumptions, energy awareness, environmental conservation activities, reforestation projects. Companies also participated in sustainable natural and environmental conservation activities within or outside the organization, supporting and promoting natural and environmental programs, providing knowledge to employees and community relating to environmental management and prevention and environmental rehabilitation program. This includes conservation for nature and its environment in relation to energy conservation, environmental care and awareness, reused energy, recycled materials and water. For social aspects, management accounting systems of a sampling group captured social expenditures provided to enhance quality of life of employee, society, and community that is positively associated with data identified by social management accounting (SMA) practices. Social data includes safety in the workplace, community and Social development programs, public healthcare projects, educational supports and youth development program, projects for society development and product responsibility, and flood relief project, etc. The results of the study are consistent with suggestions of stakeholder theory that companies would voluntary report on operational activities based on sustainability accounting practices (Cormier & Gordon, 2001; Craig Deegan, 2002). Environmental data identified and captured along with the concepts/practices of environmental management accounting creates more accurate physical and monetary information (IFAC, 2005). Social information identified and captured

based on social management accounting can be a business tool to address concerns of stakeholders and public (C. E. Lindblom & Tinker, 1984). As traditional accounting does not accurately identify and measure social data from business activities, social management accounting practices can help capture accounting information from all sources of social expenditures (Rob Gray & Bebbington, 2001; Rob Gray, et al., 2001). Management accountants' roles in identifying and capturing environmental and social data based on sustainability accounting concepts/practices support companies to represent the process of data collection of environmental and social facets when using to support the demands of stakeholders and public (Burritt & Schaltegger, 2010). Environmental and social data enables more effective decision-making thus ensuring corporate sustainability (Burritt & Schaltegger, 2010).

Qualitative major findings

Management accountants' roles in capturing and identifying environmental and social data in annual reports (P1, P2, and P3)

As management accountants can play an important role in encouraging a company to report environmental and social performance, environmental and social data should be developed as a business tool in both annual reports and sustainability disclosure (Collins, et al., 2011). In developing countries, society and community has not been less attention to add shared value in market places (M. E. Porter & Krame, 2011). In Thailand, companies have previously paid attention to disclose social performance while neglecting environmental aspects (Prayukvong & Olsen, 2009). In relation to this, environmental and social data could become inconsistency when providing information to report internally and externally (Nickie Petcharat & Mula, 2013), thus creating shared value (CSV) both immediately and in future. This study, therefore, posed research question2 to examine *to what extent do management accountants of Thai companies capture environmental and social indicators*

thus acting as collaborators in driving towards effective sustainability disclosures to create shared value both immediately and in future?. This is to see where data accuracy on environmental and social information captured based on sustainability accounting concepts/practices to incorporate in annual reports and CSR disclosures. Thus, to partly answer research question2, P1**:** *Environmental and social indicators captured by Thai companies are based on the sustainability accounting concepts/practices when incorporating in annual report and a corporate social responsibility disclosure* was addressed.

The results answer P1 that the measurement of environmental and social indicators within a company was based on environmental management accounting and social management accounting concepts/practices. Companies provided environmental and social indictors to support both annual reports and corporate social responsibility (CSR) disclosures to create shared value in market places. Environmental and social data was captured to support annul reports and corporate social responsibility (CSR) thus reducing negative impacts on environment and society to create share value in the eye of stakeholders and public. Processes and methods for environmental and social identification and measurement of some examples of a case study are shown as follows:

Environmental indicators are from:

‘- Establishing project activities that aim to improve and develop a better environment – eliminating dispersion of dust in workplace, reducing use of lighting in webbing section, complying with the Energy Conservation Promotion Act., by turning off lighting system during breaks, removing light bulbs in area that are unnecessary, reducing the use of electricity and conserving energy and creating awareness on energy saving to all staffs.

- Encouraging our employees to reduce paper use by using two sides of paper and reuse envelopes for sending the documents among units within Company. We have invited all staffs to participate in Energy Conservation Projects by preparing the advertisement, brochure, leaflet, etc’. (Case6: Consumer Product)

> ‘The waste water from the production process and other sources is treated in very efficient effluent treatment plant at primary stage followed by secondary treatment based on activated sludge principle. Air pollution is treated by scrubbers for treatment of spinning exhaust designed based on absorption and oxidation of hydrogen sulphide where hydrogen sulphide is getting converted into element sulphur. Solid waste and all types of solid waste generated during production process and other activities are being segregated and disposed through the authorized agencies for further treatment. Some portion of solid waste has successfully been started using in cement manufacturing process which is more environmental friendly. Sulphuric acid plants designed on DCDA principle with efficient demister followed with two stages scrubbing system to control SO2 emission’. (Case5: Consumer Products)

> *Social indicators are from:*

> ‘Organising and initiating behaviour based safety program to promote and practice safe working behaviour and provide safe working conditions (Case5: Consumer Product)

> ‘Joining blood donation with “Thai Red Cross Society” four times a year and donating books and old calendars to the Foundation for Blind in Thailand under Royal Patronage of H.M. the Queen Offering sandalwood flower for cementation to Royal Cemetery of Princess Bejaratana Rajasuda Sirisobhabannavadi of Thailand at Bampennue Temple’. (Case6: Consumer Product)

It can be seen that companies were intending to represent the processes or methods of data collection of environmental and social facets to support the demands of a company’s stakeholders and public. Sustainability accounting concepts/practices refer to the processes that provide a company with a way to provide environmental and social data for enhancement of business decision-making, as well as addressing stakeholders’ and public’s concerns (Burritt & Schaltegger, 2010). As a sustainability accounting is business tool for a sustainable company, environmental and social data provided by case studies can make data accuracy and available for management decisions in relation to economic, environmental, and social sustainability (Ball, 2004). Thus, P2: *Environmental and social indicators identified by current practices within a company fulfil its sustainability accounting*

practices, thus acting collaborators in driving towards sustainable development in long-term was addressed.

The results answer P2 that environmental and social data captured by current management accounting practices is involved with sustainability accounting concepts/practices in many areas. This results in environmental and social expenditures were incorporated in annual reports and corporate social responsibility (CSR) disclosures to create shared value in the eye of stakeholders and market place (M. E. Porter & Krame, 2011). Management accountants played an important role in collating non-financial information (environmental and social data) to guide the strategic direction of effective corporate social responsibility (CSR) disclosures. These are some examples of environmental and social management activities in annual report and CSR that accomplish its sustainability accounting concepts/practices.

Environmental indicators by environmental management accounting practice

'Environmental conservation activities: our company has a proper waste management system to minimize waste discharge out of the factory premise. We also promoted reuse and recycling, as well as sponsoring environmental management and prevention program'. (Case1: Consumer Products)

'Our company has established reforestation projects helping expanding the forest and adding more green area to reduce the global warming crisis. We always realize to save energy by setting 3 measures – measure on promoting and creating energy awareness, management measure, and measure on replacement tools'. (Case17: Industrial Product)

'We are aware of the power and global warming issues with co-operation on energy saving everywhere in addition to workplace. Built saving conscious such as using recycle paper with the photocopying machine or re-use the empty page of such'. (Case2: Construction)

> ‘Our company has established Safety and Environment Waste Treatment program and a wide range of activities and new technologies are continuously adopted to treat the effluent water discharge & emission of gases meeting the norms’. (Case5: Consumer Products)

Social indicators by social management accounting practice

> ‘We provide assistance to community/society that encourages people within the community/society to be self-reliance. We establish collaborative network in joining forces to work for public and designate personnel responsible solely for managing continuing social activity. We improve social activities to serve community’s needs and in line with the concept of Creative Economy in order to be different and unique. We also establish strong marketing foundation starting from the gradual expansion of local market to national and international respectively as well as risks distribution. We provide knowledge regarding copyright, trademark, patent, design and invention etc., in order to protect Thai intellectual property both in and out of the kingdom. (Case11: Industrial Product)

> ‘We established projects for society development by bringing up the society, especially helping the less fortunate people to be able to live on among others. On 28 June 2012, our company and employees donated 10 wheelchairs to Thai With Disability Foundation in PakKret, Nonthaburi and held an activity to donate our blood to Thai Red Cross on 20 August 2012. We supported education resources in the rural school, on 21 December 2012. Our company and employees donated 4 computers along with 2 sets of telescopes to Siwaram school which was seriously affected by the flood crisis in 2012 resulting in a huge lost of computers and educational resources.

Current management accounting practices within a company identified and captured environmental and social data to disclose in annual reports and CSR in order to fulfil its sustainability accounting concepts/practices. Environmental data was collected from environmental management programs established to reduce negative impacts on environmental and ecological systems. In addition, social information was captured from social and community development programs provided and expenses paid for improving quality of community and social well-being as whole. P3; *Environmental and social performance disclosed in annual reported meets the needs of sustainable*

development to create shared value (CSV) – economic, environmental, and social performance of firms in the eye of stakeholders and market place was addressed to examine environmental and social data disclosed to create shared value to support stakeholders' and public's concerns. The results of the study answer P3 that environmental and social information in annual reports and CSR disclosure supported stakeholders' and public's concerns significantly. As a corporate social responsibility (CSR) is high on the priority list of sustainable development of firms, Thai companies aimed to disclose environmental and social performance to create shared value in market place. These are some examples of environmental and social performance identified by a sampling group that meet sustainable development of firms as follows;

> 'Our company has consistently attached a great deal of importance to this necessary corporate citizen role. In addition to participation in the CSR-DIW 2011 Project launched by the Department of Industrial Works, and aimed at promoting industrial operator's sustainable acceptance by society, which led to the Company being awarded a plaque and a certificate in September 2011, several other CSR activities were conducted in 2012'. (Case1: Agricultural and Food Product)

> 'Our policy is to "To actively contribute to the social and economic development of the communities in which we operate. In so doing, we aim to build a better, sustainable way of life for the weaker sections of society and raise the country's human development index". The Company is a firm believer in its core values and recognizes that, in order to succeed in today's competitive business world, the Company must fulfil its multiple responsibilities towards multiple stakeholders. The Company believes that, besides producing good financial benefits to its shareholders, it should maintain the dynamic relationship with its stakeholders, both local and global. Corporate Social Responsibility (CSR) is a key component of the Company's business strategy'. (Case5: Consumer Product)

> 'Board of Directors and executives had always realized the responsibility for both social and environment by setting up team to develop our products from design, production process, to efficiently and worthwhile make use of resources without effecting environment. The Company had been certified and had implemented on Environmental Management System ISO 14001 and until now, the Company had been certified with ISO 14001:2004 by Bureau Varitas'. (Case6: Consumer Product)

> 'Our company is committed to operate the business with care for all stakeholders, economy, society, and environment by adhering to moral values, ethics, and code of conduct. Moreover, the corporate governance is employed as a tool to monitor the implementation of activities as honest, trustworthy, transparent, and fair. Potential effects on organization, society, and environment are also taken into account'. (Case11: Industrial Product)

It can be seen that Thai companies aimed to embed environmental and social dimension and sustainability management accounting practices into their business development performance. This provided Thai companies with a new way of evaluating and managing long-term risk required for true sustainable growth. This can be indicated that companies aimed to create more accurate accounting data on environment and social factors, thus having ethical obligation to take environmental and social issues into account. Environmental and social information captured based on international measures create more accurate accounting data to enable more effective decision-making and reporting purposes. Management accounts identify and measure all sources of expenditures paid for improvement in environmental friendly and social well-being. Management accounting system within a company captures and identifies environmental information in relations to use of materials, energy reductions, water consumptions, and emission abatement. Meanwhile, the system also captures and identifies social expenditures paid for improvement in quality of life of employees, local community development, and product responsibility. In relation to this, management accountants' roles drive as collaborators with a company to address interests of stakeholders and publics relating to environmental and social performance along with eco-efficiency (ICAEW, 2004). Management accounting system can make cost relationship that guide business decision-making and reporting purposes. Sustainability accounting can be a business tool for corporate sustainability management that create value added to environmental and social performance (S Schaltegger & Burritt, 2010). The implications of sustainability accounting concepts for accountants reflect an evolutionary and adaptive perception of corporate sustainability when reporting eco-efficiency together with

environmental and social performance (Burritt, et al., 2002). Thus, environmental and social data incorporated in annual reports can be linked with the information provided in CSR disclosures to add sustainable value in the eye of stakeholders and market place. The results of the study are employed to underline the design of a Sustainability Management Accounting Framework (SMAF) based on purpose of the study.

Chapter 6

Sustainability Management Accounting Framework (SMAF)

As sustainability accounting in the Thai context is introduced to companies to report environmental and social performance along with eco-efficiency in the form of a triple bottom line. Environmental and social data are captured based on the indicators of the GRI's guideline to incorporate in annual reports and CSR disclosures. The results of the study are employed to underline the design of a sustainability management accounting framework for cost identification and measurement of environmental and social aspects. The SMAF is systematically integrated with existing management accounting system within a company to identify and measure environmental and social expenditures from business activities. Environmental and social data captured based on the indicators of the GRI's guidelines creates the link between the information in annual reports and CSR disclosures for value creation. Environmental management accounting and social management accounting in the SMAF help identification and measurement of environmental and social information – physical and monetary to add shareholder value. More accurate data of environmental and social facets enables more effective decision-making and reporting purposes when disclosing three areas of performance – economic, environment, and social well-being.

The SMAF and its environmental and social concerns

Environmental and social issues have been of significant concerns to stakeholders and public for decade relating to the significant impacts on the performance and prospects of companies. Companies need to manage use and flow of resources – material, water, energy, and wastes to reduce negative impacts on environment and improve quality of life of employee and society. The SMAF relies on sustainability accounting concepts/practices that provides a company with a way to improve

positive impacts on environment and social well-being while maintaining equivalences of global environmental and natural resources (Bebbington & Gray, 2001). It helps companies to improve corporate sustainability and reliability including disclosure quality regarding stakeholders' interests to add shareholder value in market place (Adams, 2010). Environmental and social information captured by the SMAF enables more effective decision-making on environmental and social improvements. The SMAF aims to maintain the balance of environmental and ecological system in long-term (Bebbington & Gray, 2001) as well as preserving of the basic supports of human life and natural habitats—for example, air, water, land and/or food (Vanegas, 2003).

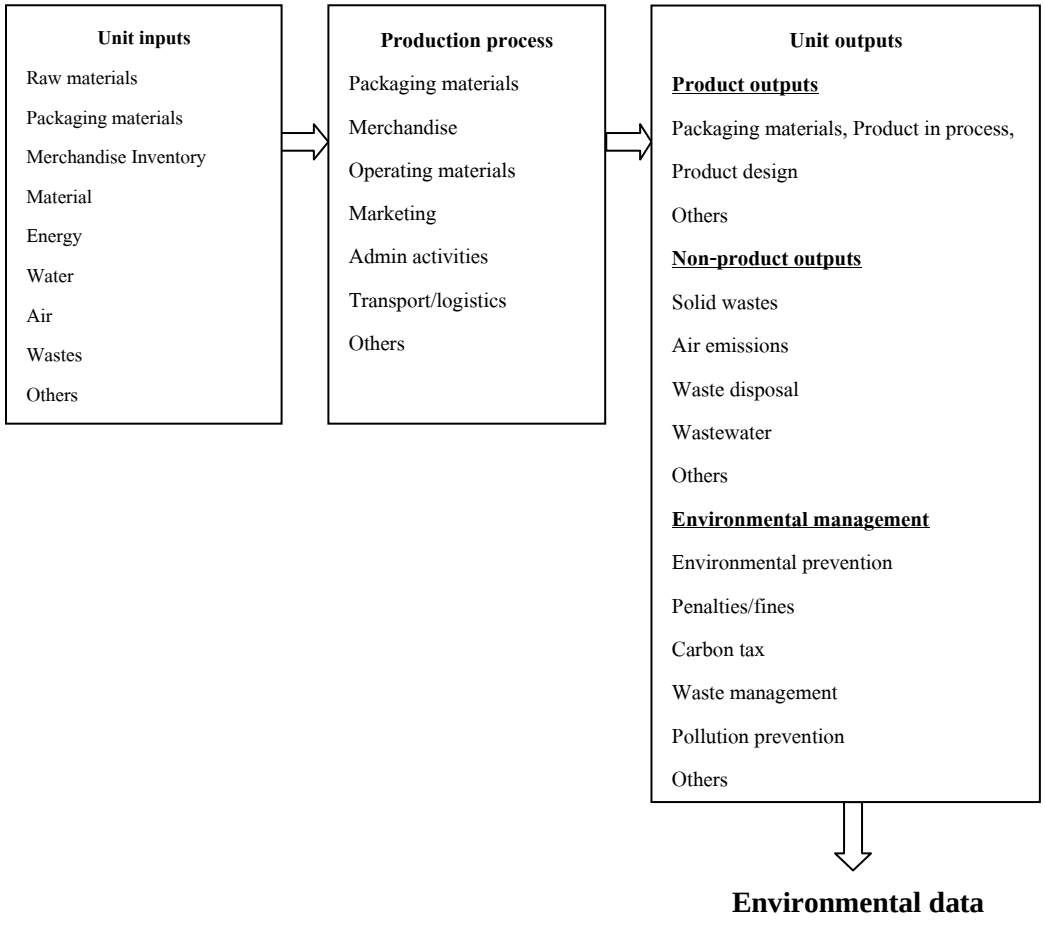

Figure 2: Environmental performance indicators

By having the SMAF, a company meets the concerns of stakeholders from evaluating environmental information from production and service processes (The Sigma Project, 2003; UNDSD, 2001). Environmental information is identified from unit inputs— cost of physical quantities (e.g. materials, energy, air, and water and unit outputs)—and production processes (e.g. packaging materials, product in process, product design) based on the indicators of the GRI's guideline (Figure 2). This helps manage use and flow of resources in production process while reducing waste and emission pollution generated from business activities. A company becomes more concerns with environmental impacts along with a good environmental reporting policy that enables long-term profitability of the 'green' organizations (Connelly & Limpaphayom, 2004).

For social concerns, the SMAF is designed to help reduce negative impacts on employee, social, and local community where a company operates. The SMAF provides a company with a way to take more responsibility in social well-being while reporting on social performance to create value for their stakeholders (Owen & Swift, 2001). Social data captured by the SMAF enable more effective investment decision in relation to improvement in the quality of local communities and social well-being (Mook, 2006). Companies become more ethically measure social expenditures to support improvements in social efficiency while creating more accurate cost accounting of social impacts for management decision strategies (Quarter, Mook, & Armstrong, 2009). The SMAF supports companies to take social responsibility into account thus taking more responsibility in reducing negative impacts on society and to report on social performance to create sustainable value in the eye of stakeholder. Figure 3 provides social information into three categories – unit inputs, production process, and unit output indicated social concerns from business activities.

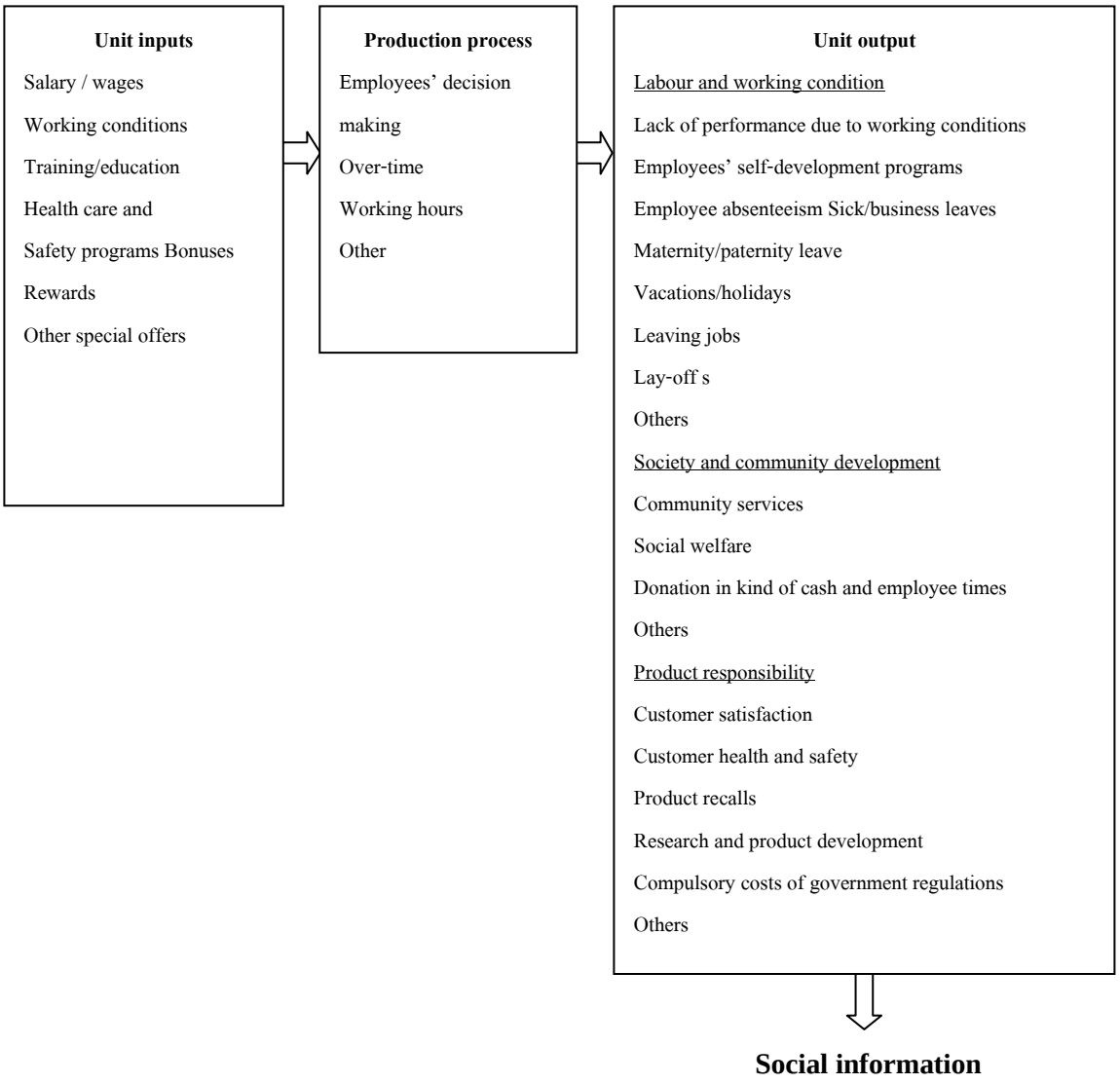

Figure 3: Social performance indicators

Management accounting system for environmental and social sustainability

Environmental and social sustainability is placed the demands on management accountants to identify and capture more accurate accounting data that simultaneously present opportunities both immediately and in future (Collins, et al., 2011). Environmental management accounting and social management accounting is developed and introduced to a company to create data available to

stakeholders and public. Management accountants play an important role in capturing, identifying, and measuring environmental and social data based on the knowledge of sustainability accounting concepts/practices (Nikcie Petcharat & Mula, 2012).

Environmental management accounting (EMA) in the SMAF

In the design of the sustainability management accounting framework, environmental management accounting helps identify and measure environmental information from all sources of expenditures paid for improvement in positive impacts on environment. As management accountants have been placed on the demands to provide more accurate accounting data on environmental aspects (Collins, et al., 2011), the SMAF creates more accurate information on environmental aspects for value creation. Environmental information is separately captured from unit inputs— cost of physical quantities (e.g. materials, energy, air, and water and unit outputs)—and production processes (e.g. packaging materials, product in process, product design. The SMAF also collects environmental costs from non-production outputs including solid wastes, emissions, waste disposal, and/or waste created from producing products (Gale, 2006). In the meantime, environmental prevention and management programs, including penalties/fines, are collected as environmental costs (IFAC, 2005). This makes environmental data enables more effective decision-making thus creating eco-effeciency along with environmental friendly (Table 7).

Table 7: Environmental data in the SMAF

Environmental data	Environmental indicators
Total number of direct materials	Raw materials, Associated process materials, Semi-manufactured goods or parts
Total number of Non-renewable materials	Minerals, Metals, Oil, Gas, Coal Recycled materials
Total volume of Direct energy	Direct non-renewable energy sources: Coal, Natural gas, Fuel
Total volume of Water Usage	Surface water, Ground water, Rain water, Waste water, Municipal water suppliers, Reused water, Wastewater recycled
Total use of Recycling wastes	Recycling wastes, Others
Total volume of Direct energy	Bio-fuel, Ethanol, Hydrogen, Electricity , Heating and cooling, Steam
Total volume of Indirect renewable energy	Nuclear energy, Other forms of imported energy, Solar, Geothermal, Hydro energy, Wind, Biomass based intermediate energy, Hydrogen based intermediate energy
The number of recycled material used in production processes	Recycled packaging materials, Reused products, Product in processes
Environmental management programs	Energy conservation programs Initiatives to reduce GHG emission programs Environmental protection expenditures Environmental management programs Initiatives to provide direct energy efficiency Initiatives to provide indirect energy efficiency
Environmental impacts of transporting products:	Energy use (e.g. oil, kerosene, Fuel, and/or electricity) Emissions (e.g. GHG emission, NO_x , SO_x , other air emissions) Effluents (e.g. different kinds of chemicals) Wastes (e.g. different types of packaging materials) Noise, Spills (e.g. spills of chemicals, oils, and/or fuels)
Total volume of Direct GHG emission	Carbon Dioxide (CO_2), Methane (CH4), Nitrous Oxide (N_2O), Hydro-fluorocarbons HFCs, Per-fluorocarbons PFCs, Hydro-fluoro ethers (HFEs)
Total volume of Indirect GHG emission	Transporting, Employee commuting, Business travel

Table 7: Environmental data in the SMAF (Cont.)

Environmental data	Environmental indicators
Total volume of Wastes	**Hazardous wastes: Composting , Reuse, Recycled , Recovery , Incineration, Landfill, Deep well injection, On-site storage, Other that specified by firms, Non-hazardous wastes, Solid wastes**
Total volume of Wastes	**Liquid wastes, Disposal wastes, Toxic wastes**
Total volume of Air emission	**Carbon monoxide, Nitrogen oxides, Oxides of nitrogen, Other air emissions identified in regulations**
Total volume of Emissions of ozone-depleting substances	**Emissions (production + imports – exports of substances Production (Substances produced – Substances destroyed by technology)**
Total volume of Material spills	**Chemical, Oil, Fuel, Spill of wastes, Others Air emission: Carbon monoxide, Nitrogen oxides, Oxides of nitrogen Other air emissions identified in regulations, Production (Substances produced – Substances destroyed by technology)**

Social management accounting (SMA) in the SMAF

In the SMAF, social management accounting helps identify and measure all sources of expenditures paid for the improvement in the quality of life of employee, social, and local community. As stakeholder demand for accountability on social development has increased, the SMAF captures social information based on the indicators of the Global Reporting Initiatives (GRI, 2010, 2011a) and the results of the study (Table 8). Social management accounting is employed in the SMAF to help identify and collect social data from working conditions, education and training, and healthcare and safety. Social data is also identified from employee benefits and expenditures spent on business activities and/or social management programs, community development, and product responsibility.

Table 8: Social data in the SMAF

Social data	Social indicators
Number of employee	- Actual number of full-time employees at year-end - Employees with a working-time ratio of 95%
Job categories	- Senior management comprises the CEO, executive vice presidents, vice presidents, and directors - Management comprises middle managers and specialists. Professional comprises employees with academic backgrounds, as well as team leaders - Administrative comprises administrative personnel. Skilled workers, laboratory technicians, and other technicians comprises skilled workers, laboratory technicians, and other technicians. - Process operators comprises operators and unskilled workers.
Benefits provided for employees	-Life insurance, Health care, Disability/invalidity coverage, Maternity/paternity leave, Retirement prevision, Stock ownerships -Transportation, Special leaves, Bonus programs -Counselling prevention and risk-control programs, Healthcare and safety programs -Pre-retirement planning -Retraining for those intending to continue working -Severance pay -Job placement services -Assistance (e.g. training, counseling) on transitioning on a non-working life
Employee turnover	- The number of permanent employees who left the Group during the financial year - The average number of permanent employees
Growth in number of employees, organic	- The number of employees at year-end less the number of employees gained via acquisitions - The number of employees at the beginning of the year
Growth in number of employees, acquisitions	- The number of employees gained via acquisition of new companies.
Age and seniority	- The average age and seniority in whole years per employee

Table 8: Social data in the SMAF (Cont.)

Social data	Social indicators
Absence	**- Pregnancy-related sick leave, and occupational accidents and diseases.** **- The number of registered days of absence as a percentage of the total number of normal working days in one year, less holidays and public holidays.**
Expatriation	**- Employees undertaking tasks outside their home country for a period of more than six months**
Training costs	**- The costs of seminars and internal and external training courses** **- Percentage of total employee costs** **- Skills management and lifelong learning programs to develop employees' skills and knowledge** **- Average hours of training per year per employee:** **- Vocational training and instruction** **- Costs of educational leave** **- Costs of training or education pursued externally** **- Costs of training on specific topics**
Occupational accidents	**- The number of reported work-related accidents involving at least one day's absence after the day on which the accident occurred**
Occupational diseases	**- The number of new reported cases of work-related diseases**
Occupational accidents and occupational diseases	**- The consequences of occupational accidents with absence and occupational diseases** **- The total number of (calendar) days of absence**

Table 8: Social data in the SMAF (Cont.)

Social data	Social indicators
Number of active patent families	The number of inventions for which there are one or more active patent app88lications or active patents at year-end
Community development	Cash in kind of donation, community development program, education and training provided for improvement in the quality of community
Number of new products	The number of new products with new or improved characteristics launched during the year
Product responsibility	Customer satisfaction, customer health and safety, products recalls, community services, research and product development, and compulsory cost of government policies.

The SMAF for creating shared value

Creating shared value is defined from firms that success in improving three areas of performance – economic, environment, and social while becoming better competitors in market place. Successful firms aim to create better relationship with their stakeholders regarding with enhancement of investment decision. Environmental and social data in their reports enables more effective decision-making and improve data available to stakeholders and public. Creating shared value needs to be associated with business performance regarding with environmental and social policies to create benefits for both sides (M. Porter & Kramer, 2006). The SMAF captures and identifies environmental and social data to incorporate in annual report that linked with the information provided in a corporate social responsibility disclosure for value creation. The connection between societal and economic progress enables companies to build long-term relationship with stakeholders and public when disclosing more accurate accounting data on environmental friendly and social well-being. Environmental and social information in companies' reports creates better relationship with

stakeholders when their investment decision needs to be made (M. Porter & Kramer, 2006). The SMAF supports companies to improve three areas of performance – economic, environment and society when maximising profits in markets. More accurate on environmental and social data in a company's reports improves its positive reputation that enhances profitability and a competitive position in long-term.

As the SMAF aims to create value to three areas of performance – economic, environmental and social, environmental and social data in the SMAF helps companies to identify how they meet sustainability targets. Environmental and social data captured from business activities can lead to the sustainable organizations efficiency when decision-making needs to be made (Porter and Kramer, 2006). The SMAF is designed along with sustainability goal and objective within companies that aims to reduce negative impacts on environment, society, community. It helps companies to be more talent in improving environmental and social well-being while having ability to report environmental and social improvement in their reports (Porter and Kramer, 2006). By having the SMAF, companies in Thailand disclose more realizable data on environmental and social aspects to create better business opportunities. This creates a real difference to society and/or to confer a competitive advantage in market place. As a result, companies become more aware of reducing negative impacts on environment and society including healthy society and environmental efficiency when making a high profit in market.

The measurement of environmental and social data in the SMAF helps companies to reduce negative impacts on environment and natural system while maintaining the development of economic/finance performance. Companies are able to manage use and flow of resources within production processes while having ability to reduce not only costs of production processes, but also emissions and wastes. Social performance is considered as another aspect within the SMAF to

identify and measure all sources of social expenditures in order to enhance decision-making at boardroom level. This helps companies to improve their investment decision on the quality of life of employee, social, and local community. By having the SMAF, companies identify and capture environmental and social data from business activities – unit input, production process, and unit output based on the indicators of the GRI's guideline and results of the study (Table 7 and 8). The SMAF provides companies with fully knowledge of ways to develop environmental and social dimensions. It creates an inspiration for sustainability practitioners to identify and measure environmental and social value along with economic efficiency. The SMAF brings together with strong sustainability knowledge and practices that engages environmental friendly and social well-being toward 'green' organizations (Prayukvong & Olsen, 2009). It supports companies in Thailand to add shareholder value by reporting more accurate accounting data on environmental and social facets to address stakeholders' and public's demands (Nickie Petcharat & Mula, 2013). Environmental and social data in companies' reports enables more effective decision-making at boardroom level to enhance environmental and social performance along with eco-efficiency both immediately and in future. Figure 4 shows a full comprehensive framework of the sustainability management accounting framework (SMAF).

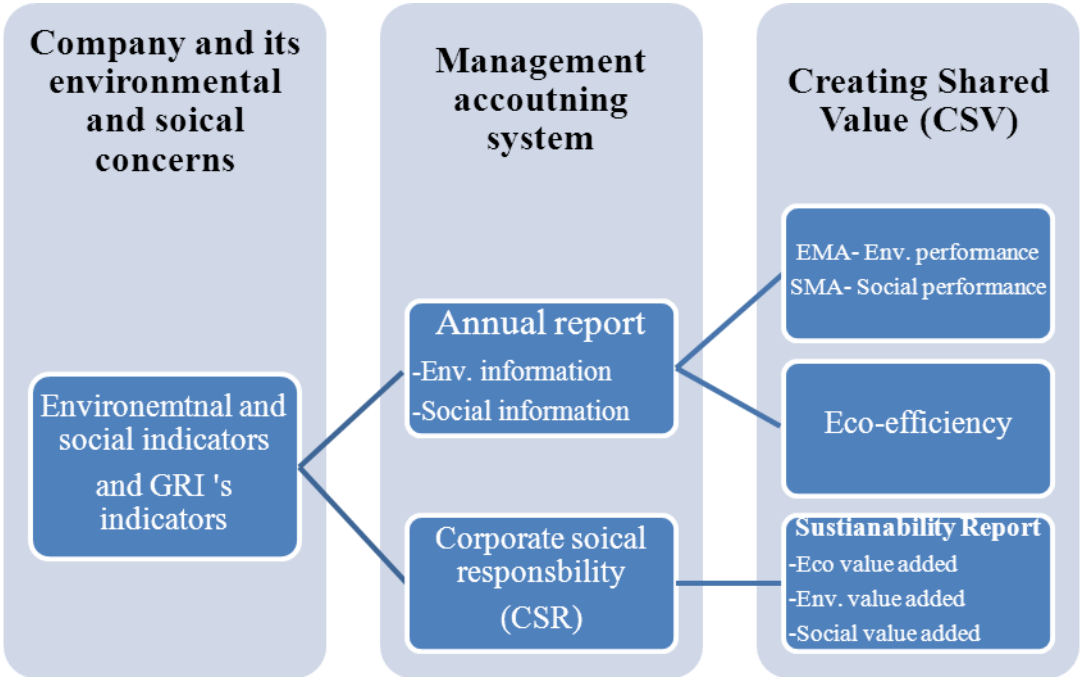

Figure 4: A Sustainability Management Accounting Framework (SMAF)

The SMAF presents a unique opportunity for companies to build market drivers that impact their competitiveness while reducing increasing pressure from regulators, investors, and customers for years to come. It supports companies to enhance their strategic positioning including environmental and social performance along with eco-efficiency through mandatory and voluntary disclosures (Prayukvong & Olsen, 2009). This drives the ability to influence legislative and investment decisions in a manner that builds brand value, thus creating shared value (CSV) in the long-term competitiveness of firms (M. Porter & Kramer, 2006; M. E. Porter & Krame, 2011). Companies those become environmentally and socially efficient along with economic performance can cement their leadership position over category competitors, thus creating business success in global markets.

Chapter 7

Conclusion, Contribution, Limitations of the Study, and Future Research

Environmental and social performance indicators in Thai companies' annual reports and CSR disclosures identified and captured along with the requirements of the Global Reporting Initiative (GRI) the most widely used standardized sustainability reporting framework. This creates truly viable and competitive business to reflect the linkage between sustainability and financial success, thus building new levels of productivity and sustainable growth in long-term. Environmental and social data in CSR is positively relevant to the indicators required by the GRI to ensure that the company's corporate social responsibility is implemented continuously and efficiently to successfully attain the sustainable development of firms in three aspects of performance – economic, social, and environment. In relation to this, environmental and social indicators in the CSR are positively associated with the data in annual report to enhance stakeholders' and public's demands. Companies establish ecosystem and social well-being partnerships and provide transparency into environmental and social aspects to maintain their own sustainability transformation. Management accountants' roles in encouraging a company to accurately incorporate environmental and social data in its reports, drive as collaborators with a company to employ sustainability accounting concepts/practices for cost identification and measurement (Nikcie Petcharat & Mula, 2012). As a result, environmental and social indicators captured by current management accounting system are significantly associated with the indicators required by the sustainability accounting concepts/practices. This provides a company with a way to report environmental and social performance in both mandatory and a variety of voluntary disclosure such CSR.

Furthermore, environmental and social data based on sustainability accounting concepts/practices in a company's annual report and CSR disclosure build strong relationship with its

stakeholder and public. Companies that wish to remain competitive in market place and proactively become leader in sustainability organization need to be relevant in all aspects of environment of their operation along with eco-efficiency. In relation to this, companies capture and identify environmental and social indicators while driving towards sustainable development of firms. Environmental and social data in annual reports and CSR disclosures fulfils sustainability management accounting practices for cost identification and measurement, thus creating data accuracy when decision-making needs to be made. Thus, environmental and social performance in a company's report that meet the needs of sustainable development of firms can create shared value (CSV) in three aspects of performance – economic, social, and environment. A company becomes better competitors in market place in terms of intelligent operational efficiency, competitive differentiation, and sustainable growth, thus building a profitable, long-term, values-driven business to the environment, society, and community in which it operates.

Contribution of the study

This study investigated environmental and social data in annual reports and CSR disclosure of Thailand is related to environmental and social indicators required by the Global Reporting Initiative (GRI). Management accounting systems of Thai companies that identified and captured accounting data on environmental and social facets were targeted to examine where data accuracy based on the concepts/practices of sustainability accounting. Environmental and social data in a company' reports was, therefore, analysed to see how management accountants' roles collaborate in driving towards effective sustainability disclosures.

Contribution to literature

As an initial aim of this study is to examine environmental and social data in a company's annual report and CSR disclosure that should be positively associated with indicators required be the Global Reporting Initiative. Management accountants' roles should drive collaborating sustainability accounting concepts/practices for cost identification and measurement to create data accuracy when decision-making needs to be made. This study designed a sustainability accounting framework for cost identification and measurement of environmental and social data to create data accuracy when decision-making made for creating shared value (CSV).

a) Previous studies claimed only a small group of Thai companies has been recognized as CSR leaders incorporating CSR activities into their corporate strategies while disclosing environmental and social performance (Kraisornsuthasinee & Swierczek, 2009). Companies utilized CSR as a business strategy to build on positive reputation while having less intention to move towards environmental issues (Sumatheeprasit, 2011; The Stock Exchange of Thailand, 2013). The results of the study, however, indicated that companies in Thailand identified and captured environmental and social information positively associated with the indicators defined by the Global Reporting Initiative (GRI). Environmental and social data was incorporated in annual reports and CSR disclosures to add shared value in market places.

b) Current management accounting system within a company collected accounting data on environmental and social factors as defined by the concepts/practices of sustainability accounting (Nikcie Petcharat & Mula, 2012). Thai companies intended to incorporate environmental and social performance in their annual reports while creating data accuracy in CSR disclosures to support stakeholders' and public's concerns (Kraisornsuthasinee & Swierczek, 2009). As a result, CSR in Thai context provided a company as a business

strategy that creates a company's reputation to add shared value (CSV) in market place (M. E. Porter & Krame, 2011). Results of the study also reveal that environmental and social data in CSR disclosures are associated with the information in annual reports when disclosing to support stakeholders' and public's concerns.

c) The results of the study clearly indicate environmental and social indicators captured by current management accounting systems within companies is associated with the information identified by sustainability accounting practices. Thus, management accountants' roles in collaborating sustainability accounting concepts/practices create more accurate accounting data on environmental and social aspects (Nikcie Petcharat & Mula, 2012). Although sustainability accounting in the Thai context is , however, is not widely well-known (Nickie Petcharat & Mula, 2013), companies were aiming to report environmental and social performance along with eco-efficiency in the form of a triple bottom line – economic, environmental, and social. Management accountant's roles in sustainability accounting were involved in setting sustainability strategies, thus supporting firm to achieve the best sustainability outcomes (Cullen & Whelan, 2006).

d) In Thailand, sustainability accounting concepts/practices are not widely well-known for cost identification and measurement of environmental and social aspects in a company's annual report and CSR disclosure (Nickie Petcharat & Mula, 2013). Management accountant's roles in identifying and capturing environmental and social data to achieve the best sustainability outcomes (Cullen & Whelan, 2006). Management accountants need to provide environmental and social information reported in both internal and external reports. This is to support management decision-making and stakeholders when decision needs to be made (Neungruthai Petcharat & Mula, 2009a; Nikcie Petcharat & Mula, 2012). According to the results of the study, environmental and social indicators in a company's reports collected

based on sustainability accounting concepts that aimed to enhance management decisions and reporting purposes. Companies also captured costs based on the Global Reporting Initiatives (GRI) and sustainability accounting practices for enhancement of investment decisions.

Contribution to practices

This study expects that the results of the study would bring essential benefits such as improved management accounting practices/systems for environmental and social impact costs to other business sectors. Subsequently, environmental and social data identified by sustainability accounting concepts/practices and the requirements of the Global Reporting Initiatives (GRI) would support a company's to get more understanding about corporate shared value in sustainability management (S Schaltegger & Burritt, 2010). The results of the study would provide Thai companies with a new sustainability accounting mechanism to help improve the following areas.

a) Current management accounting systems of companies in Thailand captured and identified environmental and social indictors based on sustainability accounting practices to incorporate in both mandatory and voluntary disclosures. Environmental information was collected based the requirements of environmental management accounting relating to physical and monetary units. Meanwhile, social indicators were also identified and measured as required by the social management accounting approaches. Companies in Thailand collected social costs from expenditures provided to create quality of life of employees, product responsibility and local community in which they operate. Environmental and social data was collected to support the demands of companies' stakeholders and public, thus making data accuracy to create shared value in 'green market'. This helped companies to disclose their three areas of performance in the form

of a triple bottom line – economic, environmental, and social to meet their sustainability targets.

b) Environmental and social data in a company's annual reports and CSR disclosures fulfil its sustainability accounting practices. Accurate accounting data on environmental and social factors were acting collaborators in driving towards sustainable development both immediately and in future. Environmental data in a company's reports was employed to support management decisions in relation to the improvement in environmental and ecological systems. Social data was utilised to enhance decision-making within a company to create quality of life of employees, product responsibility, and local community as a whole.

c) Environmental and social performance in annual reports of companies in Thailand aimed to build sustainable development of firms towards creating shared value (CSV) in the eye of stakeholders and market place. Even though little is known about sustainability accounting in Thai context, companies aimed to embed environmental and social dimension and sustainability management accounting practices into their business development performance. This would bring a new way of evaluating and managing long-term risk required for true sustainable growth. Companies can promote sustainability organisations, thus building market drivers to create better competitors in market places. This would drive their ability to influence legislative and investment decisions while creating shared value (CSV) in the long-term competitiveness of firms (M. Porter & Kramer, 2006; M. E. Porter & Krame, 2011). As a result, companies become environmentally and socially efficient along with economic performance, as well as leading position over category competitors in global markets.

Limitations of the study

This study is limited to environmental and social data in companies' annual reports and corporate social responsibility (CSR). This includes environmental and social data based on the indicators of the Global Reporting Initiatives (GRI) and the required practices of sustainability accounting. In addition, management accountants' roles in capturing environmental and social data in annual reports are explored. Limitations of the study are as follows:

a) As in most prior studies, a purposive sample is employed to select an appropriate sampling group to be studied (Cavana, et al., 2001) as it is the best alternative available given the purpose of the study (Neuman, 2006). The relationship between environmental and social data collected by companies in Thailand and GRI's indicators wax examined from environmental and social data in annual reports and CSR disclosures. The relationship between environmental and social indicators in CSR disclosures and the information in annual reports was discovered from environmental and social performance disclosed in CSR reports. The relationship between environmental and social indicators in companies' reports and sustainability accounting practices was examined by comparing environmental and social factors in CSR reports and cost identification and measurement of environmental and social factors. Environmental and social data identified by environmental management accounting and social management accounting practices was targeted for an investigation.

b) As little is known about sustainability accounting practices in Thai context, the demands have place on management accountants to identify and measure environmental and social indicators (Burritt, et al., 2002; Ratanajongkol, et al., 2006). The suggestion of previous studies (e.g. Burritt, et al., 2002; Burritt & Schaltegger, 2010; Nickie Petcharat

& Mula, 2013) sustainability accounting concepts for environmental and social cost identification and measurement should be further explored. Environmental and social performance in annual reports that meets the needs of sustainable development of firms should be examined to see where companies created shareholder value in terms of economic, environmental, and social sustainability.

c) Management accountants' roles should drive as collaborators with a company in capturing and identifying accounting data on environmental and social factors (Nikcie Petcharat & Mula, 2012). Thus, this study is limited to management accountants' roles in providing environmental and social data in annual reports and CSR disclosures. Their roles in making quality data to support a company's financial disclosures and corporate social responsibility (CSR) reports (Collins, et al., 2011) are limited.

d) The conceptual framework for environmental and social sustainability should provide the linkage between environmental and social concerns that build creating shared value (CSV) (Collins, et al., 2011). The framework in this study is designed based on sustainability management practices and its cost identification and measurement that take a leadership position in reporting more accurate accounting data on environmental and social factors. The framework brings benefits to management accountants to capture environmental and social data in order to respond to sustainability disclosure risks with widely varying degree. The framework provides companies in Thailand with a way to take a leadership position in measuring and capturing environmental and social data. This is limited to creating shared value (CSV) and driving better market performance.

Recommendation for future research

It is recommended that future research extends beyond the sample group to further identify and measure accounting data on environmental and social factors in companies' reports. The research suggests future exploration in the following areas:

1) It suggested that future research should replicate this study to validate the results of the study and conclusion. Future research should also select a sampling group using different methods to see where data collection available for an investigation. In-depth interview should be considered for qualitative data collection.

2) Examining the association between environmental and social performance and environmental and social information in mandatory and voluntary disclosures would help seeking data accuracy for effective decision-making. Environmental and social performance in annual reports that meets the needs of sustainable development of firms should be further examined to see where companies created shareholder value in terms of economic, environmental, and social sustainability.

3) Examining management accountants' roles in driving as collaborators with a company in capturing and identifying environmental and social data would help understating to provide accounting information in companies' reports. Future research should also study their roles in making better quality data to for investment decision and reporting purposes.

4) Designing fully conceptual framework for environmental and social sustainability would help understanding the linkage between environmental and social concerns that build creating shared value (CSV). Future research should examine sustainability management practices and its cost identification and measurement that take not only a leadership

position in reporting environmental and social performance but also becoming better competitors in global markets.

Concluding remark

This study examined the association between environmental and social data in a company's reports and indicators based the Global Reporting Initiatives (GRI) and sustainability accounting practices. Management accountants' roles in identifying and measuring environmental and social data to report internally and externally are explored. The study conceptualizes environmental and social data based on the GRI's indicators consistent with the information in a company's reports. Correlation analysis methods are employed to examine the relationship between (1) environmental and social data collected by companies in Thailand and GRI's indicators, (2) environmental and social indicators in CSR disclosures and the information in annual reports, and (3) environmental and social indicators in companies' reports and sustainability accounting practices. In addition, environmental and social data in annual reports of a sampling group is collected as secondary data for qualitative data analysis.

A combination of stakeholder theory and legitimacy theory were employed to examine ethical and moral obligation of companies to address interests of their stakeholders when reporting environmental and social performance externally. A sampling group selected from 200 companies in Thailand those providing environmental and social performance in both annual reports and CSR disclosures provided on the Stock Exchange of Thailand (2013). Quantitative and qualitative research methods were considered appropriate for this study to collect and analyse data triangularly. The results confirm that environmental and social data in a company's reports were positively associated with indicators of the GRI and sustainability accounting concepts/practices. Environmental and social

data in annual reports were also consistent with the environmental and social performance in CSR disclosures. Current management accounting systems of companies in Thailand captured and identified environmental and social information as identified by sustainability accounting concepts. Management accountants' roles of companies in Thailand were aiming to provide environmental and social information to support companies' annual reports and CSR disclosures.

This study concludes that environmental and social data captured by companies in Thailand appears to meet the indicators of the GRI and sustainability accounting practices. Even though little is known about sustainability accounting in Thai context, management accountants of Thai companies put much effort to create data available for management decisions and reporting purposes. The results of the study confirm that companies in Thailand were intending to create quality data on environmental and social factors. Management accountants play an important role in capturing and identifying environmental and social information to consistently report internally and externally. This is to ensure that companies have an ethical obligation to be responsible for environmental and social concerns, as well as integrating environmental and social performance into business management. This results in Thai companies create shared value in the eye of stakeholders and market place both immediately and in future.

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APPENDIX

Appendix A: *Survey instrument*

Part I: Company's profile

Instruction: *These questions are provided to seek company's profile relating to environmental and social management accounting practices. Please indicate by ticking questions that are relevant to you.*

1. What sectors does your organization belong to? *(Please tick as many as apply)*

( ) 1. Industrial products

( ) 2. Consumer products

( ) 3. Construction

( ) 4. Agriculture product and food

( ) 5. Technology

2. In what sectors does your company operate? *(Please tick as many as apply)*

3.1 Local only	( )	3.2 State wide	( )
3.3 Interstate	( )	3.4 Internationally	( )

Part II: Company's profile

Instruction: *A number of indicators are listed in Part II based on the requirements of the Global Reporting Initiatives – environmental and social performance indicators. Please read the questions at the top of the indicator column and scale to respond your appropriate answer, for example.*

How closely total volume of direct materials in final products captured by your firm related to the environmental indicators required by the Global Reporting Initiatives?

If total volume of direct materials in financial products captured by your firm very closely related to the environmental indicators required by the Global Reporting Initiatives ***please tick / in (5).***

If total volume of direct materials in financial products captured by your firm not at all related to the environmental indicators required by the Global Reporting Initiatives ***please tick / in (2)***

If your firm does not or you are unsure whether total volume of direct materials in financial products captured by your firm related to the environmental indicators required by the Global Reporting Initiatives ***please tick / in (1)***

Environmental indicators based on the GRI's guideline

Environmental indicators ***How closely each environmental indicator in the following items captured by your firm related to the environmental indicators required by the Global Reporting Initiatives?***	**Not sure / Not applicable**	**Not at all related**	**Somewhat related**	**Closely related**	**Very closely related**
1. Materials used by weight or volume.	(1)	(2)	(3)	(4)	(5)
2. Percentage of materials used that are recycled input materials.	(1)	(2)	(3)	(4)	(5)
3. Direct energy consumption by primary energy source.	(1)	(2)	(3)	(4)	(5)
4. Indirect energy consumption by primary source.	(1)	(2)	(3)	(4)	(5)
5. Energy saved due to conservation and efficiency improvements	(1)	(2)	(3)	(4)	(5)
6. Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives	(1)	(2)	(3)	(4)	(5)
7. Initiatives to reduce indirect energy consumption and reductions achieved	(1)	(2)	(3)	(4)	(5)
8. Total water withdrawal by source	(1)	(2)	(3)	(4)	(5)
9. Water sources significantly affected by withdrawal of water.	(1)	(2)	(3)	(4)	(5)
10. Percentage and total volume of water recycled and reused.	(1)	(2)	(3)	(4)	(5)
11. Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	(1)	(2)	(3)	(4)	(5)
12. Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	(1)	(2)	(3)	(4)	(5)
13. Habitats protected or restored	(1)	(2)	(3)	(4)	(5)
14. Strategies, current actions, and future plans for managing impacts on biodiversity.	(1)	(2)	(3)	(4)	(5)
15. Total direct and indirect greenhouse gas emissions by weight.	(1)	(2)	(3)	(4)	(5)
16. Other relevant indirect greenhouse gas emissions by weight.	(1)	(2)	(3)	(4)	(5)
17. Initiatives to reduce greenhouse gas emissions and reductions achieved.	(1)	(2)	(3)	(4)	(5)
18. Emissions of ozone-depleting substances by weight	(1)	(2)	(3)	(4)	(5)
19. Total water discharge by quality and destination.	(1)	(2)	(3)	(4)	(5)
20. Total weight of waste by type and disposal method.	(1)	(2)	(3)	(4)	(5)
21. Total number and volume of significant spills	(1)	(2)	(3)	(4)	(5)
22. Weight of transported, imported, exported, or treated waste deemed hazardous	(1)	(2)	(3)	(4)	(5)
23. Identity, size, protected status, and biodiversity value of water bodies	(1)	(2)	(3)	(4)	(5)
24. Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	(1)	(2)	(3)	(4)	(5)
25. Percentage of products sold and their packaging materials that are reclaimed by category.	(1)	(2)	(3)	(4)	(5)
26. Monetary value of significant fines and total number of non-monetary sanctions for noncompliance	(1)	(2)	(3)	(4)	(5)
27. Significant environmental impacts of transporting products and other goods and materials used	(1)	(2)	(3)	(4)	(5)
28. Total environmental protection expenditures and investments by type	(1)	(2)	(3)	(4)	(5)

Social indicators based on the GRI's guideline

Social indicators ***Is each social indicator in the following items captured by your firm related to the environmental indicators required by the Global Reporting Initiatives?***	**Not sure / Not applicable**	**Not at all related**	**Somewhat related**	**Closely related**	**Very closely related**
Labor Practices and Decent Work Performance Indicators:					
1. Total workforce by employment type, employment contract, and region, broken down by gender	(1)	(2)	(3)	(4)	(5)
2. Total number and rate of new employee hires and employee turnover	(1)	(2)	(3)	(4)	(5)
3. Benefits provided to full-time employees	(1)	(2)	(3)	(4)	(5)
4. Return to work and retention rates after parental leave, by gender	(1)	(2)	(3)	(4)	(5)
5. Percentage of employees covered by collective bargaining agreements.	(1)	(2)	(3)	(4)	(5)
6. Minimum notice period(s) regarding operational changes	(1)	(2)	(3)	(4)	(5)
7. Percentage of total workforce represented in formal joint management–worker health and safety committees	(1)	(2)	(3)	(4)	(5)
8. Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities	(1)	(2)	(3)	(4)	(5)
9. Education, training, counseling, prevention, and risk-control programs	(1)	(2)	(3)	(4)	(5)
10. Health and safety topics covered in formal agreements with trade unions	(1)	(2)	(3)	(4)	(5)
11. Average hours of training per year per employee by gender, and by employee category	(1)	(2)	(3)	(4)	(5)
12. Programs for skills management and lifelong learning	(1)	(2)	(3)	(4)	(5)
13. Percentage of employees receiving regular performance and career development reviews	(1)	(2)	(3)	(4)	(5)
Human Rights Performance Indicators:					
14. Percentage and total number of significant investment agreements and contracts	(1)	(2)	(3)	(4)	(5)
15. Percentage of significant suppliers, contractors, and other business partners	(1)	(2)	(3)	(4)	(5)
16. Total hours of employee training on policies and procedures concerning aspects of human rights	(1)	(2)	(3)	(4)	(5)
17. Operations and significant suppliers identified in which the right to exercise freedom of association and collective	(1)	(2)	(3)	(4)	(5)
18. Operations and significant suppliers identified as having significant risk for incidents of child labor	(1)	(2)	(3)	(4)	(5)
19. Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor	(1)	(2)	(3)	(4)	(5)
20. Percentage of security personnel trained in the organization's policies or procedures	(1)	(2)	(3)	(4)	(5)
21. Total number of incidents of violations involving rights of indigenous people and actions taken	(1)	(2)	(3)	(4)	(5)

Social indicators based on the GRI's guideline (cont.)

Social indicators ***Is each social indicator in the following items captured by your firm related to the environmental indicators required by the Global Reporting Initiatives***?	**Not sure/ Not applicable**	**Not at all related**	**Somewhat related**	**Closely related**	**Very closely related**
Human Rights Performance Indicators:					
22. Labor Practices and Decent Work Performance Indicators					
23. Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments	(1)	(2)	(3)	(4)	(5)
24. Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.	(1)	(2)	(3)	(4)	(5)
Society Performance Indicators:					
25. Percentage of operations with implemented local community engagement, impact assessments, and development programs	(1)	(2)	(3)	(4)	(5)
26. Operations with significant potential or actual negative impacts on local communities	(1)	(2)	(3)	(4)	(5)
27. Actions taken in response to incidents of corruption.	(1)	(2)	(3)	(4)	(5)
28. Public policy positions and participation in public policy development and lobbying	(1)	(2)	(3)	(4)	(5)
29. Total number of legal actions for anticompetitive behavior, anti-trust, and monopoly practices and their outcomes	(1)	(2)	(3)	(4)	(5)
Product Responsibility Performance Indicators:					
30. Life cycle stages in which health and safety impacts of products and services	(1)	(2)	(3)	(4)	(5)
31. Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and	(1)	(2)	(3)	(4)	(5)
32. Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements	(1)	(2)	(3)	(4)	(5)
33. Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	(1)	(2)	(3)	(4)	(5)
34. Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	(1)	(2)	(3)	(4)	(5)
35. Programs for adherence to laws, standards, and voluntary codes related to marketing communications	(1)	(2)	(3)	(4)	(5)
36. Total number of incidents of non-compliance with regulations and concerning marketing	(1)	(2)	(3)	(4)	(5)
37. Total number of substantiated complaints regarding breaches of customer privacy	(1)	(2)	(3)	(4)	(5)
38. Monetary value of significant fines for noncompliance with laws and regulations products and services.	(1)	(2)	(3)	(4)	(5)

Management accountants' roles and sustainability accounting practices

Environmental indicators ***How are management accountant's roles involved in capturing environmental data based on sustainability accounting practices***	**Management accountants' roes**					**Sustainability accounting practices**				
	Not at all	**Very little**	**Fairly involved**	**Quiet involved**	**Fully involved**	**Not at all**	**Very little**	**Fairly well**	**Very well**	**Perfectly**
1. Volume of materials	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
2. Percentage of recycle materials	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3. Direct energy consumption	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
4. Indirect energy consumption	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
5. Energy saved	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
6. Energy-efficient or renewable energy	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
7. Initiatives to reduce indirect energy consumption	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
8. Total water withdrawal by source	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
9. Total volume of water usages	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
10. Percentage and total volume of water recycled	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
11. Location and size of land owned or lead	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
12. Description of significant impacts of activities, products in protected	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
13. Habitats protected or restored	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
14. Managing impacts on biodiversity.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
15. Total direct and indirect GHG emission	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
16. Other GHG emission	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
17. Initiatives to reduce GHG emissions and	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
18. Emissions of ozone-depleting substances	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
19. Total water discharge by quality and destination.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
20. Total weight of	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
21. Total number and volume of significant spills	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
22. Weight of transported or waste shipped internationally.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
23. Identity, size, and biodiversity value of water bodies	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
24. Mitigate environmental impacts of products	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
25. Percentage of products sold and packaging	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
26. Fines and environmental laws and regulations.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)

Management accountants' roles and sustainability accounting practices (cont.)

Social indicators ***How are management accountant's roles involved in capturing social data based on sustainability accounting practices***	**Management accountants' roes**					**Sustainability accounting practices**				
	Not at all	**Very little**	**Fairly involved**	**Quiet involved**	**Fully involved**	**Not at all**	**Very little**	**Fairly well**	**Very well**	**Perfectly**
1. Total workforce by employment type	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
2. Total number and rate of new	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
3. Benefits provided to full-time employees	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
4. Return to work and retention rates after parental leave	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
5. Percentage of collective bargaining agreements.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
6. Minimum notice period(s)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
7. Percentage of total worker health and safety committees	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
8. Rates of injury, occupational diseases	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
9. Education or regarding serious diseases	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
10. Health and safety topics	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
11. Average hours of training per year per employee	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
12. Programs for skills management and lifelong learning	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
13. Employees performance and career development	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
14. Percentage and total number of agreements and contracts	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
15. Percentage of significant suppliers	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
16. Hours of employee training on policies and procedures	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
17. Operations and significant suppliers - association	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
18. Operations and significant suppliers - incidents of child labor	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
19. Operations and significant suppliers - compulsory labor	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
20. Percentage of security personnel trained	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
21. Total number of incidents of violations	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
22. Labor Practices and Decent Work	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
23. Number of operations	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
24. Number of grievances related to human rights filed	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
25. Operations with implemented local community engagement	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
26. Operations with negative impacts on local communities	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
27. Actions taken in response to corruption.	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
28. Public policy positions and participation in public policy	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)

Management accountants' roles and sustainability accounting practices (cont.)

Social indicators ***How are management accountant's roles involved in capturing social data based on sustainability accounting practices***	**Management accountants' roes**					**Sustainability accounting practices**				
	Not at all	**Very little**	**Fairly involved**	**Quiet involved**	**Fully involved**	**Not at all**	**Very little**	**Fairly well**	**Very well**	**Perfectly**
29. Number of legal actions	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
30. Health and safety impacts of products / services	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
31. Regulations/voluntary - health and safety impacts of products	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
32. Type of product and service information	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
33. Total number of incidents of non-compliance	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
34. Practices related to customer satisfaction	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
35. Programs for adherence to laws, standards, and voluntary codes - marketing communications	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
36. Total number of incidents - marketing communications	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
37. Total number of substantiated complaints	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**

Appendix B: *Interview instrument*

Participants' profile

Participant's background:

1. Participant position:

( ) Chief accountant officer ( ) Chief financial officer

( ) Management accountant ( ) Controller ( ) Other specify)_____

2. Role / position title :_____

3. Your education background: *(Please tick as many as apply)*

( ) Accounting ( ) Finance ( ) Economics

( ) Management ( ) other (specify)_____

4. Work experience in management accounting / financial reporting: _____ years

5. Work experience in environmental accounting roles: _____years

6. Work experience in social accounting roles: _____years

7. Have you ever attended any short training courses relating to your work that involves in environmental/social issues? Yes ( ) No ( )

If Yes, please indicate total number of hours: _____hours in the last 12 months

8. Should we have further questions, would you be prepared to answer additional questions?

( )Yes ( )No

Management accountants' roles for environmental and social indicators

1. What are your roles in capturing and/or providing environmental and social performance indicators?
2. Please describe what motivated your company to collect environmental and social data to support either annul reports or corporate social responsibility (CSR) or both?
3. Have you identified and measured environmental and social expenditures provided by your company to reduce negative impacts on environmental and social issues?
4. Have you provided environmental and social indictors to support both annual reports and corporate social responsibility (CSR) disclosures to create shared value?
5. Is the measurement of environmental and social indicators within your company based on environmental management accounting and social management accounting concepts/practices? If yes, please explain?
6. Are environmental and social expenditures reported in annual reports and corporate social responsibility (CSR) disclosures able to create shared value in global market? If yes, please explain

7. How your role perform a more active responsibility in collating non-financial information (environmental and social data) to guide the strategic direction of effective corporate social responsibility (CSR) disclosures to add shared value in global market?
8. Please describe how environmental and social information captured by your firm can be described as a distinct divide between information that is integrating sustainability accounting and those are not?
9. Please describe how your roles create potentially shared value by identifying environmental and social data to support annual reports and/or corporate social responsibility (CSR) disclosures?
10. Please describe your role responsible within firm for driving sustainability accounting as a collaborators to add shared value by providing environmental and social information in a company's report?

BIBOGRAPHY

Name	Neungruthai Petcharat
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Current position	Lecturer in Accounting
Work place	Sripatum University
Education background	2011 Ph.D. in accounting, University of Southern Queensland,
	Australia
	2004 MBA in accounting, Sripatum University
	2001 BA in accounting, Sripatum University