

A Study of Environmental Accounting Disclosure: Evidence from Listed Companies on the Environmentally Sensitive Sectors in Thailand

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ABSTRACT

The main objective of this research is to investigate the environmental accounting disclosure of listed companies on the environmentally sensitive sectors in Thailand. The study examines the extent and format of environmental disclosure and reporting. The results indicate that 96.67 percent of Thai's listed companies on the environmentally sensitive sectors present the environmental related issues in their annual reports. The percentage of nonfinancial environmental disclosure is considerably higher than that of financial environmental disclosure. The following locations in annual reports which present nonfinancial environmental information are President or Chairman's Statement, Vision and/or Mission Statement, Risk Factors, Corporate Governance, Corporate Social Responsibility, and Dedicated Sessions. In addition, only few firms report the environmental assets and liabilities in their Statement of Financial Position. These findings also provide policy directions to the Securities Exchange Commission (SEC) and the Federation of Accounting Profession (FAP) in Thailand regarding to the development of the comprehensive rules for both financial and nonfinancial environmental disclosure.

Keywords: Environmental Accounting Disclosure, Environmentally Sensitive Sectors, Corporate Governance, Corporate Social Responsibility

การศึกษาการเปิดเผยข้อมูลการบัญชีสิ่งแวดล้อม: กรณีศึกษาบริษัทจดทะเบียนที่อยู่ในอุตสาหกรรม ที่มีผลกระทบต่อสิ่งแวดล้อมในประเทศไทย

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บทคัดย่อ

วัตถุประสงค์ของงานวิจัยนี้ เพื่อศึกษาการเปิดเผยข้อมูลการบัญชีสิ่งแวดล้อมของบริษัทจดทะเบียนที่อยู่ในอุตสาหกรรม ที่มีผลกระทบต่อสิ่งแวดล้อมในประเทศไทย การศึกษาทำการตรวจสอบระดับและรูปแบบของการเปิดเผย และการรายงานข้อมูลสิ่งแวดล้อม ผลที่ได้จากการศึกษาพบว่า 96.67% ของบริษัทจดทะเบียนที่อยู่ในอุตสาหกรรม ที่มีผลกระทบต่อสิ่งแวดล้อมในประเทศไทยมีการเปิดเผยข้อมูลสิ่งแวดล้อมในรายงานประจำปี ร้อยละของการเปิดเผยข้อมูลสิ่งแวดล้อมที่ไม่เป็นตัวเงินสูงกว่าการเปิดเผยข้อมูลที่เป็นตัวเงินอย่างมาก การเปิดเผยข้อมูลสิ่งแวดล้อมที่ไม่เป็นตัวเงินในรายงานประจำปีแสดงไว้ในส่วนอื่นของประธาน วิสัยทัศน์และพันธกิจ ปัจจัยเสี่ยง บรรษัทภิบาล ความรับผิดชอบต่อสังคม และการเปิดเผยข้อมูลแตกต่างกัน นอกจากนี้ ผลที่ได้จากการศึกษา ยังพบว่า มีบริษัทจำนวนน้อยมากที่แสดงรายการสินทรัพย์และหนี้สินสิ่งแวดล้อมในงบแสดงฐานะการเงิน ผลที่ได้จากการศึกษาจะเป็นประโยชน์ต่อคณะกรรมการกำกับหลักทรัพย์และตลาดหลักทรัพย์ (ก.ล.ต.) และสภาวิชาชีพบัญชี ในการพัฒนากฎเกณฑ์ในการเปิดเผยข้อมูลสิ่งแวดล้อมทั้งที่เป็นตัวเงินและไม่เป็นตัวเงิน

คำสำคัญ: การเปิดเผยข้อมูลการบัญชีสิ่งแวดล้อม อุตสาหกรรมที่มีผลกระทบต่อสิ่งแวดล้อม บรรษัทภิบาล ความรับผิดชอบต่อสังคมของบริษัท

Introduction

The concern of the environment problems started from the fifties of last Century. In 1972, a World Congress was held in Stockholm for the first time to consider the environmental effects and established a special United Nations (UN) Agency title UN Environmental Programme (UNEP) to manage the social and environmental issues (Pramanik, Shil, and Das, 2008). Later year, World Commission on Environment and Development (WCED), known as Brundtland Commission was established by the UN. This commission proposed the Our Common Future Report which contained concept of the sustainability development (Taib, Ameer, and Haniff, 2012). Until now, the concept of sustainable development has been received the worldwide acceptance. Nowadays, the Global Reporting Initiative (GRI), non-profit organization that promotes economic sustainability, produces one of the world's most prevalent standards for sustainability reporting-also known as ecological footprint reporting, environmental social responsibility governance (ESG) reporting, triple bottom line reporting, and corporate social reporting (CSR) reporting (GRI, 2006). All evidence confirms that corporate social environmental disclosure is an issue that has increasing attention from the business, political and public (e.g. Brammer and Pavelin, 2004; Lungu, Caraceni, Dascalu, Guse, and Sahlian, 2009; Akisik and Gal, 2011). Much evidence suggests that corporate social and environmental disclosure has become regular practices in developed markets (Gray, Kouhy, and Lavers, 1995). The disclosure of environmental information has

increased dramatically since 2008 for both the U.S. and the UK listed companies (Taib et al., 2012). However, corporate social and environmental disclosure generally remains a rare practice and it is voluntary in most emerging markets (Lin, 2009). Nonetheless, some recent evidence shows that the corporate social and environmental disclosure is more considerably growing than the past in developing countries (Saleh, 2009; Social Investment Forum, 2009). In recent years, securities regulators in some developing countries adopted corporate social and environmental disclosure rules. These countries were South Africa, Malaysia, China, Taiwan and Thailand (Lin, 2009).

Moreover, in South East Asia Continental, the major international organization known as the Association of Southeast Asian Nations (ASEAN) encourages the members to support with global and regional organizations in managing the environment and report the sustainable development (ASEAN, 2010). Thailand, as a member of ASEAN, also provides the importance of social responsibility more than the past (Ratanajongkol, Davey, and Low, 2006). The corporate social and environmental accounting disclosure in Thailand was voluntary (Kuasirikun and Sherer, 2004; Ratanajongkol et al. 2006). However, in 2006, the Stock Exchange of Thailand (SET) has revised the Principles of Good Corporate Governance for Thai's listed companies which became effective since 2007. The principles required that the board of directors should set the clear policies on environmental and social issues. The SET adopts 'comply or explain' approach. If the companies do not employ any principles, they

should explain the reasons (Corporate Governance Center of The SET, 2006). Although it seems to have the principles of environmental disclosure, the rules are still ambiguous. There is no specific requirement about the extent and format of environmental accounting disclosure in Thailand. Little is known about the environmental accounting disclosure in Thailand because very few studies of environmental accounting disclosure are prepared. Furthermore, none of Thai Accounting Standard (TAS), Thai Financial Reporting Standard (TFRS) and Thai Financial Reporting Interpretation (TFRIC) directly provides the recognition and measurement criteria of the environmental accounting items in financial statement.

For issues discussed above, therefore, this research aims to investigate the environmental accounting disclosure of companies listed on the Stock Exchange of Thailand (SET) especially for the environmentally sensitive sectors. The study examines the extent, format and the locations of environmental disclosure in annual reports including the environmental accounting items in financial statements and environmental accounting policies in the notes to financial statement. This study is significant as it is expected to provide policy direction to both the Securities and Exchange Commission (SEC) and the Federation of Accounting Profession (FAP) in Thailand. The results will contribute to the SEC in issuing the specific rules of environmental disclosure in annual registration Form (Form 56-1) and annual report (Form 60-2). In addition, for the FAP, the findings also provide the guideline for developing TAS and

TFRS related to environmental accounting items. This research has also managerial implication in that its results provide the awareness of social and environmental responsibility to the manager of listed companies to make the decisions about the extent and format of environmental disclosure.

The outline of this paper is as follows. Section 2 reviews the literature. Section 3 presents sample selection and research methodology. The research results are shown in section 4. Section 5 concludes the paper and discusses the results.

Literature review

1. Background of environmental accounting disclosure

There are three forms of social and environmental accounting disclosure and reporting: voluntary disclosure, mandatory disclosure and 'comply or explain' approach (Lin, 2009). Voluntary disclosures of corporate and environment issues are mostly found in emerging markets (Social Investment Forum, 2009). Voluntary disclosure means the companies have the option to disclose or not disclose the environmental issues whilst the mandatory disclosure means listed companies must disclose the corporate and social environmental disclosure under legal requirement. The developed countries selected the mandatory disclosure for environmental issues such as U.S. (Mobus, 2005; Peters and Romi, 2012; Szabo, 2011), UK (Gray et al., 1995). The Securities and Exchange Commission (SEC) in the U.S. mandated the environmental disclosure and climate change related information in the SEC filings (Szabo, 2011). The last format of

corporate environmental disclosure is ‘comply or explain’ approach. That is, the company should decide whether to disclose the corporate social and environmental information or not. In the case of non-disclosing, the companies should explain the reasons thoroughly (Lin, 2009).

For Thailand, Thailand has changed from an agricultural economy into industrial economy. The expansion of industrial status causes the environmental problems inevitably such as air pollution, water pollution, toxic, and solid waste. In addition, the international organizations (e.g. UN, GRI) have dramatically concerned about the environmental problems and encourage the countries to disclose the social and environmental impacts to their stakeholders. Hence, in Thailand, the Stock Exchange of Thailand (SET) also introduced the new Principles of Good Corporate Governance (CG) that became effective since 1999 for all Thai listed companies. All listed companies were encouraged to disclose the social and environmental issues. Moreover, starting from the accounting period ending December 31, 2002, listed companies have been required to demonstrate how to apply the fifteen principles of Corporate Governance. In addition, CG section is the mandatory disclosure since the year 2002. In 2006, the SET has revised the fifteen Principles of Good Corporate Governance to be comprehensive and comparable to the Principles of Good Corporate Governance of the Organization for the Economic Cooperation and Development (OECD). Listed companies have been required to start disclosing the implementation

of the principles since 2007. The new principle indicates that the board of directors should set clear policies on environmental and social issues. The SET selects ‘comply or explain’ approach. If the companies do not comply any principles include the environmental disclosure, they are required to provide the justification.

2. Theoretical perspective of environmental accounting disclosure

Various theories related to social and environmental disclosure and reporting are discussed in prior studies: decision usefulness theory; economic theory; social and political theory (Gao, et al., 1995); political economy theory (Williams, 1999); institutional theory (Kabir and Akinnusi, 2012). Nonetheless, many previous studies applied the legitimacy theory (e.g. Mobus, 2005; Islam and Deegan, 2007) and stakeholder theory (e.g. Donaldson and Preston, 1995). Both of them are closely aligned and complemented with each other (Deegan 2002).

Legitimacy theory is the most widely and popular theory used to explain why the firms disclose corporate and social environmental reporting (Islam and Deegan, 2007; Kabir and Akinnusi, 2012). Legitimacy is a generalized perception or assumption that actions of an entity are desirable, proper, or appropriate within some socially constructed systems of norms, values, beliefs and definitions (Suchman, 1995). O’ Donovan (2002) also defined the legitimacy theory is based on the idea that in order to continue operating successfully, companies must act in the

bounds and norms of what society identifies as socially acceptable behavior.

Stakeholder theory suggests that organizations need to manage their stakeholder, especially for stockholders if they want to survive (Roberts, 1992; Llana, Moneva, and Hernandez, 2007). Roberts (1992) indicated that Corporate Social Responsibility (CSR) had a successful channel for negotiating along the stakeholder group. It also focused the various stakeholders groups with society (Ratanajongkol et al., 2006). The companies seek to support from stakeholder and the activities of companies must be approved from stakeholder (Gray et al., 1995). The more powerful stakeholder can force the companies to adopt and respond the needs of stakeholders. Hence, the social and environmental disclosure is a part of the communication channel between the companies and their stakeholders.

3. Conceptual framework for environmental reporting

Yongvanish and Guthrie (2006) suggested the conceptual framework for environmental reporting for the narrative form (include quantitative, but non-monetary environmental information) while Negash (2010) introduced the environmental accounting items in financial statement. Yongvanish and Guthrie (2006) proposed the Extended Performance Reporting Framework (EPRF) for environmental disclosure. The EPRF contains of three main parts which are external capital, internal structure, and human capital. External capital contains information about the customer

relationships and social relationships including the environmental performance, social performance indicators, and product responsibility. The second part is internal structure which provides information about information technology, innovative process, and corporate governance structure. The last part is human capital which presents the information about employee competence, employee satisfaction and quality of workplace. Negash (2010) examined the International Financial Reporting Standards (IFRS) and interpretations directly and indirectly related to environment. His paper presented the Statement of Environmental Assets and Liabilities. The environmental assets are composed of cash and investment in trust fund, emission right held, insurance and similar products held against environmental risk, investment in environmental quality, research and development, and site preparation and restoration cost, while the environmental liabilities include provisions for decommissioning, restoration and rehabilitation, legal and constructive liabilities, deferred income from government allocation of emission rights, and provision for contingent liabilities related to environment.

4. Prior research

4.1 Environmental accounting disclosure studies in developed countries

There are also numerous studies about corporate and environmental accounting disclosure in developed countries (e.g. Gray et al., 1995; Llana et al., 2007). Gray et al. (1995) used content analysis of UK annual reports.

Their results indicated that all companies had some CSR information in annual reports which composed of, at least, some employee related disclosure related to employee related figures and/or pensions. There was significant growing in the proportions of companies disclosing corporate social responsibility (CSR) through 1979–1991. By the end of period of their study, all of UK's largest companies disclosed some mandatory and some voluntary CSR information. The employee related disclosure was the most popular topic. In addition, community and environmental disclosure have also increased dramatically from 10 percent in 1979 to 32 percent in 1991. Holland and Foo (2003) investigated and compared the differences in environmental reporting practices in the UK and the U.S. The main results showed that 53% of UK companies produced the standalone environmental report compared to 39% of U.S. companies. In addition, 58% of UK companies presented the environmental issues in separate section in annual report compared to 28% of U.S. companies. In terms of location of environmental disclosure, 49.6% of UK companies disclosed the environmental information in health, safety and environment section, followed by the review of operation or management's discussion and analysis (MD&A). In opposite, 53% of U.S. companies disclosed the environmental issues in the management's discussion and analysis (MD&A), followed by the notes to account. Szabo (2011) also investigated the disclosure of material Corporate Social Responsibility (CSR) information in the periodic reports such as the financial

statement, note to financial statement, annual report and Corporate Governance report of the U.S. and the UK. The U.S. and UK CSR disclosure was significantly different. While the U.S. integrated the CSR information disclosure requirement into financial disclosure system for listed companies, in EU regime the integration was not tight since the annual report was not the integral part of companies' financial accounts.

Llena et al. (2007) examined the environmental disclosure of Spanish companies' annual reports. The findings indicated that the percentage of narrative environmental disclosure was higher than that of quantitative environmental disclosure. However, the number of companies reported the quantitative information has increased significantly. Notably, financial environmental disclosure has grown from 43.1 percent in 2001 to 74.5 percent in 2002 (first year of compulsory environmental accounting standard). Companies presented the environmental information in the general corporate information and management report. Interestingly, the percentage of companies which presented the environmental data in the note to account has increased dramatically (from 13.7 percent in 1992 to 94.1 percent in 2002), although the information in the notes have not included any financial environmental disclosure. Eltaib (2012) examined the environmental accounting disclosure of Australia oil and gas companies. The findings indicated that environmental accounting disclosure trend during the years 2005–2010 fluctuated. However, since 2007, corporate environmental accounting disclosures of sampled firms have grown

up significantly. The most environmental disclosure was non-financial information, disclosed in pure narrative forms. Taib et al. (2012) examined the relationship between corporate social sustainability practices and financial performance of the listed U.S. and UK listed companies. They found that the disclosure of environmental activities has increased since 2008 for both listed companies in the U.S. and UK. Their findings also showed that environmental disclosures of UK companies were higher than U.S. companies especially for environmental protection, community and ethical practices.

In sum, most previous studies of environmental accounting disclosure in developed countries showed the similar findings. That is, there was a significant growth in environmental accounting disclosure (e.g. Gray et al., 1995; Eltaib, 2012; Taib et al., 2012). The percentage of narrative environmental disclosure was higher than financial environmental disclosure in some developed countries such as Spain (Llena et al., 2007), Australia (Eltaib, 2012). However, in the U.S and the UK, the financial environmental disclosure was still in high percentage (Holland and Foo, 2003).

4.2 Environmental accounting disclosure studies in developing countries

Many prior studies investigated the extent, content and format of environmental accounting and social disclosure in developed countries as discussed above. Nonetheless, there were some previous environmental disclosure studies in developing countries. Smith, Yahya, and Amiruddin (2007) investigated the extent of environmental

disclosure in annual reports of Malaysian companies. The findings revealed that the most number of mentions related to environmental issues was the environmental restoration/rehabilitation. The negative association between disclosure score and firm profitability (return on assets and return on equity) was evident. Saah (2009) extended the research from Smith et al. (2007) by using the longitudinal study for the period 1999 to 2005 of Malaysian companies. This paper studied the annual reports of 200 firms chosen from the highest market capitalization. The findings showed that Malaysian companies reported the corporate social responsibility which can be classified into four categories: employee dimension, community involvement dimension, product dimension, and environment dimension.

Ebimobowei (2011) explored the social accounting disclosures in the annual reports of Nigerian companies. The periods of study were 2005 to 2007. The main method of the study was content analysis and descriptive analysis. The results showed that 82.5 percent of Nigerian companies disclosed the social and environmental accounting information in their annual reports. The frequency (measure in percentage) of social accounting disclosure (SAD) using narrative form/picture has increased during the years 2005–2007, while the frequency (measure in percentage) of monetary social accounting disclosure has decreased in the same period. The findings also indicated that the most popular locations of social accounting information were Director's report, Notes to the accounts and Chairman's

statement. The most theme of social accounting information was Human resources and Community development.

Ahmad (2012) investigated the environmental accounting and reporting practices of Bangladeshi companies. The study used both primary data and secondary data. The primary data was obtained by interviewing the chief accountants and using the structured questionnaire. The secondary data was collected from 40 corporate annual reports. The result indicated that chief accountants had the strong need for presenting the environmental accounting and environmental reporting in their annual reports. Moreover, the study revealed that the themes of environmental accounting disclosure of Bangladeshi companies were expenditure in energy, waste management, tree plantation, environmental protection, future strategy, and safety related measures.

From previous studies in emerging countries, although the level of environmental accounting disclosure were still low in some countries (e.g. Ebimobowei, 2011), there was an increasing trend of social and environmental accounting disclosure using narrative form such as Nigeria (Ebimobowei, 2011). However, some findings indicated that the trend of social and environmental accounting disclosure was decreasing such as Malaysia (Saleh, 2009). The findings also showed that the environmental disclosure was in form of narrative information more than quantitative information such as Bangladeshi (Ahmad, 2012).

4.3 Environmental accounting disclosure studies in Thailand

Until now, only few studies have explored the environmental accounting disclosure in Thailand (e.g. Kuasirikun and Sherer, 2004; Connelly and Limpaphayom, 2004). They investigated the extent, format and motivation or reasons for environmental disclosure and reporting.

Kuasirikun and Sherer (2004) studied the extent and category of environmental disclosure in 1993 and 1999 annual reports. They found that 54 companies or 44 percent in 1993 and 65 companies or 49 percent in 1999 report the social and environmental information. Among of companies disclosing the social and environmental information, most of them presented the employee information, followed by environmental information. In addition, there was the reduction in social and environmental disclosure in year 1999 compared with 1993 due to the Thailand's financial crisis in 1997. The highest percentage of environmental disclosure was narrative information, while the least percentage was the monetary environmental accounting disclosure. The popular location of environmental disclosure was Chairman Report in 1993 and Separate section in 1999. The topics discussed of companies' environmental disclosure in annual reports were water treatment plant, air pollution control, waste disposal, ISO14000 14001, recycling, energy savings, R&D for the environment, internal audit, physical environment conservation and others.

Connelly and Limpaphayom (2004) investigated the relationship between the level

of environmental disclosure and firm performance including the factors influencing the environmental presentation. The level of environmental disclosure was developed from 2002 Thai listed companies' annual reports and stock exchange filing. The sample was selected based on large market capitalization and most active trading volume during the preceding 12 month period. The maximum score was 1.00 (best quality) while the minimum score was 0.00 (lowest quality). The findings indicated that the maximum score was 0.600 from listed companies on the Pulp and Paper sector whilst the minimum score was 0.167 from listed companies on Commerce sector. In addition, the results also revealed that there was no significant association between the environmental reporting and accounting performance (measured by return on assets). Nonetheless, there was the significantly positive relationship between the environmental reporting and market valuation.

Ratanajongkol et al. (2006) investigated the largest 40 Thai listed companies. They studied the extent and type of corporate social reporting. The periods of study were 1997, 1999 and 2001. Their findings concluded that an increasing in level of environmental disclosure exists, although the result was not robust across different industries. Rabhi and Shishir (2010) examined the extent of corporate environmental accounting disclosure in Thailand. They analyzed and reviewed the environmental and safety report and/or sustainable reports of 2006–2007. The samples were partitioned into industrial and non-industrial companies. The study classified the environmental

disclosure into seven themes. The themes were environmental policy; environmental achievement; emission, effluent, waste & other pollutants; environmental compliance; environmental project including the environmental friendly product and service; greenhouse gases emission, and environmental plan. Their results indicated that the extent of environmental accounting disclosure in Thailand was low. The average number of page which presented the environmental information was less than one page except the energy and utilities sector.

Suttipun and Stanton (2012 a) examined the narrative environmental disclosures of 75 Thai listed firms' annual reports. They found that 82.67 percent of sample presented the environmental information in 2007 annual reports. The most popular locations of environmental disclosure were corporate governance section (65.3%), followed by CEO report (18.7%), and dedicated session (17.3%). A positive association between the amount of environmental disclosure and firm's size was found. Suttipun and Stanton (2012 b) extended their study by examining the environmental disclosure on websites of top 50 companies. They found that 88 percent of sample showed the environmental disclosure on their websites and mean of words of environmental information was 983.54 words. Their results indicated that the size was also related to the level of environmental disclosure on website same as their study in annual reports. Furthermore, the findings showed that industry, ownership status, audit firm were related to the amount of environmental disclosure on website. Suttipun and

Stanton (2012 c) studied the reasons of companies making or not making environmental disclosure in Thailand. The questionnaires were sent to 405 Thai accountants. The highest mean of reason for disclosing the environmental information was to meet the legal obligation. The study also showed that the increasing customer loyalty leading to competitive advantages and customer concerns were the second and third highest rated reasons for environmental disclosure.

From previous studies in Thailand, the main format of environmental disclosure was narrative reporting (e.g. Kuasirikun and Sherer, 2004; Suttipun and Stanton, 2012 a) and the level of environmental disclosure was low (Rabhi and Shishime, 2010).

Sample selection and research methodology

1. Sample selection

The sample selected is based on the business activities of listed companies. Their business operations have the direct effect to the environment which is called as environmentally sensitive sectors. These companies are more likely to present the environmental information more than the companies in other industries (Hackston and Milne, 1996). They are Industrial companies which are similar to previous studies (Holland and Foo, 2003; Llen et al. 2007). The sample in this paper is listed on three industries and nine sectors. Three industries include Industrials, Property and Construction, and Resources Industry. Nine sectors compose of Automotive, Industrials

Materials and Machinery, Packaging, Paper and Printing Materials, Petrochemicals and Chemicals, Steel, Construction Materials, Energy and Utilities and Mining Sector. Hence, total listed companies on the environmentally sensitive sectors are 127 firms. There are some missing data because some companies are delisted from the Stock Exchange of Thailand (SET) at the beginning of 2011. Furthermore, some companies have the financial problems, therefore they are forced into restructuring plans and rehabilitation plans. These firms are not required to submit their annual reports in year 2010. Thus, the final sample in this study comprises of 120 firms. Table 1 presents the number of samples classified by sectors.

From Table 1, it can be seen that the majority of the listed companies on the environmentally sensitive sectors are in Energy and Utilities Sector (25 companies) and Steel Sector (24 companies).

- The data for this study is obtained from annual report and financial statements in 2010 (including the notes to financial statements) of the listed companies on environmentally sensitive sectors in Thailand. Annual reports of listed companies can be extracted from official website of the Securities and Exchange Commission (SEC) in Thailand or directly extracted from listed companies' websites.

Table 1 The number of samples classified by sectors

| Industry | Sector | Number of Firms | Percentage |
|---------------------------|------------------------------------|-----------------|----------------|
| Industrials | Automotive | 18 | 15.00% |
| | Industrial Materials and Machinery | 6 | 5.00% |
| | Packaging | 13 | 10.83% |
| | Paper and Printing Materials | 2 | 1.67% |
| | Petrochemicals and Chemicals | 12 | 10.00% |
| | Steel | 24 | 20.00% |
| Property and Construction | Construction Materials | 18 | 15.00% |
| Resources | Energy and Utilities | 25 | 20.83% |
| | Mining | 2 | 1.67% |
| Total | | 120 | 100.00% |

* Percentage of total sample (120 firms)

2. Research methodology

The main methodology in this paper is content analysis which is the most popular method used in environmental accounting disclosure research (e.g. Kuasirikun and Sherer, 2004; Ratanaipongkol et al., 2006; Ahmad, 2012; Suttipun and Stanton, 2012 (a) (b)). Annual reports in 2010 of listed companies on the environmentally sensitive sectors in Thailand are fully and rigorously examined. The researcher analyzes the content of information disclosed in annual reports and records the environmental accounting disclosure in the recording sheet. The lists of environmental reporting themes and decision rules are set out. The paper identifies the environmental accounting disclosure in three dimensions as follows.

Themes. The themes of environmental disclosure in this paper are adapted from various past studies (Kuasirikun and Sherer, 2004; Llena et al., 2007; Suttipun and Stanton, 2012 a). The environmental disclosure themes are as follows: social and environmental responsibility, environmental risk, mitigation ways to reduce the environmental risk, environmental policy, environmentally and friendly product, environmental management system, corporate governance related to environment, awards related to environment.

Amount of disclosure. Although many prior studies frequently count the words as the measure of level of disclosure (Suttipun and Stanton, 2012 a), this research does not use this method. The

word count is not appropriate as comprehending the meaning of individual word in isolation which is difficult (Hackston and Milne, 1996, Unerman, 2000). The word count mainly relies on the judgment of researcher in considering whether the words represent the environmental disclosure or not. The count of sentences in Thai language is also difficult because there is no any punctuation which is used to separate sentences as in English language. In addition, the paragraph count is not suitable because same paragraph can contain both environmental and non-environmental information (Milne and Adler, 1999). Hence, the information disclosed in annual report appears in the themes discussed above, it will be counted as environmental disclosure. This method is line with Kuasirikun and Sherer (2004); Llana et al. (2007); Ebimobowei (2011). The results are presented in terms of frequency and percentage for each type of environmental accounting disclosure.

Types and Locations. The paper classifies the environmental disclosure into nonfinancial and financial disclosure. The research investigates the format and locations of nonfinancial environmental information. Two types of nonfinancial environmental disclosure are the pure narrative form and quantitative form (non-monetary information such as level of air pollution). Furthermore, the paper also examines the financial environmental accounting disclosure. The financial statements for the year ended 31 December 2010 are investigated whether Thai's listed companies disclose environmental accounting items in financial statements. The accounting policies

related to environmental accounting issues are also explored for their components, recognition, and measurements criteria.

Research results

This study identifies the listed companies on the environmentally sensitive sectors in Thailand. The research mainly examines the extent and format of environmental accounting disclosure. In addition, this paper examines both financial and nonfinancial environmental disclosure. The results are presented in this section.

1. Environmental disclosure and non-environmental disclosure

The first part is to investigate whether Thai listed companies disclose the environmental issues in annual report or not. The findings indicate that the number of environmental disclosure firms is 116 firms or 96.67 percent from total sample (120 firms). This result shows the significant increase in number of companies disclosing the environmental information in year 2010 compared with the findings of Kuasirikun and Sherer (2004). Their results revealed that only 44 percent and 45 percent of sampled companies present the environmental information in year 1993 and 1999, respectively. It also shows the increase in environmental disclosure in 2010 compared to Suttipun and Stanton (2012a) which indicates that 82.67 percent of Thai's listed firms present environmental disclosure in 2007 annual reports. In addition, this paper also finds that the number of non-environmental disclosure firms is only 4

firms or 3.33 percent from total sample. Thus, Thai's listed companies in year 2010 provide the attention to present the environmental and social responsibility disclosure more than the past.

2. Nonfinancial environmental disclosure and financial environmental disclosure

Annual reports of listed companies on the environmentally sensitive sectors in Thailand contain information related to environment in terms of nonfinancial and financial data. Table 2 presents the number of nonfinancial environmental disclosure, financial environmental disclosure, both type of disclosures and non-environmental disclosure firms.

According to Table 2, the number of companies presenting nonfinancial environmental disclosure is

111 firms or 92.50 percent from total sample. Five firms (or 4.17 percent) show both nonfinancial and financial environmental disclosure. None of them presents only financial environmental disclosure. The number of non-environmental disclosure is merely 4 firms or 3.33 percent from total sample. This finding remains congruent with Kuasirikun and Sherer (2004) which showed that the main form of environmental disclosure of Thai's listed companies is pure narrative reporting (38 percent in 1993 and 35 percent in 1999). The result is also similar to listed companies on other foreign countries such as Spain (Llena et al., 2007), Nigeria (Ebimobowei, 2011), Australia (Eltaib, 2012) which indicate the narrative (nonfinancial) environmental disclosure is the main format of environmental disclosure.

Table 2 Nonfinancial environmental disclosure firms, financial environmental disclosure firms, both type of disclosure firms, and non-environmental disclosure firms

| Type of Disclosure | Number of Firms | Percentage* |
|--|-----------------|----------------|
| Only nonfinancial environmental disclosure | 111 | 92.50% |
| Only financial environmental disclosure | 0 | 0.00% |
| Both type of environmental disclosure | 5 | 4.17% |
| Non-environmental disclosure | 4 | 3.33% |
| Total | 120 | 100.00% |

* Percentage of total sample (120 firms)

3. Locations of nonfinancial environmental disclosure

The main locations of nonfinancial environmental disclosure especially for narrative reporting are as follows.

1. President's Statement or Chairman's Statement
2. Vision Statement and/or Mission Statement
3. Risk Factors
4. Corporate Governance (CG) Report
5. Corporate Social Responsibility (CSR) Report
6. Dedicated Session Related to Environment

The detailed information about the locations of nonfinancial environmental disclosure is summarized in Table 3.

As seen from Table 3, the highest percentage of locations of nonfinancial environmental information is Corporate Governance (CG) Section (110 firms or 91.67%), followed by President or

Chairman's statement (55 firms or 45.83%). This result is contrast to previous studies (Kuasirikul and Sherer, 2004; Ebimobowei, 2011). Kuasirikul and Sherer (2004) showed that the most popular location of nonfinancial environmental disclosure was Chairperson's report in 1993 and separate section in 1999 for Thai listed companies. Ebimobowei (2011) also revealed that Chairperson's report was the most popular location for Nigerian companies. However, this result is in conformity with Suttipun and Stanton (2012 a). They found that the most popular location of environmental disclosure was CG section, followed by President's Message. The main reason is that the Securities and Exchange Commission (SEC) required all Thai listed companies on the Stock Exchange of Thailand prepare the Corporate Governance Section in their annual reports since the year ended 2002. The environmental responsibility is the most important

Table 3 Locations of nonfinancial environmental disclosure*

| Locations | Number of Firms | Percentage** |
|-----------------------------------|-----------------|--------------|
| President or Chairman's Statement | 55 | 45.83% |
| Vision | 17 | 14.17% |
| Mission | 29 | 24.17% |
| Risk Factors | 34 | 28.33% |
| Corporate Governance | 110 | 91.67% |
| Corporate Social Responsibility | 48 | 40.00% |
| Dedicated Sessions | 33 | 27.50% |

* Location of nonfinancial environmental disclosure includes only pure narrative reporting.

** Percentage of total sample (120 firms)

topic in CG report. The findings of this study show the additional locations of environmental disclosure from Kuasirikun and Sherer (2004). This paper reveals that the additional locations of environmental disclosure are Vision and/or Mission Statement, Risk Factors, Corporate Governance Report, Corporate Social Responsibility. Suttipun and Stanton (2012a)'s findings did not show the risk factors as the location of nonfinancial environmental disclosure in annual report. That is, listed companies disclose the environmental information in more various topics than the past.

3.1 President or Chairman's statement related to environment

The number of firms which presents President or Chairman's Statement in their annual reports is 105 companies or 87.50 percent from total sample (120 firms). The number of companies which President or Chairman's statement related to environment is 55 firms or 52.38 percent from

105 firms. Table 4 indicates the detailed content of President or Chairman's Statement related to environment.

From Table 4, it can be seen that majority of companies identify the environment related issues as separate paragraph in President or Chairman's message.

3.2 Vision and/or mission statement related to environment

The number of firms which presents vision or mission in their annual report is 48 companies and 45 companies respectively. The number of firms which shows the vision and mission related environment is 17 firms (or 35.42 percent) and 29 firms (or 64.44 percent), respectively. Both vision and mission statements related to environment report the companies' responsibility to the community and environment. They also present the methods of business management with the social and environment responsibility.

Table 4 Detail content of president/chairman's statement related to environment

| Type of Disclosure | Number of Firms | Percentage* |
|--|-----------------|----------------|
| Only one-two sentences in chairman's statement related to environment | 20 | 36.36% |
| Present the environment related issues as the separate paragraph in the chairman's statement | 28 | 50.91% |
| Separate topic related to environment in chairman's statement | 7 | 12.73% |
| Total | 55 | 100.00% |

* Percentage of firms which present the chairman's message in their annual report

3.3 Risk factors related to environment

All companies present risk factors as the separate topic in their annual reports because it is the mandatory disclosure according to the SET and the SEC's requirement. Nonetheless, risk factors are shown in annual reports in different forms and content. Some firms identify the environmental risk as part of risk factor topic, whilst some of them extend the environmental risk to the safety, environmental, and community risk. Furthermore, the environmental risk is presented in terms of plant performance risk, business risk and legal risk or risk from environmental regulatory measures. The number of firms which shows the risk factors related to environments is 34 firms or 28.33 percent from total sample (120 firms). The topics

in risk factors related to environment are shown in Table 5.

The highest percentage of topic in risk factors related to environment is environmental risk or risk related to environment (35.29 percent), followed by risk on the safety, environment, and community (11 firms or 32.35%). Merely one firm presents the topic about the environmental cost management risk (2.94 percent) and plant performance risk (2.94 percent). In addition, the paper also studies the content of risk factors. The results reveal that half of companies whose risk factors related to environment (17 firms from 34 firms) present both nature of risk and risk management. Twelve companies present only risk management. Four companies show only nature of risk and only one

Table 5 Topics in risk factors related to environment

| Topics | Number of Firms | Percentage* |
|---|-----------------|----------------|
| 1. Environmental risk or risk related to environment | 12 | 35.29% |
| 2. Environmental cost management risk | 1 | 2.94% |
| 3. Risk on the safety, environment, and community | 11 | 32.35% |
| 4. Occupational health, safety (security) and environment risk | 2 | 5.88% |
| 5. Plant performance risk (related to the environment) | 1 | 2.94% |
| 6. Legal risk (related to the environment) or risk associated with environmental regulatory enforcement issues or environmental law and regulations | 5 | 14.71% |
| 7. Others for such as the global warming; opposition of expansion in Map Ta Phut; Pollution control zone | 2 | 5.89% |
| Total | 34 | 100.00% |

* Percentage of firms which present risk factors related to environment

company presents the award received related to environment, description, reason, possible outcome in risk factor topic.

3.4 Corporate governance (CG) report related to environment

All companies (120 firms) listed on the environmentally sensitive sectors show the corporate governance (CG) section in annual report because the CG report is mandatory disclosure according to the requirement of the SET and the SEC in 2002. The findings indicate that 110 firms (91.67 percent) show the environmental issues including the environmental responsibility in their CG Sections. This result is compatible with Suttipun and Stanton (2012a) which show that the highest percentage of environmental disclosure is found in CG section. The number of firms presenting CG related environment as role of stakeholders is 107 firms (97.27 percent), whilst only 3 firms (2.73 percent) present CG report related environment

as other topic (e.g. environmental and social responsibility) or no specific topic. The detailed content of CG report related to environment as role of stakeholder is shown as Table 6.

According to Table 6, the highest number of firms which present role of stakeholder as community and/or social and environment is 39 companies or 36.45 percent. Only three firms (or 2.80 percent) present the safety and environment topic as role of stakeholder in their CG reports.

3.5 Corporate social responsibility (CSR) report related to environment

Corporate social responsibility is voluntary disclosure, thus there are only 57 firms (or 47.50 percent from total sample) presenting the CSR in their annual report. Nonetheless, they present CSR report related to environment totaling 48 firms (or 84.21 percent of 57 firms). The findings show the significant increase in number of firms presenting the CSR disclosure compared to Suttipun and

Table 6 Detailed content of Corporate Governance (CG) report related to environment as the role of stakeholder

| CG Related to Environment as the Role of Stakeholders | Number of Firms | Percentage* |
|---|-----------------|----------------|
| Community or social | 32 | 29.91% |
| Environment | 11 | 10.28% |
| Community and social | 22 | 20.56% |
| Community and/or social and environment | 39 | 36.45% |
| Safety and environment | 3 | 2.80% |
| Total | 107 | 100.00% |

* Percentage of firms which present CG Report related to environment as role of stakeholder

Table 7 Topics in Corporate Social Responsibility (CSR) report related to environment

| Topics in CSR Report Related to Environment | Number of Firms | Percentage* |
|--|-----------------|----------------|
| Environment | 7 | 11.58% |
| Environmental activities and/or Social activities | 23 | 47.92% |
| Environmental protection | 4 | 8.33% |
| Environmental sustainability or Sustainability development | 4 | 8.33% |
| Safety, environmental preservation, and/or community | 5 | 10.42% |
| No specific topic | 5 | 10.42% |
| Total | 60 | 100.00% |

* Percentage of firms which present CSR related to environment

Stanton (2012 a). They found only 16 firms (or 21.33 percent) disclosing the CSR report related to environment in 2007 annual reports. Table 7 shows the topics in CSR report related to environment.

From Table 7, there are 23 firms (47.92 percent) which present the environmental activities and/or social activities in CSR report. Only 4 companies (8.33%) show the environmental protection and environmental sustainability or sustainability development in CSR report.

3.6 Dedicated session related to environment

Nonfinancial environmental disclosure is also presented in dedicated session (separate topic) in annual reports such as safety, occupational health and environment, sustainable development, green development, environmental sustainability. The results show that 33 firms or 27.50 percent from total sample present the dedicated session related to environment. The results also confirm that the increase in the presentation of separate section

of environmental disclosure compared to Suttipun and Stanton (2012 a). They found only 14 firms (18.67 percent) disclosing the dedicated sessions related to environment in 2007 annual reports.

The study also investigates the topics related to environment discussed in separate section. The findings are presented in Table 8.

The findings show that the highest number of topic in dedicated session is Safety, Occupational Health and Environment (9 firms or 27.27 percent) which is consistent with Holland and Foo (2003). Their findings indicated that most of UK companies provided the health, safety and environment as separate section. The least frequency topic is other topic for such as Insee Green Heart, Social Activities.

In addition, Thai listed companies also present the nonfinancial environmental disclosure in terms of quantitative form. There are only two firms which present the quantitative and nonmonetary

Table 8 Topics related to environment in dedicated session

| Topics | Number of Firms | Percentage |
|---|-----------------|-------------|
| Safety, occupational health and environment | 9 | 27.27% |
| Sustainable development/Green Development/ Environmental sustainability | 8 | 24.24% |
| Achievement of year (related to environment) | 2 | 6.06% |
| Environmental control and care | 2 | 6.06% |
| Significant change (related to environment) | 3 | 9.09% |
| Production and environment conscience | 1 | 3.03% |
| Accountability of stakeholders: environment | 1 | 3.03% |
| Human resources and organization development | 2 | 6.06% |
| Quality of life and environment management | 2 | 6.06% |
| Environment | 1 | 3.03% |
| Other topics e.g. Insee green heart, Social activities | 2 | 6.07% |
| Total | 33 | 100% |

* Percentage of firms which present the dedicated sessions related to environment

environmental disclosure. They are Thai Plastic and Chemicals Public Company Limited, and Sadaeng Industry Public Company Limited. The quantitative data (nonfinancial) of environmental disclosure present level of air pollution (e.g. level of CO₂ in air measured in terms of mg/m³), level of noise around the factory (measured in terms of DB), level of water quality (e.g. level of solid waste (measured in terms of Kg.). The presentation of quantitative is also in form of Environmental Performance Index (EPI) which is the separate section in annual report. EPI presents the emission to water, emission to air, air quality, and greenhouse gas at each plant.

4. Financial environmental disclosure

4.1 Financial environmental disclosure in financial statements

From the study of listed companies' financial statements, the result indicates that five firms (4.17 percent of total sample) present the environmental accounting items in their Statement of Financial Position. They also report the accounting policies related to environmental accounting items in the notes to financial statements. Companies which present the environmental assets and/or liabilities are as follows.

1. Banpu Public Company Limited (Energy and Utilities Sector)
2. PTTEP Public Company Limited (Energy and Utilities Sector)
3. Sahacogen (Chonburi) Public Company Limited (Energy and Utilities Sector)
4. Padaeng Industrials Public Company Limited (Mining Sector)
5. Tongkah Harbour Public Company Limited (Mining Sector)

All of five firms are listed on Resources Industry which three firms are listed on Energy and Utilities Sector and two firms are listed on Mining Sector.

The number of firms which presents only environmental assets or environmental liabilities is two firms and one firm, respectively. Two firms present both environmental assets and liabilities in their Statement of Financial Position. None of them presents the environmental accounting items in their income statement.

The results also show that the ratio of environmental assets (or related environmental assets) to non-current assets ranges from 0.0066 to 0.4047 (or 0.66 percent to 40.47 percent) and the ratio of environmental assets to total assets ranges from 0.0029 to 0.1599 (or 0.29 percent to 15.99 percent). The maximum ratio of environmental liabilities to non-current liabilities is 0.1966 or 19.66 percent, while the minimum ratio is 0.0731 or 7.31 percent. The maximum ratio

of environmental liabilities to total liabilities is 0.1293 or 12.93 percent, while the minimum ratio is 0.0038 or 0.38 percent.

Only five firms in Thailand present the financial environmental disclosures which are contrast to environmental disclosures in developed countries (e.g. Holland and Foo, 2003). Holland and Foo (2003) indicated that financial environmental information was high percentage for U.S. and UK companies. However, the result in this paper is line with other developing countries such as Malaysia (Saleh, 2009), Bangladeshi (Ahmad, 2012) which the main format of environmental disclosure is narrative reporting.

4.2 (Financial environmental disclosure in Environmental Performance Index (EPI)

In terms of providing the financial environmental disclosure, only one company presents the financial environmental disclosure in Environmental Performance Index (EPI). Padaeng Industry Public Company Limited presents the financial indicators as the part of EPI which is shown in Table 9.

Table 9 presents total environmental investment costs and total environmental operating costs of Padaeng Industry Public Company Limited of year 2010, 2009 and 2008 for each site of mining activities. The Environmental Performance Index (EPI) is presented as the dedicated session in annual report.

Table 9 Financial indicators in Environmental Performance Index (EPI) of Padaeng Industry Public Company Limited

Padaeng Industry Public Company Limited
Environmental Performance Index (EPI)

| Financial Indicators | Zinc Smelter | | | Roaster Plant | | | Mae Sot Mine | | |
|---|--------------|------|------|---------------|------|------|--------------|------|------|
| | 2010 | 2009 | 2008 | 2010 | 2009 | 2008 | 2010 | 2009 | 2008 |
| Environmental investment and operating costs | | | | | | | | | |
| Total environmental investment costs (million baht) | 0.0 | 0.0 | 15.5 | 5.7 | 19 | 24 | 0.03 | 1.2 | 7.9 |
| Total environmental operating costs (million baht) | 173 | 173 | 152 | 24.3 | 25 | 14 | 3.2 | 9.2 | 6.7 |

Conclusion and Discussion

This research is set out to investigate the environmental accounting disclosure of listed companies on the environmentally sensitive sectors in Thailand. The paper fully examines every section of annual reports and financial statements in 2010 by using content analysis. Total companies investigated are 120 companies in three industries (Industrial, Property and Construction, and Resource Industry) and nine sectors (Automotive, Industrials Materials and Machinery, Packaging, Paper and Printing Materials, Petrochemicals and Chemicals, Steel, Construction Materials, Energy and Utilities, and Mining Sector). The results indicate that Thai listed companies present the nonfinancial environmental disclosure significantly higher than financial environmental

disclosure. The main format of environmental disclosure in Thailand is narrative reporting which concurs with Llana et al. (2007), Ebimobowei (2011), Ahmad (2012), and Eltaib (2012). Nonfinancial environmental disclosures are presented in terms of pure narrative and quantitative form (non-monetary data). The narrative environmental disclosures are presented in followings locations in annual report: President or Chairman's Message/Statement, Vision and/or Mission Statement, Risk Factors, Corporate Governance (CG) Report, Corporate Social Responsibility (CSR) Report, and Dedicated Sessions which is partially similar with Kuasirikun and Sherer (2004). However, this paper reveals the additional locations of environmental disclosure which is not found in Kuasirikun and Sherer (2004). The additional

locations are Vision and/or Mission Statement, Risk Factors, Corporate Governance (CG) Report, Corporate Social Responsibility (CSR) Report. The main issues discussed related to environment are environmental policy, environmental management, risks opposing to environment, mitigation ways of environmental risk, the importance of eco-based or environmental policy product, the role of companies to stakeholders for environment, environment activities, and reward related to environmental protection. Moreover, the findings show that there are only two Thai listed companies which present the quantitative (non-monetary) environmental measures (such as level of CO₂ as measure of air pollution, level of DB as measure of noise pollution) in terms of Environmental Performance Index (EPI) in annual report. Furthermore, the results also indicate that only 5 firms in environmentally sensitive sectors disclose financial environmental information in terms of environmental assets and/or environmental liabilities in Statement of Financial Position. Merely one Thai listed firm present the financial environmental information as EPI in annual report.

In addition, the stakeholder theory can also describe the motivation of environmental disclosure for Thai listed companies. Furthermore, Thailand's Principles of Good Corporate Governance revised in 2006 required that the board of directors should set clear social and environmental policy. The SET mandates this rule in 'Role of Stakeholder' topic in this principle. That is, social and environmental accounting disclosure is the part of communication

between the company and their stakeholders (Roberts, 1992; Gray et al., 1995; Suttipun and Stanton, 2012 c). More companies establish the policies that communicate to their stakeholders and they attempt to provide information about stakeholder-oriented governance practices.

The main format of environmental disclosure of Thai listed firms is non-financial information which can be linked to Extended Performance Reporting Framework (EPRF) for social and environmental accounting proposed by Yongvanich and Guthrie (2006). The listed companies report environmental information as the external capital, internal structure, and human capital. The highest proportion of companies disclose the corporate governance related to environment as the internal structure of EPRF component, while the least proportion of them disclose Environmental Performance Index (EPI). CG Report in Thailand also shows the roles of stakeholders in terms of communities, safety, and environment. This evidence also supports the stakeholder theory in Thailand which identifies the environment as one type of stakeholders of Thai listed companies. For the external capital, 40 percent of companies present the good customer relationship by showing awareness of environmental responsibility and/or environmental friendly product. This finding also supports the result of Suttipun and Stanton (2012 c). They summarize that the second importance reason for disclosing the environmental information is to gain the customer loyalty leading to the competitive advantages. Furthermore, 11.67

percent of Thai listed companies disclose the occupational, health, safety and environmental program as Human Capital according to conceptual framework prepared by Yongvanich and Guthrie (2006). All evidence of environmental accounting disclosure in Thailand supports the attempt for stakeholder management. Therefore, the results have the implication to the policy makers (e.g. the SEC) for making the stakeholder-oriented corporate governance codes broader and generating the social benefits.

Although only two Thai listed companies in environmentally sensitive sectors present the environmental measures (numeric, but non-monetary measures) in terms of Environmental Performance Index (EPI), it is consistent with the EU Accounts Modernization Directives. The EU Directive defines and discloses Environmental Key Performance Indicators (Sukcharoensin, 2012). It will be tentative guideline for future environmental mandatory disclosure for Thai listed companies. Therefore, the SET and the SEC in Thailand should set the clear and complete guidelines about the social and environmental disclosure both financial and nonfinancial information in Thai's listed companies annual reports. Only 5 firms in environmentally sensitive sectors environmental disclosures are found in Thailand. The tentative reason may be the lack of practical standards for social and environmental accounting in Thailand (Kuasirikun, 2005). The development of social and environmental accounting needs to be revised at the regulatory bodies. To promote the creditability of

financial environmental disclosure, the Federation of Accounting Professions (FAP) in Thailand should develop the environmental reporting framework and accounting standards directly involved with environmental accounting items. Thai accounting standards should be set the specific recognition and measurement criteria of environmental accounting items. It should provide the format of environmental accounting presentation in financial statements. It will enhance the comparability of Thai listed firms' financial statements with the other countries listed companies on global basis.

Limitation of this study is the descriptive analysis of environmental accounting disclosure which aims to answer the research questions about the extent, format and locations of environmental information disclosed in Thai listed companies' annual reports. The plausible reason is that the paper is the exploratory research in this topic since the announcement of new Principles of Good Corporate Governance rules by the SET in 2006. However, the current study does not provide the determinants or managerial motivation influencing the environmental accounting disclosure in Thailand. Therefore, the study of factors affecting the environmental reporting is a tentative and potential topic for future research.

References

English

- Ahmad, A. (2012). Environmental accounting & reporting practices: Significance and issues: A case from Bangladeshi companies. *Global Journal of Management and Business Research*, 12(14), 118–127.
- Akisik, O. & Gal, G. (2011). Sustainability in businesses corporate social responsibility, and accounting standards: An empirical study. *International Journal of Accounting and Information Management*, 19(3), 304–324.
- Association of Southeast Asian Nations. (2010). *Overview: About ASEAN*. Retrieved from www.asean.org
- Brammer, S. & Pavelin, S. (2004). Building a good reputation. *European Management Journal*, 22(6), 704–713.
- Connelly, J.T. & Limpaphayom, P. (2004). Environmental reporting and firm performance: Evidence from Thailand. *The Journal of Corporate Citizenship*, 13, 137–149.
- Corporate Governance Center, The Stock Exchange of Thailand. (2006). *The Principles of Good Corporate Governance*. Retrieved from www.ecgi.org/codes/document/cg_principles_thailand_2006_en.pdf
- Deegan, C. (2002). Introduction: The legitimatising effect of social and environmental disclosures—a theoretical foundation. *Accounting, Auditing, and Accountability Journal*, 15(3), 282–311.
- Donaldson, T. & Preston, L. (1995). The stakeholder theory of the corporation—concepts, evidence, and implications. *Academy of Management Review* 20(1), 65–92.
- Ebimobowei, A. (2011). A study of social accounting disclosures in the annual reports of Nigerian companies. *Asian Journal of Business and Management*, 3(3), 145–151.
- Eltaib, E. E. (2012). Environmental accounting disclosures of Australian oil and gas companies. Thesis. *Dissertation of Master of Accounting (Research)*. University of Wollongong.
- Global Reporting Initiative (GRI). (2006). *Sustainability Reporting Guideline*. Amsterdam, Netherlands.
- Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing and Accountability Journal*, 8(2), 47–77.
- Hackston, D. & Milne, M. (1996). Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing and Accountability Journal*, 9(1), 850–874.
- Holland, L. & Foo, Y.B. (2003). Differences in environmental reporting practices in the UK and the US: the legal and regulatory context. *The British Accounting Review*, 35, 1–18.
- Islam, M.A. & Deegan, C. (2007). Motivations for an organization within a developing countries to report social responsibility information: Evidence from Bangladesh. *Accounting, Auditing and Accountability Journal*, 21(6), 850–874.
- Kabir, H. Md. & Akinnusi, D.M. (2012). Corporate social and environmental accounting Information reporting practices in Swaziland. *Social Responsibility Journal*, 8(2), 156–173.

- Kuasirikun, N. (2005). Attitudes to the development and implementation of social and environment accounting in Thailand. *Critical Perspectives on Accounting*, 16, 1035–1057.
- Kuasirikun, N. & Sherer, M. (2004). Corporate social accounting disclosure in Thailand. *Accounting, Auditing & Accountability Journal*, 17(4), 629–660.
- Lin, L.W. (2009). Corporate social and environmental disclosure in emerging securities markets. *North Carolina Journal of International Law and Commercial Regulation*, 35(1), 101–134.
- Llena, F., Moneva, J.M., & Hernandez, B. (2007). Environmental disclosures and compulsory accounting standards: the case of Spanish annual reports. *Business Strategy and the Environment*, 16, 50–63.
- Lungu, C.I., Caraiani, C., Dascalu, C., Guse, R.G., & Sahlian, P.N. (2009). Corporate Social and Environmental Reporting: Another Dimension for Accounting Information. *Working Paper*. Retrieved from <http://ssrn.com/abstract=1401217>
- Milne, M.J. & Adler, R.W. (1999). Exploring the reliability of social and environmental disclosures content analysis. *Accounting, Auditing and Accountability Journal*, 12(2), 237–256.
- Mobus, J.L. (2005). Mandatory environmental disclosures in a legitimacy theory context. *Accounting, Auditing and Accountability Journal*, 18(4), 492–511.
- Negash, M. (2010). GFRS and Environmental Accounting. *Working Paper*. Retrieved from <http://ssrn.com/abstract=1516837>
- O' Donovan, G. (2002). Environmental disclosures in the annual report: extending the applicability and predictive power of legitimacy theory. *Accounting, Auditing and Accountability Journal*, 15(3), 344–371.
- Peters, G.F. & Romi, A.M. (2011). Discretionary compliance with mandatory environmental disclosures: Evidence from SEC filings. *Journal of Accounting and Public Policy*, forthcoming.
- Pramanik, A.K., Shil, N.C., & Das, B. (2008). Corporate environmental reporting: An emerging issue in corporate world. *International Journal of Business and Management*, 3(12), 146–154.
- Rabhi, A. & Shishime, T. (2010). *Assessment of corporate environmental information disclosure in Thailand*. Conference Paper. Retrieved from <http://pubs.iges.or.jp/modules/environlib/upload/3318/attach/assessment%20corporate%20environmental%20information%20disclosure%20in%20thailand.pdf>
- Ratanajongkol, S., Davey, H., & Low, M. (2006). Corporate social reporting in Thailand, the news is all good and increasing. *Qualitative Research in Accounting & Management*, 3(1), 67–83.
- Roberts, R.W. (1992). Determinants of corporate social responsibility disclosure. *Accounting, Organization and Society*, 17(6), 595–612.
- Saleh, M. (2009). Corporate social responsibility disclosure in an emerging market: A longitudinal analysis approach. *International Business Research*, 2(1), 131–141.

- Smith, M., Yahya, K., & Amiruddin, A.M. (2007). Environmental disclosure and performance reporting in Malaysia. *Asian Review of Accounting*, 15(2), 185–199.
- Social Investment Forum. (2009). Corporate sustainability disclosure in emerging markets. *Emerging Markets Disclosure Project (EMDP)*, Washington D.C.
- Suchman, M.C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–560.
- Sukcharoensin, S. (2012). The determinants of voluntary CSR disclosure of Thai listed firms. *International Proceedings of Economics Development and Research*, 46, 61–65. Retrieved from www.ijedr.com/Vol46/012-ICBER2012- N00035.pdf
- Suttipun, M. & Stanton, P. (2012 a). Determinants of environmental disclosure in Thai corporate annual reports. *International Journal of Accounting and Financial Reporting*, 2(1), 99–115.
- Suttipun, M. & Stanton, P. (2012 b). A study of environmental disclosures by Thai listed companies on websites. *Proceedings of Economics and Finance*, 2, 9–15.
- Suttipun, M. & Stanton, P. (2012 c). Making or not making environmental disclosures in Thailand. *International Journal of Business and Social Science*, 3(9), 73–81.
- Szabo, D.G. (2011). Disclosure of material CSR information in the periodic reports-comparison of the mandatory CSR disclosure systems for listed companies in the EU and the U.S. *Working Paper*. Retrieved from <http://ssrn.com/abstract=1927232>
- Taib, E.M., Ameer, R., & Janit, M. N. (2012). *Relationship between corporate sustainability practices and financial performance: Evidence from the GRI reporting companies*. Working Paper. Retrieved from <http://ssrn.com/abstract=2152124>
- Unerman, J. (2006). Methodological issues-reflections on quantification in corporate social reporting content analysis. *Accounting, Auditing and Accountability Journal*, 13(5), 667–680.
- Williamson, S.L.M. (1999). Voluntary environmental and social accounting disclosure practice in the Asia-Pacific region: An international empirical test of political economy theory. *The International Journal of Accounting*, 34(2), 209–238.
- Yongvanich, K. & Guthrie, J. (2006). An extended performance reporting framework for social and environmental accounting. *Business Strategy and the Environment*, 15, 309–321.