

# Environmental Disclosure Practices of Manufacturing Industry – Evidence from Listed Companies in Colombo Stock Exchange (CSE) in Sri Lanka

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**Abstract**— *This study examines the level of Environmental Disclosures by the companies listed in Colombo Stock Exchange (CSE) in Sri Lanka and their association with some specific attributes of the companies. For this purposes, a sample of 36 companies listed in Colombo Stock Exchange under Manufacturing Sector were selected. The level of Environmental Disclosure by each company is measured using Environmental Disclosure Index (EDI). EDI consists of 19 items of disclosure under four categories. Further, content analysis is used to analyze the level of Environmental Disclosure. The greatest score of 3 is awarded if the item related to Environmental Disclosure Index is disclosed quantitatively and specifically. A score of 2 is assigned to non-quantitative but specific information and score of 1 is given to general qualitative information. The association between companies-specific attributes and level of Environmental Disclosure is examined using Ordinary Least Square Regression Model. The calculated EDI reveals that the level of Environmental Disclosure by Sri Lankan manufacturing companies is at a very low level. Further, the regression results show that the level of Environmental Disclosure is significantly associated with Environment Concern (EC) and ISO14001 certification (ISO). It is also found that the Shareholder Power (SP), Government Power (GP), Return on Assets (ROA), Size and age are not significantly associated with the level of Environmental Disclosure.*

**Keywords**—*Environmental Disclosure, Manufacturing Sector, Disclosure Index*

## I. INTRODUCTION

Traditionally business entities are considered to be responsible for their financial performance.

Therefore, the conventional financial reporting was confined to the provision of information on various facets of financial performance of business entities to the shareholders. However these views about the responsibility of the entities are changing today. It is commonly accepted today that they are responsible for a broader group of stakeholders for their social and environmental performances as well as their financial performances (Senarathne, 2008). During the past two decades, with the expansion of industrial activities may adversely effect on natural environment. Thus, societal concern for environment matters and demand for environmental information has dramatically increased (Christopher, 1997). Therefore, in these days, most of the large companies are aware of the environment as a business issues (Descano, 1999) and they have recognized the value of social responsibility in addition to their primary objective of maximizing profit (Villiers and Vorster, 1997). On the other hand, as societal concern of the environment grows, many companies are becoming more responsive to stakeholders' demand for information of corporate social responsibility. According to a study of the Institute for Environmental management and the accounting firm KPMG, 35% of the world's 250 largest corporations now issue environmental reports (Kolk, 2000).

Environmental reporting which is a relatively recent development in accounting can be treated as the media to communicate the environmental impact of business entities for their stakeholders. Therefore with regards to the environment, there is a "social contract" between the accounting entity and society at large, and stakeholders have a "right" to know information on the environmental impact of the organization's activities (Deegan, 2000). Guthrie & Parker, (1989); Gibson & Guthrie, (1995) also

reviewed the environmental reporting practices adopted by Australian corporations and they have concluded that the proportion of corporations which disclose environmental information is increasing across the time, along with the amount of environmental disclosure incorporated within annual reports. Gray & Kouhy,(1995); Chan & Milne, (1999) support previous researchers' findings and state that, over recent years, the reporting of firms' impact on the physical environment has dramatically increased. Further Kolk (2000) says that, at present, environmental reporting is becoming more and more common in business.

In addition to that environmental reporting is used to legitimize the current activity of the business entities (Gray, 1993), to make adjustments to the national accounts in order to produce a better instrument for steering the economy (Willums, 2000), to expand corporate accounts to reflect the company's handling of its environmental and social assets (Willums, 2000), to provide information relating to environmental risk impact of activities to shareholders, lenders and others in the investment community (CICA, 1993), to identify cost savings and new business opportunities (Kolk,2000), to create positive public relationship and to make a company more attractive to customers and investors (Kolk, 2000) to provide information about sustainability (Gray, 2000), Therefore it is cleared a number of research studies emphasis the need for a broader range of social and environmental information to stakeholders.

However, social and environmental reporting practices in developing countries lag behind that of the more developed countries and it has a long way to go in order to meet the increasing demand for environmental information and related international standards (Lodhia, 2000; Belal, 1997; Siddiqui, 2001). It believes that the lack of adequate resources and qualified personnel has contributed to ad-hoc and patchy environmental practices in these countries (Shiraz, 1998). However, environmental reporting awards schemes have been introduced in Asian countries to promote environmental report preparers and to improve quality of environmental reporting practices in the region (SEAJ, 2002).

According to the above facts, it is cleared that stakeholders' attitudes towards to the environmental protection has increased during the

recent years. Thus our intention is to explore the extent of environmental-related disclosure practices of companies in manufacturing industry in Sri Lanka and examine the association between specific attributes including shareholder power, creditor power, government power, environmental concern, ISO 14001 certification award, finance performances, company size, company age and the level of environmental disclosures.

## II. SRI LANKAN LITERATURE REVIEW HIGHLIGHTS

During the last few years in Sri Lanka, there was significant increase in stakeholders' (society's) awareness of ecological, social and environmental matters, which have been reflected in the proliferation of non-governmental organizations (NGOs) and other social movements. After introducing liberalize open-economic policies in Sri Lanka the late 1970s, many foreign business entities including multi-national companies, and local manufacturing companies have emerged. However such expansion of industrial activities have really contributed to the economic growth of the country, while operations of these factories largely cause damage to the physical environment and ecological balance of the country in numerous ways such as discharging waste material, polluted water and chemicals etc. into the environment.

A survey report of the Central Environmental Authority (CEA) of Sri Lanka (1992) shows, that there were 119 highly polluted factories in Colombo and Gampaha districts. Further in 1992 the Central Environmental Authority (CEA), Sri Lanka reveals that business organizations have 'responsibility' to comply with the environment which it operates and society has 'right' to demand information of social resources which business organizations consume in the operation process, neither they take measures to prevent such environment pollution nor adequately report the damages they cause to the environment within their annual reports or as special reports. Thus they do not concern about environmental damage as it does not appear as a cost to the organization and, there is neither statutory nor professional requirements for environmental reporting in Sri Lanka (Rajapakse, 2003). Consequently, environmental reporting in Sri Lanka is predominantly voluntary, which is also the case in many other developed & developing countries .However, stakeholders' awareness of environmental impact on industrialization of Sri

Lanka has increased during last few years (Rajapakse, 2003).

However, there is no comprehensive study has been conducted to date to materialize the extent of environmental reporting practices in broader contexts in Sri Lanka. Therefore the main objective of is to examine the level of environmental reporting disclosures of manufacturing sector in Sri Lanka during the selected period.

### III. HYPOTHESES DEVELOPMENT

Hypotheses were formulated based on the nature of the relationship to be prevailed between level of environmental disclosures and selected attributes. There could be positive, negative or neutral relationship between the variables, which would be testing in this study. The weight of the arguments about potential positive relationship between level of environmental disclosures and selected attributes is high. Hence in the current study it hypothesizes that the impact of level of environmental disclosures and selected attributes are to be positive. Hypotheses develop under selected attributes are as follows.

#### *Shareholder Power (SP)*

Christopher & Hassan, (1996) stated that shareholder power (SP) can be measured by examining the degree of ownership concentration. Most of the foregoing studies suggested that there is a positive relationship between the number of shareholders and disclosure practices in the Annual Reports (e.g. Mckinnon & Dalimunthe, 1993; Malone, Fries and Jones, 1993). These studies imply that wider ownership diffusion is associated with better disclosures. Thus, following hypothesis is developed suggesting the positive relationship.

H1: The level of corporate environmental disclosures is positively associated with No of Shareholders.

#### *Creditor Power (CP)*

According to the Roberts, (1992) the creditor power (CP) depends upon the degree to which the firm relies on debt financing. Thus average debt equity ratio is used to measure the creditor power of the firm. Prior studies suggest that the more the firm relies on debt financing, the more likely it will provide more disclosures (Clarkson, Li & Richardson, 2004). Hence, H2 states that:

H2: The level of corporate environmental disclosures is positively associated with Creditor Power (CP)

#### *Government Power (GP)*

Elijido-Ten, (2008); suggested that companies belonging to environmentally sensitive industries (ESI) are likely to face more stringent government regulation as these firms are more likely to damage the environment through the use of hazardous substances. Therefore, it is evidence that ESI-firms tend provide more environmental disclosures possibly to get the government approvals for their operations.(Chan & Kent, 2003).The following hypothesis is therefore developed suggesting positive relationship

H3: the level of corporate environmental disclosures of the firms in environmentally sensitive industries is higher than the firms in non-sensitive industries.

#### *Environmental Concern (EC)*

Firms with environmental committees and/or environmental concern in their vision/mission statement are considered be as environmental Concern business entities.

H4- the level of corporate environmental disclosures of the firms with environment concern, is higher than the firms without such concern

#### *ISO14001 Certification (ISO)*

Business entities are produce CSR information as a partial requirement in order to obtain ISO 14000 for environmental management, which also helps to improve public image. Therefore following hypothesis is developed:

H5: The level of corporate environmental disclosures of the firms that are having ISO 14001 certificate, is higher than the firms that do not have such certification.

#### *Financial Performances*

According to Elijido-Ten, (2008); economic performance of the firm is an important factor to consider in determining whether environmental issues will be on the priority list. Further, he argues that the periods of low economic performance, the firm's economic objectives will be given more attention than environmental concerns. Therefore, it is predicted that the economic performance of the firm is directly related to environmental disclosures. This study uses Return on assets (ROA)

to measure firm financial performance. ROA is calculated as net profit divided by total assets. The sixth hypothesis is formed as follows:

H6: The level of corporate environmental disclosures is positively associated with Finance performances of the firm.

#### *Firm Age*

Owusu-Ansah, (1998); pointed out that the extent of a company's disclosure may be influenced by its age, stage of development and growth. Further researcher state that three factors that may contribute to this phenomenon. Firstly, younger companies may suffer competition, secondly, the cost and the ease of gathering, processing, and disseminating the required information may be a contributory factor, and finally, younger companies may lack a track record on which to rely for public disclosure. However, it is not possible to reach a conclusion that long-established firms can disclose more information than newly-established firms. Therefore following hypothesis is developed:

H7: The level of corporate environmental disclosure is positively associated with firm age

#### *Firm Size*

Firm size is used to represent the firm capacity to be involved in social and environmental programs and to report such activities. Most researchers in this area find a close relationship between company size and the extent of disclosure, both in developing and developed countries. (example, Singhvi and Desai, 1971; Hossain, 2001). In this body of a research, a positive relationship has been found between company size and the extent of disclosure. A number of reasons have been advanced in the literature in an attempt to justify this relationship on prior grounds. For example, Singhvi and Desai (1971) offered three justifications for the variations in the extent of financial disclosure in firms of different sizes. Firstly, the cost of accumulating certain information is greater for small firms than for large firms. Secondly, larger firms have a greater need for disclosure because their securities are typically distributed via a more diverse network of exchanges, and thirdly, management of a smaller corporation is likely to believe more strongly than the management of a larger corporation, that the full disclosure of information could endanger its competitive position. Thus, the following hypothesis is established.

H8: The level of corporate environmental disclosure is positively associated with firm size

## IV. RESEARCH DESIGN

### *Sample and Data*

The sample of this study is included 36 companies listed on Colombo Stock Exchange as at 01st January 2012 under manufacturing category. To determine the level of Environmental disclosure by each company, it is examined the annual reports of the financial year 2010/2011

### *Model development*

The following Ordinary Least Square (OLS) regression model is conducted to identify the association between firms' specific attributes, viz. Shareholder Power (SP), Creditor Power (CP), Government Power (GP), Environmental Concern (EC), ISO14001certification (ISO), Return on Assets (ROA), Size (Lsiz), Age (Age) and level of environmental disclosure.

$$Y = \beta_0 + \beta_1 SP + \beta_2 CP + \beta_3 GP + \beta_4 EC + \beta_5 ISO + \beta_6 ROA + \beta_7 LSIZ + \beta_8 AGE + e$$

Where; Y = total disclosure score received for each firm

$\beta_0$  =the intercept;

e = the error term

## IV. RESULTS AND ANALYSIS

### *Level of disclosure*

Descriptive statistics are shown in Table 1. Shareholder power (SP) has a minimum of 12.29%, maximum of 97.63% and a mean(median) of 72.04% (74.79%) representing that majority of the firms in the sample have high ownership concentration. The creditor power (CP) has wide range from a low of -5436.35% to high of 192.98%. The mean of creditor power is shown negative figure as -129.30% which is due to an outlier, while median of 12.67% of creditor power is indicating low level gearing of firms in the manufacturing sector. It is clear that majority of the manufacturing firms in Sri Lanka are less geared. More than 80% of firms in the sample are in environmentally sensitive industry (GP = 1) but only three firms in the sample show environmental concern (EC) in their Vision, Mission statement or have an environment committee. About 12% of firms have received ISO 14001 certification, however the companies with ISO

14001 certification have not shown considerable environmental concern. The minimum return on assets (ROA) is 45.35% while maximum is 44.48%. The age of the sample firms are range from a minimum of 10 years to maximum of 71 years with the mean of 31.03 years

**Table 01: Descriptive Statistics**

Variable	Mean	Median	SD	Min	Max
TS	5.97	3.50	7.60	-	31.00
SP	72.04	74.79	16.92	12.29	97.63
CP	(129.30)	12.67	910.74	(5,436.35)	192.98
GP	0.69	1.00	0.47	-	1.00
EC	0.08	-	0.28	-	1.00
ISO	0.14	-	0.35	-	1.00
ROA	6.85	6.71	14.85	(45.35)	44.48
ALS	8.54	8.91	1.26	5.74	9.89
Age	31.03	28.50	13.79	10.00	71.00

Note- Total Score (TS), Shareholder Power (SP), Creditor Power (CP), Government Power (GP), Environmental Concern (EC), ISO14001certification (ISO), Return on Assets (ROA), Assets Log Size (ALS), Age (Age)

#### Regression Result

We performed an Ordinary Least Square (OLS) regression model for all variables, the results of which are presented in Table 2. The multiple regression model is significant at 5% level. The adjusted coefficient of determination (Adjusted R squared) indicates that 45% of the variation in the dependent variable is explained by variations in the independent variables. The coefficient representing environmental concern (EC) and ISO 14001 certification (ISO) are statistically significant between 1% to 5% level, while the coefficients for shareholder power, creditor power, government power, return on assets, size and age are not statistically significant at 10%.

**Table 02: Model Summary**

Multiple R	R Square	Adjusted R Square
0.763324998	0.58266505	0.459010253

#### Discussion of Regression Results

As depict in table 03, the shareholder power and creditor power variables are not significant. A similar result was found in Evangeline Eljido-Ten (2003). This implies that the level of disclosure is not affected by the shareholder power and creditor power of the manufacturing firms. The firms with

environmental concern in their vision/mission statement and/or environmental committee tend to disclose more information about environmental activities in their annual reports. Further firms with ISO certification disclose more environmental information than firms with no such certification. These results are in line with the result from previous research as mentioned. Size by assets is not statistically related to the level of information disclosed by the sample of manufacturing firms in their annual reports. Age and Return on Assets are not significant. This also implies that the level of environmental disclosure is not affected by the age of the firms or the number of years it has in business and profitability of firms.

**Table 03: Results Regression Model**

Variable	Coefficients	SE	T Stat	P-value
Intercept	7.1000	7.4316	0.9554	0.34787
SP	0.0007	0.0588	0.0127	0.98993
CP	0.0008	0.0011	0.7384	0.46667
GP	(1.2013)	2.1285	(0.5644)	0.57715
EC	7.3539	3.5417	2.0764	0.04750**
ISO	14.7764	2.9620	4.9886	0.00003**
ROA	(0.0570)	0.0714	(0.7973)	0.43225
ALS	(0.0867)	0.7809	(0.1111)	0.91239
Age	(0.0572)	0.0763	(0.7502)	0.45962

\*\* Significant at 5% level

## VI. CONCLUSION AND LIMITATION

This study has examined the level of environmental disclosures of Sri Lankan manufacturing firm. Further it is investigated whether level of environmental disclosures are affected by the firms' specific attributes such as shareholder power, creditor power, government power, environment concern, ISO 14001 certification, return on assets, size and age. The result indicated that the level of environmental disclosures by Sri Lankan manufacturing firm is at a very low level.

From the analysis described in the previous section, it is apparent that environmentally sensitivity does not affect the level of environmental disclosure by Sri Lankan manufacturing firms. This is unlike with previous studies. Many previous studies have found that there is association between the level of environmental disclosure and environmentally sensitivity. This study also provides evidence of the lack of environmental disclosures in the absence of mandatory requirements to do so. This should give

an implication to the accounting regulatory body in considering mandatory environmental disclosures.

Some limitations of this study are also inevitable. A one year period of observation might not be sufficient to get a comprehensive picture of the level of environmental disclosures by the manufacturing firm in Sri Lanka. Other variables which may effect to the level of environmental disclosure, such as media coverage, firm reputation and auditor, have not been included in the model. Media coverage variable is particularly widely used in the previous literature. By adding more independent variables, we would probably be able to increase the power of the regression model and hence a better explanation to the level of environmental disclosures. This study limits its data source to corporate annual reports in calculating environmental disclosure level, whereas environmental information may be disclosed by companies in other media, such as press releases, websites, and separate environmental reports. We expect that these information sources may not be significant in Sri Lankan context, and therefore excluding them from analysis would not result in some data selection bias.

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