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**THE TREND OF CORPORATE WATER REPORTING IN**  
**MALAYSIA**

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***Abstract***

A significant impact brought about by climate change is the availability of water resources. In this regard, water crisis has been named by the World Economic Forum as the top 10 global risks likely to happen in the near future and as the risk with the greatest impact on the society. In the light of climate change and water crisis issues facing the world today, this research aims to investigate the response made by public listed companies in Malaysia. It examines the annual reports and sustainability reports of 708 companies listed in the Main Market of Bursa Malaysia for the years 2014-2016. Using a self-developed disclosure index to measure corporate water reporting, this research found that the level and extent of reporting increased during the study period. This is consistent with social issue life cycle theory and legitimacy theory. However, the reporting was considerably low and predominantly descriptive in nature with limited emphasis on quantitative data. Therefore, the move by Bursa Malaysia to impose mandatory reporting of sustainability statement in the annual reports for financial years ending on or after 31 December 2016 is considered timely.

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**Keywords:** Content analysis, water reporting, legitimacy theory, social issue life cycle theory, Malaysia.



## 1. Introduction

World Economic Forum had conducted a survey among the global multi-stakeholder community in year 2014 and found that water crisis was ranked as the top 10 global risks likely to happen within a decade from now and as the single most impactful risk on the society (WEF, 2015). Currently, more than one-third of the world's population live in water-stressed countries, and by 2025 that proportion is expected to rise by two-thirds (Ceres, 2011). The effects of climate change will intensify this problem through causing either floods or droughts which in turn disrupt the availability of fresh water for consumption and the supply of food. To address this issue, the world leaders have adopted the United Nation's Sustainable Development Goals in September 2015 with the 6<sup>th</sup> goal aims to ensure access to water and sanitation for all (United Nations, 2017).

Malaysia is an interesting case for examination. Over the years, Malaysia has instituted mechanisms to ensure the accessibility and quality of water resources. In year 2010, an economic plan titled New Economic Model has been unveiled encapsulating three goals to ensure the quality of life of its public. One of these goals is sustainability which entails the need to meet the present needs without compromising the needs of future generations through "effective stewardship and preservation of the natural environment and non-renewable resources" (NEM, 2009, p. 11). It further asserts that this approach is particularly relevant to the management of water, and oil and gas resources. In year 2012, the National Water Resources Policy was launched so as to provide clear directions and strategies for water resources management, including collaborative governance to ensure water security and continued sustainability. The importance of water issues is also evident in the 11<sup>th</sup> Malaysia Plan, particularly Chapter 6 "Pursuing green growth for sustainability and resilience" and Chapter 7 "Strengthening infrastructure to support economic expansion" (EPU, 2015). Malaysia's commitment towards environmental issues is attested in the 2016 Environmental Performance Index in which it was ranked 63<sup>rd</sup> in the world (out of 180 countries) and 7<sup>th</sup> in the East Asia and the Pacific (out of 24 countries) (Hsu et al., 2016).

Water crisis imposes enormous challenges to businesses. Disruption to operations from drought or flooding, declining water quality that required costly onsite pre-treatment, fines and litigation relating to pollution incidents, and increases in water prices are some of the challenges facing business, to name but a few. This issue has been a concern in Malaysia for the past few years. The cases of water rationing and unscheduled interruptions in the last few years had adversely affected business operations leading to losses of millions of ringgit and shaken investors' confidence to do business in Malaysia (Lim, 2017). Collaborative efforts from both government and businesses are necessary to tackle this problem in a more effective manner.

Globally, businesses respond to challenges imposed by water crisis in many ways. These include, but not limited to, commitment towards Sustainable Development Goals; participation in the Carbon Disclosure Project (CDP) Water programme; and working with World Business Council for Sustainable Development (WBCSD), Ceres and others in publishing a framework for water risk management called Ceres Aqua Gauge. A key to this initiative is corporate reporting; hence, stakeholders have been demanding increased disclosure from companies on water-related information.

## **2. Problem Statement**

Despite the various efforts being implemented at the national level and the possible significant impact water crisis issues have on business sustainability, the extent to which Malaysian companies respond to them has not been extensively investigated. To the best of the researchers' knowledge, Mohd. Remali, Mohd. Ali, Mat Husin, and Alrazi (2016) have conducted the only research in Malaysia. However, the research included 10 companies, analysed annual reports, and examined the reporting practice on a cross sectional basis. Hence, the findings were not representative and comprehensive. An examination of disclosure practices using a longitudinal approach would reveal possible variations in disclosure practices not evident in a cross-sectional study (Murthy & Abeysekera 2008). It may also reveal the factors which influence changes in reporting practices over time (Nik Ahmad, Sulaiman, & Siswantaro, 2003). Furthermore, focusing on one type of corporate communication medium does not reflect the complete picture of the company disclosure (Unerman, 2000).

Other than this research, there are also research by Ceres (2010, 2012) which examined water reporting among US companies and by CDP (2010, 2016) which covers the reporting practice of world's largest companies. However, for CDP (2010, 2016), the assessment was solely based on the CDP survey and the number of Malaysian companies included in each survey was negligible. Due to the dearth of literature in corporate water reporting and weaknesses therein, there is a need for more empirical research.

## **3. Research Questions**

In the light of issues raised above, it is interesting to ask: what is the trend of water reporting among public listed companies in Malaysia?

## **4. Purpose of the Study**

The main objective of this research is to examine the trend in water reporting among public listed companies in Malaysia. Specifically, using a self-developed disclosure index focusing on reporting on water information, it examines the annual reports and sustainability reports of the companies for the years 2014-2016.

## **5. Research Methods**

### **5.1. Literature review and hypotheses development.**

#### **5.1.1. Literature review.**

The extant literature on environmental reporting shows an increase over the years (Hahn and Kühnen, 2013) and water-related information is one of its sub-sets. For companies, issues of interest to the public include water withdrawal, discharges, and recycling (GRI, 2016). There are also various reporting guidelines available for companies to ensure more consistent, comparable and comprehensive reports such as the GRI's sustainability reporting guidelines, CDP survey, CEO Water Mandates' Corporate Water Disclosure Guidelines, and Ceres' Aqua Gauge™ toolkit.

At present, the literature on how companies responding to water-related issues through corporate reporting has received scant attention. Even though there are few studies conducted to investigate this issue, they suffer from limited sample, reporting media, and/or time horizon. The work by Mohd. Remali et al.

(2016) is the only research done in Malaysia. They found a low level of water reporting among 10 Malaysian public listed companies selected based on their market capitalisation and water risk profile. Annual reports were chosen as the document of analysis.

There are also studies conducted on US companies. Ceres (2012) examined the corporate water risk disclosure in SEC filings of 82 US companies. Even though the overall disclosure increased since year 2009, much reporting remains weak and inconsistent particularly those involving quantitative data such as overall water use, financial exposure, and supply chain risks. Ceres (2010) examined various reporting media including sustainability or CSR reports, company websites, and 10-K filings of 100 US companies from eight water-intensive industries in year 2009 and found that disclosure of risk and corporate water performance was weak.

CDP since year 2010 has conducted a survey among the world's largest companies and made the results available on its website (CDP, 2010, 2016). In 2016, there were 1,252 companies approached with 607 companies responded (48%, an increase from 38% in year 2015). The survey, which aimed at eight industries including utilities, asked the companies to provide information on, among others, water consumption, water discharges, business impacts, risk and opportunities assessment, governance and strategy, and compliance. However, the assessment is based on the CDP survey, hence ignores the possibility that companies might use other media for information disclosure. According to Unerman (2000), focusing on a single medium failed to address that companies use other media hence the disclosure assessment does not give a comprehensive picture of the state of corporate disclosure.

Based on the above review of the literature, it can be concluded that there is a dearth of literature examining how companies in Malaysia report on their impact on water. This situation warrants another empirical study to be conducted.

### **5.1.2. Hypotheses development.**

In Malaysia, effective 1 January 2007, all public listed companies are required to report on any corporate social responsibility (CSR) activities and performance which could also include water-related matters. However, there is no clear description as to how the reporting should be done. In October 2015, Bursa Malaysia has published Sustainable Reporting Guide for public listed companies in Malaysia. The Guide, largely driven by the recommendations in GRI Sustainability Reporting Guidelines, provides more elaborative examples of information to be reported. The Guide also requires public listed companies with market capitalisation of RM2 billion or above to report on sustainability information in their annual reports with effect from financial years ending on or after 31 December 2016. Other listed companies will follow suit effective 31 December 2017 (Bursa Malaysia, 2015).

Most of the literature in social and environmental reporting have used legitimacy theory to explain the trend in reporting practice (see, for example, Abdul Hamid & Atan, 2011; Ahmed Haji & Mohd. Ghazali, 2013; Campbell, 2004). Legitimacy theory is derived from the concept of organisational legitimacy (O'Donovan, 2002). Companies are seen as 'legitimate' when their "actions...are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). A legitimacy gap can arise as a result of changing organisational performance, changing societal expectations, or a combination of both (Deegan, 2006). Examples of event that might

lead to legitimacy gap include involvement in environmental disasters (Patten, 1992), being prosecuted for environmental offences (Deegan & Rankin, 1996), and evidence of poor environmental performance (De Villiers & Van Staden, 2011). Even without a change in organisational performance, societal expectations could still change as a result of increased awareness of the impacts of corporate activities on the environment and the introduction of new legislation (Walden and Schwartz, 1997). Companies use disclosures to highlight actions taken to bring its performance up to societal expectations or justify any shortfall. According to Lindblom (1993), companies will provide disclosures either to inform the public of the changes undertaken to enhance their environmental performance, to change public perceptions or expectations of the organisation's performance, or to deflect attention away from the issue so as to maintain legitimacy.

Another theory that could be used to explain the trend of reporting practice is social issue life cycle theory. According to this theory, an issue evolves through three to four predictable stages (Mahon & Waddock 1992; Zyglidopoulos 2003). Generally, an issue progresses (i) from a period of insignificance or unthinkable, (ii) to a period of heightened awareness and expectations for action, and (iii) eventually to a period where new standards and operating procedures to deal with an issue become institutionalised (such as the introduction of new regulation). However, issue evolution may be affected by factors such as sudden intervention of government or other influential stakeholders or the emergence of other issues that require immediate attention and shift attention away from the existing issue (Bigelow, Fahey, & Mahon 1993; Nasi, Nasi, Phillips, & Zyglidopoulos 1997). Therefore, we can expect that an issue does not evolve according to the "normal" path as argued earlier. For example, Alrazi et al. (2009) examined the environmental reporting practice of public listed companies in Malaysia for the years 1999, 2003, and 2006. They found that reporting increased significantly over the period. However, both the quantity and quality of reporting declined in year 2006 largely due to the shift of focus by three companies involved in a merger and the possibility of companies reducing the amount of disclosure to avoid themselves from being closely monitored by the regulators.

Therefore, based on the arguments of legitimacy theory and social issue life cycle theory, the following hypothesis is developed:

H<sub>1</sub>: There is a significant increase in the level and extent of corporate water reporting during the period.

## **5.2. Population and sample selection.**

All companies listed in the Main Market of Bursa Malaysia make up the population of this research. As of 31 July 2017, there were 806 companies. However, since this is a longitudinal research, some companies were dropped due to the following reasons: change of accounting period (38 companies), change of name (32), incomplete set of annual reports (23), and new listing (5). The process leaves the final sample of 708 companies. In terms of industry classification, industrial product sector has the largest number of representatives with 193 (27%), followed by trading and services (163; 23%), consumer products (106; 15%), and properties (87; 12%). The remaining 23% consist of companies from construction (6%), plantation (5%), finance and technology (4% each), REITS (2%), infrastructure project companies (1%), and hotel, closed end fund, and mining (<1% each).

### 5.3. Data collection methods.

Data were collected using content analysis. According to Krippendorff (2004, p. 18), content analysis is “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use.” This is facilitated by the development of a disclosure index to measure the extent of water reporting. Two important issues to consider are the identification of the items to be included and the scoring of those items (Coy & Dixon, 2004). In terms of disclosure items, this research referred to G4 GRI Sustainability Reporting Guidelines since it has been the widely recognised reporting framework on sustainability performance (KPMG, 2017) and considered in many previous research utilising a disclosure index (see, for example, Alrazi, De Villiers, & Van Staden, 2016; Prado-Lorenzo, Rodríguez-Dominguez, Gallego-Álvarez, & García-Sánchez, 2009; Clarkson, Richardson, & Vasvari, 2008). The index consists of 11 items and presented in Table 01. Each item was scored on an unweighted dichotomous basis, in which the item was assigned 1 (one) if disclosed, and 0 (zero) if otherwise. This was taken to minimise the element of subjectivity in assigning scores (Cooke, 1989). Furthermore, previous studies found a negligible level of statistical difference in the findings produced by weighted and polychotomous approach as compared to unweighted and dichotomous approach (see, for example, Coy and Dixon, 2004; Chow and Wong-Boren, 1987). Corporate water reporting in this research is measured in two forms. The first, *LEVEL*, is measured based on the existence of water-related information in the reports i.e. if any of the item in Table 01 was observed, *LEVEL* = 1, otherwise 0. The second, *EXTENT*, is measured based on the aggregate score of all items in Table 01 with the possible total maximum score of 11.

**Table 01.** Disclosure index

No	Disclosure Items	Map to GRI	Score
1	Strategic positioning [ <i>STR</i> ]	G4-1, -2	0-1
2	Commitment to external initiatives [ <i>COM</i> ]	G4-14, -15, -16	0-1
3	Stakeholder engagement [ <i>ENG</i> ]	G4-24, -25, -26, -27	0-1
4	Governance and risks [ <i>GOV</i> ]	G4-34, -35, -36, -37, -38, -40, -42, -43, -44, -45, -46, -47, -48, -51; G4-EN29	0-1
5	General policy statement, commitment, or concern [ <i>POL</i> ]	DMA	0-1
6	Specific initiatives for mitigation [ <i>INI</i> ]	DMA	0-1
7	Total water withdrawal [ <i>WIT</i> ]	G4-EN8	0-1
8	Water recycled and reused [ <i>REC</i> ]	G4-EN10	0-1
9	Water discharges and spills [ <i>DIS</i> ]	G4-EN22, -EN24	0-1
10	Water sources significantly affected by withdrawal/discharge of water [ <i>SOU</i> ]	G4-EN9, -EN26	0-1
11	Awards, dollar savings, or monetary benefits [ <i>AWA</i> ]	G4-EC4	0-1
Total			11

Annual reports and sustainability reports published for the financial years 2014, 2015, and 2016 were analysed. The year 2016 represented the most recent data available at the commencement of the research, while water crises has been named as the top 10 global risks in year 2014. Therefore, the selection of this period is deemed appropriate as it allows for any trend in reporting to be observed. The reports were downloaded from the Bursa Malaysia’s website and/or companies’ website.

## 6. Findings

Table 02 below depicts the findings of the study. To recap, *LEVEL* is measured based on existence of any water-related information in the corporate reports, while *EXTENT* is the aggregate score of all items using a dichotomous basis (1=disclosed; 0=not disclosed). The number in parentheses under the *LEVEL* column represents the percentage of reporting companies out of the total companies in each industry (e.g., for industrial product companies, 52/193 = 26.94%). Additionally, for the *EXTENT* column, they represent the mean scores by dividing the total aggregate scores obtained with total companies in each industry (e.g., for industrial product companies, 75/193 = 0.39).

Based on the table, it is found that there has been an increasing trend of water reporting among the public listed companies both in terms of *LEVEL* and *EXTENT*. Overall, the number of reporting companies (*LEVEL*) had increased from 199 in year 2014 (28%) to 216 in year 2015 (31%) and 265 in year 2016 (37%). This shows that only about one-third of the public listed companies in Malaysia had incorporated water-related information in their annual reports and/or sustainability reports. The result from Cochran's Q test shows that the distribution of the number of reporting companies is different across the years (i.e. 2014-2015-2016) with *p*-value of 0.00. A consistent result is also observed when using McNemar test to examine the difference between 2014-2015 (*p*=0.044), 2015-2016 (*p*=0.000), and 2014-2016 (*p*=0.000).

Likewise, the *EXTENT* of reporting increased from a mean of 0.51 in year 2014 to 0.58 in year 2015 and 0.83 in year 2016. Although it shows an increasing trend, the fact that the possible maximum score is 11, the reporting is considered low. There was only one company with a score of 10 for every year, while a large proportion of the reporting companies disclosed only one or two items (not tabulated here). More often, they were related to disclosure of policy and/or initiatives to mitigate water-related issues. The reporting of performance-related information (i.e. items 7-11) or quantitative data is very limited. Despite that, the result from Friedman's Two-Way Analysis of Variance by Ranks test shows that the *EXTENT* of reporting is different across the years (i.e. 2014-2015-2016) with *p*-value of 0.00. Using Wilcoxon Signed Rank test on the difference between 2014-2015 (*p*=0.003), 2015-2016 (*p*=0.000), and 2014-2016 (*p*=0.000) also reveals a consistent result.

**Table 02.** The level and extent of corporate water reporting by industry

No	Industry	n	Level			Extent		
			2014	2015	2016	2014	2015	2016
1	Industrial Products	193	52 (26.94)	51 (26.42)	62 (32.12)	75 (0.39)	83 (0.43)	105 (0.54)
2	Trading & Services	163	37 (22.70)	47 (28.83)	61 (37.42)	83 (0.51)	111 (0.68)	164 (1.01)
3	Consumer Products	106	37 (34.91)	39 (36.79)	43 (40.57)	64 (0.60)	67 (0.63)	103 (0.97)
4	Properties	87	17 (19.54)	24 (27.59)	31 (35.63)	23 (0.26)	37 (0.43)	50 (0.57)
5	Construction	40	11 (27.50)	10 (25.00)	14 (35.00)	20 (0.50)	16 (0.40)	30 (0.75)
6	Plantation	38	22 (57.89)	23 (60.53)	26 (68.42)	49 (1.29)	48 (1.26)	67 (1.76)
7	Finance	30	10 (33.33)	11 (36.67)	15 (50.00)	18 (0.60)	21 (0.70)	33 (1.10)
	Technology	28	6	7	6	11	13	12

8			(21.43)	(25.00)	(21.43)	(0.39)	(0.46)	(0.43)
9	REITS	14	4 (28.57)	2 (14.29)	4 (28.57)	8 (0.57)	8 (0.57)	16 (1.14)
10	Infrastructure Project Companies	4	2 (50.00)	1 (25.00)	2 (25.00)	6 (1.50)	2 (0.50)	2 (0.50)
11	Hotel	3	1 (0.33)	1 (0.33)	1 (0.33)	2 (0.67)	2 (0.67)	4 (1.33)
12	Closed-end Fund	1	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
13	Mining	1	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
		708	199 (28.11)	216 (30.51)	265 (37.43)	359 (0.51)	408 (0.58)	586 (0.83)

Legitimacy theory argues that companies tend to use corporate disclosure to demonstrate that they are operating in harmony with societal expectations. With the various initiatives implemented by the government and the escalating concern over the impact of water rationing on the lives of many, companies are expected to be taking initiatives to mitigate this issue. Increasing trend in the level and extent of reporting as shown in Table 02 provides evidence that being conscious on water conservation and pollution is the norm in the current society and companies responding to this expectation by taking actions and report them to the public. The finding is consistent with Abdul Hamid and Atan (2011), Ahmed Haji and Mohd. Ghazali (2013), and Campbell (2004).

A social issue moves from a period of insignificance until it becomes regulated; however, the attention being paid to it could be influenced by other issues demanding more immediate attention. In this context, the focus on water issues would receive less priority. Although the overall trend of level and extent of water reporting among public listed companies in Malaysia for the period 2014-2016 was increasing, analysis of the reporting practice by industry reveals additional insights. In essence, it does not show a constant increasing trend for certain industries such as construction, technology, and infrastructure project companies for both level and extent of reporting. In fact, no water information was observed in the reports by closed-end fund and mining companies. A possible explanation could be that during 2015, there were other issues requiring greater attention by the companies concerned. Additionally, water-related issue might not be relevant to closed-end fund industry, while mining industry is more associated with a concern over safety and biodiversity issues. This scenario provides support to the arguments of social issue life cycle theory and is consistent with the findings by Nasi et al. (1997), Eweje (2005, 2006a, 2006b), and Alrazi Sulaiman, & Nik Ahmad (2009).

## 7. Conclusion

This research aims to examine the trend of water reporting among public listed companies in Malaysia. To this end, it has developed a disclosure index and content analysed annual reports and sustainability reports of 708 companies over the 2014-2016 period. Overall, it is found that there is an increasing trend even though both level and extent of reporting is still low. About one-third of the companies made a reference to water-related issues in their reports. The report, if any, focused on descriptive policy and discussion about initiatives to mitigate water issues and lacked of performance data

such as consumption, recycling rate, discharges, and benefits. The findings have been interpreted using legitimacy theory and social issue life cycle theory.

The research contributes to the dearth of literature emphasising on corporate water reporting. It also developed a disclosure index, included comprehensive sampling, and provided analysis on a longitudinal basis. The results provide important insights to companies towards improving the current practice of reporting. As Malaysia is implementing mandatory requirement for sustainability reporting, such a low finding of reporting practice may indicate the level of readiness among companies on this matter. While the guideline is already available, the preparers need to be made aware and educated by the relevant authority i.e. Bursa Malaysia.

The findings need to be interpreted with caution. First, the disclosure index is measured on a dichotomous basis. As such, it does not consider the width and breadth of information reported by companies. The use of scales or polychotomous system may provide a better view of reporting. Second, this research is descriptive in nature and no attempt was made to link the reporting practice with any factors such as corporate characteristics, general contextual factors, and internal context (see Adams, 2002). Researching into these factors can provide more in-depth insights into the possible reasons for reporting.

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