THE QUALITY OF ENVIRONMENTAL DISCLOSURE IN VARIOUS REPORTING MEDIA OF OIL AND GAS COMPANIES IN DEVELOPING COUNTRIES

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Abstract

Corporate environmental reporting (CER) plays important role due to the increase in public awareness of environmental issues. Hence, to be beneficial, corporate managers should not merely display CER information but rather emphasize on the quality of information disclosed. The quality of CER can be seen as a key value for companies and many benefits could be provided if companies released high quality environmental information. Prior environmental disclosure literature has not focused much on disclosure quality; instead, it concentrated on the quantity of disclosure. In addition, most of the few studies that focused on quality of environmental disclosure have revealed low level of quality of such disclosure. Therefore, this study aims to investigate the quality of environmental disclosure in different reporting mediums by oil and gas companies in developing countries. Using content analysis, an index and scoring scheme were applied to the annual reports, stand-alone reports and corporate homepages of a sample of 116 oil and gas companies in 19 developing countries. The results of this study reveal that the quality of the environmental disclosure of the sample companies is relatively high compared to previous studies. This study has important implications in enhancing the understanding of environmental disclosure practices of oil and gas companies in developing countries.

Keywords: Environmental Disclosure Quality, Reporting Media, Oil and Gas Companies, Developing Countries

1. INTRODUCTION

Environmental issues have increasingly drawn the attention of the world at different levels, and corporate social and environmental responsibility has become a major contemporary focus of business, government and community attention globally (Parker, 2014). As a result, interest in corporate disclosure of environmental information has grown in recent years (Rupley, Brown and Marshall, 2012). However, attention on the environmental disclosure (ED) has been confined to the companies of developed countries, while the developing countries suffer from environmental disclosure practices in corporations (Eljayash et al., 2012; Kaur, 2015).

Among the largest consumers of natural and social resources, business organizations have come under increased pressure to justify the nature and scale of their consumption. Specifically, business organizations, particularly industrial communities, are considered more and more as responsible for their impacts to the environment and society (Brammer & Pavelin, 2006). The oil and gas industry is among the industries with the greatest impacts on the environment. According to the International Energy Agency (IEA, 2015), energy-related carbon dioxide (CO_2) emissions are the majority of global greenhouse gas (GHG) emissions, while, oil and gas are the largest source of fuel combustion emissions and responsible for approximately 53% of global energy-related CO_2 emissions in 2013. It is well recognized that environmental effects of the petroleum operations on the natural environment are very high (Mughal, 2014). In addition to the environmental effects that result from normal operations of oil and gas activities, the effects may be the results of occasional events such as, oil spill and explosion. During the last four decades, the oil and gas industry has witnessed several critical environmental incidents, for example; Exxon Valdez oil spill of Alaska in 1989, and Gulf of Mexico oil spill of 2010. The occurrences of environmental incidents as a result of activities of oil companies have contributed to the increase of environmental awareness and put the oil and gas industry under societal pressure to reduce its impacts on the environment (Eljayash et al., 2012; Frynas, 2009; Islam and Islam, 2011). However, the increase of environmental awareness has largely influenced businesses to engage in environmental management and practice including environmental reporting

(Yusoff and Othman, 2013).

A large volume of the world`s proven recoverable reserves of crude oil and natural gas liquids is held by the DCs, and most of production is also produced by them. At the end of 2013, the DCs held 82% of the world`s proven recoverable reserves of oil and natural gas liquids and accounted for 67% of world's production of oil and natural gas liquids (Eni`s World Oil and Gas Review, 2014). Considering this significant amount of reserves and production of oil and gas coupled with the environmentally sensitive nature of this industry, makes the DCs highly exposed to environmental impacts. In addition, it was recognized that, in the era of globalization, the worldwide presence of multinational companies and highly publicized environmental incidents in developing countries, issues of corporate social responsibility (CSR) and its publications seem to be more significant in developing nations (United Nations Research Institute for Social Development [UNRISD], 2000). However, it was recognized that the adverse effects of the oil and gas companies are greater in the developing countries (Abdalla and Siti-Nabiha, 2015). It is also recognized that the success of operations of multinational companies (MNCs) in host countries can be greatly impacted by their level of local acceptability, and occurrence of major oil disasters raise a question as to how international companies can effectively manage local expectations and the associated problems of oil production in order to gain local acceptability (Fragouli and Danyi, 2015). Companies use environmental disclosure as a mechanism to manage society expectations toward corporate operations and increase reputations (Haji, 2013; Perez, 2015; Yin, 2012). All these make reporting on environmental aspects of oil and gas companies very important from the governments` and preparers' (companies) point of views.

However, the literature points out that the majority of previous studies concerned with social and environmental reporting have been conducted in the developed world, but comparatively limited studies have been undertaken in the developing countries (Eljayash, Kavanagh and Kong, 2013; Joseph, Pilcher and Taplin, 2014; Kansal, Joshi and Batra, 2014; Kaur, 2015; Lu and Abeysekera, 2014; Mughal, 2014; Yusoff and Othman, 2013). In practice, social and environmental disclosure has matured in some developed countries; however, in some developing nations, it is still a relatively new practice (Kaur, 2015; Lu and Abeysekera, 2014; Mughal, 2014). In particular context of a developing country, Djajadikerta and Trireksani (2012) indicated that the practice of corporate social and environmental disclosure (CSED) in Indonesia is still at an early stage, and most of the companies still have a lack of understanding about CSED. Ahmad and Hossain (2015) concluded that disclosure of climate change and global warming in the annual reports of Malaysian companies is still at its introductory stage. In addition, it was noted that findings of studies that focused on the developed countries cannot be generalized to less developed countries as differences in culture and nationality are expected to influence the accounting and environmental practices (Matthew, 1993; Perera & Matthews, 1990).

It is noted that even though awareness of the sustainability and social responsibility issues has grown, sustainability and social responsibility reporting has long been voluntary and it has not been regulated by legislations, as a result, many of the companies still do not disclose on such issues (Carrots and Sticks, 2013; Vuorela, 2014). Specifically, environmental disclosure worldwide is generally unregulated and voluntary in nature, (De Villiers and Van Staden, 2012; Michelon, Pilonato and Ricceri, 2015; Sen, Mukherjee and Pattanayak, 2011). As environmental disclosure is primarily voluntary, companies are free to choose what and how to disclose (Ahmed & Sulaiman, 2004; Peiyuan, 2005). This causes quality problems such as consistency and comparability, both over time and between companies (De Villiers and Van Staden, 2012).

Even though in some countries companies are mandated to disclose information on their CSR aspects, the mandatory requirements of such disclosures do not detail specific information to be disclosed by companies. Instead, companies are given the flexibility to provide information relating to their CSR activities (Haji, 2013). Thus, the lack of specific, formal national and international regulations seems to allow companies much flexibility in how they carry out their social and environmental reporting activities and allow them to use guidelines in a biased manner (Haji, 2013; Michelon et al., 2015). As a result, there is a lack of completeness in environmental disclosure (Michelon et al., 2015), and environmental disclosure varies substantially in terms of content, information, graphic information and length (Said, Omar and Abdullah, 2013).

It was argued that measuring the quality of disclosure is important, and that investigating only the volume of disclosure can be misleading (Hassan, 2010; Hooks and van Staden, 2011), as evaluating the quality of disclosures adds a further dimension to the assessment of environmental reporting (Hooks and van Staden, 2011). Despite this, majority of previous studies concerned with environmental disclosure concentrated only on the quantity of disclosure but scant attention has been given to the quality of such disclosure (Aburaya, 2012; Ahmad and Haraf, 2013; Chatterjee and Mir, 2008; Cuesta and Valor, 2013; Eltaib, 2012; Hassan , 2010; Haji, 2013; Michelon et al., 2015; Rupley et al., 2012; Sulaiman et al., 2014).

From literature review, it is noted that, with the exception of a few studies (e.g. Aburaya, 2012; Ahmad and Haraf, 2013; Ane, 2012; Belal, 2000; Brammer & Pavelin, 2006, 2008; Comyns and Figge, 2015; Cormier, Magnan & Van Velthoven, 2005; Cuesta and Valor, 2013; Darus, Hamzah and Yusoffa, 2013; Dong, Fu, Gao and Ni, 2015; Eakpisankit, 2012; Eljayash, 2015; Eljayash et al., 2012; Haji, 2013; Hassan, 2010; Harun, Abdul Rashid and Alrazi, 2013; Hooks & Van Staden, 2011; Lu et al., 2015; Michelon et al., 2015; Oba and Fodio, 2012a; Rupley et al., 2012; Sulaiman et al., 2014; Wiseman, 1982), who focus on disclosure quality, the social and environmental disclosure in previous studies were not able to capture the quality of the disclosure.

In addition, prior studies on social and environmental disclosure quality suffer from methodological limitations as most of these studies used disclosure quantity measures to assess the

quality of disclosure. It was argued that the disclosure instruments used in previous social and environmental disclosure studies have been built primarily on a checklist of items that capture the amount and variety of disclosure. This approach was criticized as it does not sufficiently determine the quality of information (Michelon et al., 2015). According to Eakpisankit (2012) in spite of some previous studies that have claimed to measure the quality of disclosures, in reality they have merely focused on content rather than identifying concrete qualitative concepts.

Aburaya (2012) stated that, the assessment of environmental disclosures quality remains a rather controversial issue. Sulaiman et al. (2014) stressed that the quality of environmental information reported should be considered. However, until now, researchers still opined that there is a scarce of literature regarding social and environmental disclosure quality (Michelon et al., 2015). Thus this study contributes to fill this gap in literature by devising a conceptual framework of environmental disclosure quality that is dependent upon the quality of environmental disclosure rather than its amount or extent.

In terms of industry, the oil and gas industry is among the industries with the greatest impacts on the environment (IEA, 2015). The overall environmental effects on the petroleum operations on the natural environment are very high, as the operations of this industry cause air pollutions and responsible for the waste they emit in the sea which is very disastrous for the life under sea (Mughal, 2014). The oil and gas industry is considered a main source of environmental problems, as its operations involve many potential negative environmental effects (Ariweriokuma, 2009; Frynas, 2009). The occurrences of environmental incidents as a result of activities of companies, including oil companies, have contributed to the increase of environmental awareness in many countries over the world (Eljayash et al., 2012; Hossain et al., 2006; Frynas, 2009; Sustainability & UNPE, 1999).

There are a few studies that examined environmental disclosure in oil and gas industry (cf. Alciatore and Dee, 2006; Al-Drugi and Abdo, 2012; Barr, 2007; Bose, 2006; Dibia and Onwuchekwa, 2015; Eljayash et al., 2012; Eljayash et al., 2013; Guenther, Hoppe and Poser, 2007; Heflin and Wallace, 2014; Oba and Fodio, 2012b; Patten, 1992; Summerhays and De Villiers, 2012; Sustainability Ltd. & UNEP, 1999). It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). However, the adverse effects of oil and gas companies are greater in the developing countries (Abdalla and Siti-Nabiha, 2015). All these motivate to conduct a study focusing on environmental disclosure of oil and gas industry in developing world.

Moreover, with the exception of Oba and Fodio (2012a) and Eljayash et al. (2012), no studies have analyzed the quality of environmental disclosure in oil and gas industry. However, these two studies are suffering from some limitations, such as limiting themselves to annual reports and the samples are small. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Hence, this study intends to fill this knowledge gap by examining the quality of environmental disclosure made by oil and gas companies in developing countries

The current study attempts to fill the gaps in the literature by examining corporate environmental disclosure quality (rather than its quantity), concentrating on environmental disclosure made in the three main mediums of reporting (namely, annual reports, stand-alone reports and corporate homepages). Precisely, this study aims to determine the level of environmental disclosure quality of oil and gas companies in developing countries.

Prior environmental disclosure literature has little focused on disclosure quality; instead, it concentrated on the quantity of disclosure. The current study seeks to fill the gap in the literature by considering the issue of environmental disclosure quality (rather than quantity). Assessing the quality of the environmental reporting enables an identification of the strengths and weaknesses in current reporting practice and advances our understanding. In addition, contrary to the most available literature that only focuses on sole medium of environmental disclosure (mostly annual report), the current study contributes to the literature by covering most common vehicles of environmental disclosure, particularly, annual reports, stand-alone reports and corporate homepages. This study also fills the void in prior environmental disclosure literature regarding whether various reporting mediums vary regarding their disclosure quality.

The present study also contributes to the environmental disclosure literature by centering on the ED practices of specific sector (i.e. the oil and gas industry) in the DCs. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Thus, this study contributes to environmental disclosure literature as it provides insight into the environmental disclosure practices of oil and gas companies within developing countries, where there are limited published studies.

The rest of the paper is structured as follows; section 2 provides the literature review. Section 3 explains the research methodology. Section 4 presents the results from empirical analyses and discussion. Section 5 presents the concluding remarks, implications of the study while section 6 explains the limitations of the study and provides suggestions for further research.

2. LITERATURE REVIEW

Consistent with the increase in public concern of environmental issues, environmental accounting (EA) practice has become an attractive area of research and received attention from many researchers worldwide (Eltaib, 2012). Disclosing information relating to environmental aspects is considered as one of significant issues in relation to environmental accounting (Eltaib, 2012). The current study attempts to investigate the issues of quality of environmental disclosure in various reporting mediums of environmental information.

According to Islam et al. (2005) environmental

disclosure is "an umbrella term that describes the various means by which companies disclose information on their environmental activities". Lodhia (2006) has defined the Corporate Environmental Reporting (CER) as "a process through which "companies often disclose environmental information to their stakeholders to provide evidence that they are accountable for their activities and the resultant impact on the environment". Environmental disclosure is also defined by Kuo and Chen (2013) as "a set of information items that relate to a firm's past, current, and future environmental management activities and performance" (p. 1467), and by Yusoff and Othman (2013) as "any written passage about company's environmental issue and activity" (p. 1720). For the purpose of this study, environmental disclosure is defined as a process of communicating the information on environmental issues through various reporting mediums including; annual report, separate stand-alone environmental-related reports (i.e. environmental report, social responsibility report, sustainability report), and corporate homepage of Internet.

Firms use social and environmental disclosures to improve their image in the eyes of different stakeholder groups and public in general and in turn gain their legitimacy for existence (Hossain, Al Bir, Tarique and Momen, 2016; Khlif, Guidara and Souissi, 2015; Kuo and Chen, 2013; Noodezh and Moghimi, 2015; Suchman, 1995). Several earlier studies revealed that firms, especially those operating in environmentally sensitive industries, disclose social and environmental information to promote/ enhance their images and reputations and in turn for the legitimization of their societal existence (e.g. Deegan and Gordon, 1996; Deegan and Rankin, 1996; Deegan, Rankin, & Tobin 2002; Khlif et al., 2015; Kuo and Chen, 2013; Neu et al., 1998; Patten, 1992; Yusoff and Lehman, 2009). Thus, social and environmental disclosure is considered a tool which could help companies to influence society`s perceptions toward corporate operations (Haji, 2013).

As mentioned previously, the public concern of environmental issues has increased, and as a result environmental accounting practice has received attention from the scholars in the area of accounting research, and much of this research was dominated by studies focused on environmental disclosure (Eltaib, 2012). The majority of prior environmental disclosure studies have focused on the quantity of disclosure but scant attention has given to disclosure quality (Aburaya, 2012; Ahmad and Haraf, 2013; Cuesta and Valor, 2013).

Disclosure quality measure enables to evaluate meaning and importance of disclosure, rather than just the volume (Walden and Schwartz, 1997). Reporting quality can have a significant influence on the quality of the decisions made by stakeholders (Brink et al., 1997). Hasseldine et al. (2005) suggested that environmental disclosure quality as opposed to just quantity has a significant impact on the development of environmental reputation among stakeholder groups of investors and executives.

It was argued that quality reporting does not entail only volume but it should also allow stakeholders to carry out informed decisions that are significant to their intentions (Brink et al., 1997). A primary issue in the context of reporters is the report content; in other words, what makes a really significant issue in the user's viewpoint (Barr, 2007). So, reporting quality should be considered because the failure to encapsulate the content of the environmental information constitutes a failure to cover the issue, its importance and the communicated meanings (Silva, 2008). The quality of the environmental disclosure can be seen as a key value for companies, and many benefits could be provided if the company released high quality environmental information (Rattanaphaphtham and Kunsrison, 2011). It is recognized that the quality of environmental reporting (as compared to its quantity) is important (Sulaiman et al., 2014).

However, prior research revealed that companies disclose a limited amount and poor quality of social and environmental information. For example, Harte and Owen (1991) examined the level of environmental disclosure made by 30 UK companies in their annual reports. The study indicated that, although, the level of environmental disclosure increased during the period, it was not in detail. Choi (1999) examined environmental disclosure in semi-annual reports for 64 Korean companies. The results revealed that the level of environmental disclosure is low.

During the 2000s decade, many studies relating to social and environmental disclosure were conducted, and most of them have indicated a low level of quantity and/or quality of social and environmental disclosure. For example, Imam (2000) examined social disclosure of Bangladeshi listed companies. The study revealed that the social disclosure level was very poor and inadequate. Belal (2000) investigated the environmental reporting in Bangladesh. The study revealed that the quantity and the quality of environmental reporting is an inadequate and poor. Belal (2001) investigated the social responsibility disclosure in Bangladesh. He concluded that the level of social and disclosure of Bangladeshi companies is very low and descriptive in nature. Similarly, Belal (2008) revealed that Bangladeshi companies are disclosing social and environmental information only on a limited scale. Elijido-Ten (2004) concluded that the majority of environmental disclosures are still confined to the provision of general or vague descriptions.

Kamla (2007) examined the volume, quality and nature of social reporting practices in the annual reports of 68 companies from nine Arab Middle East countries, namely, Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Syria, and United Arab Emirates (UAE). The study revealed that only 10 companies, 15% of the sample, provided some form of environmental information. In addition, most disclosed information related to employee issues, while, the level of disclosure in relation to the environmental dimension the lowest.

Rizk et al. (2008) examined the extent of social and environmental reporting made by Egyptian manufacturing companies in their annual reports. The study indicated that the extent of CSR reporting is low and descriptive in nature. Silva (2008) examined voluntary environmental reporting in the annual reports of New Zealand and Australian publicly listed companies. The study revealed that the level of voluntary environmental reporting in the annual reports of New Zealand and Australian

publicly listed companies is low and demonstrates poor content-quality. Said et al. (2009) examined extent of corporate social responsibility disclosure of Malaysian public listed companies. The results indicated that the level of corporate social responsibility disclosure in Malaysian companies is generally low.

A study of Abd Rahman et al. (2011) was conducted to assess the level of corporate social responsibility disclosure of a sample of government-linked companies listed on Bursa Malaysia for the period 2005-2006. They found that the amount of CSR disclosure by Malaysian government link companies to be limited but growing. Liua, Liu, McConkey and Li (2011) investigated environmental disclosure in annual reports and stand-alone environmental and social responsibility reports of steel companies listed in Shanghai Stock Exchange. The study shows significant differences in the form of environmental disclosure, as well as great differences in terms of content and intensity. Djajadikerta and Trireksani (2012) measured the extent of CSED made by Indonesian listed companies on their corporate web sites. They found that the extent of CSED is low and the nature of disclosure is mostly descriptive.

Cuesta and Valor (2013) investigated the quality of environmental, social and governance reporting of Spanish listed companies. They indicated that the sampled companies failed to provide complete information on environmental performance (37%). Harun et al. (2013) examined the quality of sustainability disclosure by 15 commercial banks in Malaysia, and they concluded that the disclosure quality is considered low. Similarly, Darus et al. (2013) revealed that the quality of CSR information disclosed by Malaysian companies on their websites proved to be generally low.

Employing a case study method and using qualitative data, Momin and Parker (2013) investigated social and environmental information disclosed in the annual reports of MNC subsidiaries in Bangladesh. The study concluded that CSRR practice in Bangladeshi MNC subsidiaries is limited. Said et al. (2013) examined the level of environmental disclosure of Malaysian companies. The study revealed that the level of environmental disclosure in Malaysian public listed companies is low.

Ahmad and Haraf (2013) examined the extent, quality, nature and trends of environmental disclosures of Malaysian property development companies. They concluded that companies do not appear to respond to the increased public concern due to recent landslide incidents by increasing the extent or quality of environmental disclosures in their annual reports. Both extent and quality of environmental disclosures are very low and most companies provide mostly soft disclosures. The findings also revealed that companies are not consistent in the extent, nature or quality of environmental disclosures made over time.

Yusoff and Othman (2013) investigated the state of environmental reporting by Malaysian and Australian companies on different mediums. The study revealed that environmental reporting in stand-alone reports (environmental reports, social and sustainability reports), corporate websites, and corporate newsletters is predominantly general and qualitative in nature. Bowrin (2013) examined the extent to which publicly-listed Caribbean companies provide social and environmental disclosures and the factors related to their disclosure practices. The study revealed that the level of social and environmental disclosure in the Caribbean was relatively low.

Chang (2013) examined the environmental disclosure of listed eclectic companies in China made in their social responsibility reports. The findings indicated that the extent of environmental disclosure is low (with means of 0.1744, 0.1918, 0.1942 and 0.2171 for the years 2008, 2009, 2010 and 2011 respectively). Kamla and Rammal (2013) examined social reporting with special emphasis on themes related to social justice on annual reports and web sites of Islamic banks from 11 countries. The results revealed that social disclosure of the Islamic banks emphasize their religious character through claims that they adhere to Sharia's teachings, but the disclosure lacks specific or detailed information relating to schemes or initiatives.

He and Loftus (2014) evaluated the environmental disclosure practices of listed Chinese operating in environmentally sensitive industries, and revealed that, the level of disclosure is low and lag behind that of companies in developed countries. Chithambo and Tauringana (2014) examined the extent of greenhouse gas (GHG) disclosures made in the annual reports, sustainability reports and web sites of London Stock Exchange financial listed companies. The study indicated that the extent of voluntary GHG disclosure of the sample companies is still low.

Joseph et al. (2014) examined extent and determinants of the sustainability reporting in Malaysian local councils' websites. The study indicated that the level of sustainability disclosure on the corporate websites of Malaysian public sector was below average level (26.8%). Kansal et al. (2014) examined level of CSR disclosures made by the top 100 companies in the Bombay Stock Exchange, and found that overall disclosures are low.

Yusoff and Darus (2014) investigated the environmental disclosure practice from an Islamic perspective using content analysis on annual and sustainability reports of Islamic Financial Institutions (IFIs) in Malaysia. The study revealed that the extent of environmental disclosure is low, descriptive and qualitative in nature. The results also indicated that the key environmental disclosures provided were related to climate change mitigation and adaptation, and prevention of pollution type of activities. Further exploration on the prioritization of environmental activities found that the key focus of the vital activities was prevention related programmes.

Ahmad and Hossain (2015) conducted analysis of the disclosure of climate change and global warming made in the annual reports of 79 Malaysian companies. They concluded that this kind of disclosure in the annual reports of Malaysian companies is still at its introductory stage. Lipunga (2015) examined the level of CSR disclosure in the annual reports for 2012 and 2013 of Malawian quoted companies. The study indicated that the level of CSR disclosure that the companies were making in their annual reports is generally low. Particularly,

the companies were disclosing poorly on environment category. Similarly, Nurhayati, Taylor and Tower (2015) revealed that the extent of social and environmental disclosure in annual reports of Indian textile companies is low.

Vilar and Simao (2015) investigated how the banks use their web sites to disclose their social responsibility concerns and activities. The study revealed that the banks disclose on their websites on environmental performance, socioeconomic programs and other CSR information. The study also revealed that there are geographic patterns in the quantity and detail of the disclosures. The banks belong to Europe, the American continent, and Oceania, were disclosed more information. The study concluded that the disclosure of CSR by the banks is larger and more detailed according to the development level of the country where they operate.

Adopting descriptive research, Innocent et al. (2015) examined stakeholder's (investors, consumers and chartered accountants) perspective on the effectiveness of triple bottom line disclosure practices of Nigerian firms. The findings indicated that investors, consumers and chartered accountants are dissatisfied with the extent of firms TBL disclosure practice in Nigeria, and the firms` reporting was often vague and far from the expression of actual performance. Kaur (2015) explored the item wise variation among different environmental disclosure categories made by Indian companies. The study revealed insignificant differences among the environmental disclosure categories

More recently, Nurhayati et al. (2016) investigated the social and environmental reporting of Indian textile and apparel firms. The study reported a low extent of social and environmental reporting by the sample firms, with a mean disclosure of 14%, while firms reported relatively more extensive environmental information, with a mean disclosure of 18.4%. Hewaidy (2016) evaluated social and environmental disclosure practices in the annual reports of a sample of 43 companies listed in Kuwait Stock Exchange. The results revealed that the overall disclosure level for the sample companies is 21%, and the disclosure level varies by disclosure category.

In high environmentally sensitive industries, including oil and gas industries, the literature revealed also low level of quantity and quality of social and environmental disclosure. For example, Guenther et al. (2007) examined the status of environmental reporting practice of global mining, oil and gas companies. Using GRI indicators, the study analyzed 48 CSR reports for 2005. The study indicated that on average, the mining, oil and gas companies disclosed approximately 31% of the total GRI indicators (11 out of a total of 35 indicators). However, only 8% of total environmental indicators were disclosed with both high quantity and high quality. Frynas (2009) indicated that many oil companies from developing countries provide little concrete data on social and environmental issues

Ane (2012) examined the environmental disclosure quality of listed firms in heavily pollution industries (including, electricity, steel, oil chemicals, mining, etc.) in China, and indicated that the overall environmental information disclosure quality is low. Sen et al. (2011) indicated that the voluntary environmental disclosure by oil and petrochemicals, mining and minerals, steel and cement companies in India is incomplete, more qualitative and provide inadequate disclosure for most of the environmental themes.

Oba and Fodio (2012b) investigated the extent of environmental disclosures in oil and gas and construction industries in Nigeria. The results provided evidence on the poor environmental disclosure levels in the annual reports of sampled companies. The results also indicated that the oil and gas industry provided a better disclosure level but this difference was not significant. Al-Drugi and Abdo (2012) investigated the development of environmental disclosures by oil and gas companies operating in a developing country of Libya from 2002 to 2009. They revealed that although, environmental disclosure has witnessed improvement during the period, but the level of CED is still low. Eljayash et al. (2012) examined the quantity and quality of CED in annual reports by national oil and gas companies in Middle East and North Africa (MENA), particularly Arab oil exporters. They revealed that, overall; CED in Arab oil countries is still low compared with other oil companies in developed countries.

Eltaib (2012) examined the environmental accounting disclosures of Australian oil and gas companies. Annual reports and stand-alone sustainability reports of the 10 largest Australian oil and gas companies listed in Australian Stock Exchange over the period 2005-2010 were analyzed. The results showed that environmental disclosure trend fluctuated during the study period. The results also indicated that the most of the disclosed environmental information is favourable, non-financial, pure narrative and general information. Summerhays and De Villiers (2012) using a sample of the largest six international oil companies examined the disclosure patterns and strategies in response to the Gulf of Mexico oil spill. The findings indicated that the overall environmental disclosures of the oil companies increased after the oil spill.

Eljayash et al. (2013) examined the differences in environmental disclosure practices between national oil and gas companies and international oil and gas companies operating in Arab petroleum exporting countries. The study concluded that despite the slight increase in the environmental disclosure practices in national companies; the difference is still significant compared with international companies. Recently, Mughal (2014) examined CSR disclosure practice of petroleum companies in Pakistan. The study highlighted that petroleum companies in Pakistan are contributing positively towards CSR, more conscious towards portraying their image and they have understood the importance of disclosing environmental information other than financial information.

More Recently, Comyns and Figge (2015) explored the evolution of greenhouse gas reporting quality of 45 oil and gas companies listed on the 2011 Global Fortune 500 index. The study also investigated whether the evolution of reporting quality is linked with the type of information. This study revealed that, in total, 80 per cent of 245 reports contained quantitative and qualitative data on GHG emissions while the remaining 20 per cent

contained only qualitative data. The study also revealed that GHG reporting quality has not improved significantly between 1998 and 2010, and the type of information is important in terms of quality evolution. Eljayash (2015) investigated environmental disclosure in the oil companies in three countries of the Arab Spring (Egypt, Libya and Tunisia). The results of the study indicated low level and quality of environmental information disclosed in the annual reports before Arab spring.

Nonetheless of these results, there are some previous studies that showed high levels of environmental disclosure. For example, Yusoff, Lehman, & Nasir (2006) examined environmental disclosure and motivations among Malaysian public-listed companies. The study revealed high levels of environmental disclosures concerning current environmental engagements and future environmental plans/strategies, and Aburaya (2012) indicated that the level of corporate environmental disclosure quality in the UK was 72.74%.

Despite the importance of disclosure quality, reporting quantity has dominated prior social and environmental reporting studies, but they overlooked the significance of what the information is being communicated. Thus, while there are a large number of studies that have addressed the social and environmental disclosure, the majority of these studies have focused on the quantity of disclosure, whereas, a scant attention has given to quality of such disclosure. This limitation of literature has noted by many previous studies. For example, Silva (2008) noted that several studies in literature overlooked reporting quality and instead confined themselves to reporting quantity. Belal and Momin (2009) also stated that most of the previous CSR (including CER) studies available from the context of developing countries are descriptive in nature and are limited to measuring the extent and volume of disclosure in annual reports.

According to Eltaib (2012) and Rupley et al. (2012), the majority of environmental disclosure research is confined to consideration of the quantity, rather than quality, of information disclosed. Aburaya (2012) stated that, research investigating issues as environmental disclosure quality is quite essential, as most previous studies concentrate on the volume of disclosure rather than its quality. Similarly, Haji (2013) noted that most previous CSR studies measured the extent of CSR disclosures and few have measured the quality of CSR disclosures. Cuesta and Valor (2013) stated that, the problem of reporting quality has been of limited interest in the literature and few studies have attempted to investigate quality of environmental, social and governance disclosure. Ahmad and Haraf (2013) also commented that the majority of prior studies related to environmental disclosure have focused on the quantity of disclosure but scant attention has given to disclosure quality. Until now, researchers still identify literature lacks regarding disclosure quality. For example, Michelon et al. (2015) stated that with the exception of a few studies those focus on disclosure quality, the CSR disclosure previous studies are not able to capture the quality of the disclosure.

However, from literature review, it is noted that, with the exception of a few studies (e.g. Aburaya, 2012; Ahmad and Haraf, 2013; Ane, 2012; Belal, 2000; Brammer & Pavelin, 2006, 2008; Comyns and Figge, 2015; Cormier et al., 2005; Cuesta and Valor, 2013; Darus et al., 2013; Dong et al., 2015; Eakpisankit, 2012; Eljayash et al., 2012; Haji, 2013; Hassan, 2010; Harun et al., 2013; Hooks & Van Staden, 2011; Lu et al., 2015; Michelon et al., 2015; Oba and Fodio, 2012a; Rupley et al., 2012; Sulaiman et al., 2014; Wiseman, 1982), who focus on disclosure quality, the social and environmental disclosure previous studies were not able to capture the quality of the disclosure. Many authors have stressed that the quality of environmental information reported should be considered (cf. Adams et al., 1998; Clarkson et al., 2008; Hall, 2002; Silva, 2008; Sulaiman et al., 2014). This called for environmental disclosure studies dedicated to the investigation of aspects beyond the disclosure level, such as disclosure quality.

Another limitation of literature is that, many prior social and environmental disclosure studies used disclosure quantity to measure disclosure quality (Hussainey and Mouselli, 2010; Michelon et al., 2015; Ng, 1985). This may be because these studies proposed that the disclosure significance can be reflected by the disclosure quantity. However, many researchers have cautioned that much information does not mean that it has high quality, therefore, quantity or volume of information reported is not appropriate measure for reporting information quality. For example, Buzby (1975) argued that disclosure level is not the same as its sufficiency; hence, the former cannot measure the overall disclosure quality. Wiseman (1982) argued that the environmental disclosure length does not reflect its quality. Freedman and Stagliano (1992) argued that although the quantity of reporting sheds some light on the importance of information, it fails to reflect the full communicative content of the information, and as such, it is riddled with limitations in terms of a complete measurement of reporting quality. Deegan and Gordon (1996) argued that the assumption that the significance of a disclosure can be meaningfully represented by the quantity is incorrect. Similarly, KPMG (1999) suggested that disclosure quality is not synonymous with disclosure quantity.

Hussainey and Mouselli (2010) stated that disclosure quantity alone is not a satisfactory proxy to measure disclosure quality. Michelon et al. (2015) argued that the disclosure instruments used in social and environmental disclosure previous studies have been built primarily on a checklist of items that capture the amount and variety of disclosure do not sufficiently determine the quality of information. In practice, despite efforts that spent by some related organizations resulted in some standardization of corporate social and environmental reporting, particularly in terms of format, but their approach to indicators is unlikely to produce high quality (Cuesta and Valor, 2013). To overcome this limitation, this study measures the quality of environmental disclosure using an environmental disclosure index and scoring scheme that able to sufficiently determine not just the quantity, but the quality of disclosure.

Moreover, most of studies related to environmental disclosure quality have concentrated on developed countries, while, there is a lack of studies addressing the quality of environmental

disclosure in the developing countries. Thus, this study examines environmental disclosure quality in developing countries.

However, reviewing pertinent prior literature revealed that; the majority of previous studies have concentrated on disclosure quantity, while scant attention has given to disclosure quality. Moreover, the majority of these studies focused on a sole media of reporting (often annual report), while, a few studies have covered several reporting mediums. Most of studies related to environmental disclosure quality have concentrated on developed countries, while, there is a lack of studies addressing the quality of environmental disclosure in developing countries. And in terms of sector, there are a few studies examined environmental disclosure in oil and gas industry (cf. Alciatore and Dee, 2006; Al-Drugi and Abdo, 2012; Barr, 2007; Bose, 2006; Dibia and Onwuchekwa, 2015; Eljayash et al., 2012; Eljayash et al., 2013; Guenther et al., 2007; Heflin and Wallace, 2014; Oba and Fodio, 2012b; Patten, 1992; Summerhays and De Villiers, 2012; Sustainability Ltd. & UNEP, 1999). Moreover, with exception of Oba and Fodio (2012a) and Eljayash et al. (2012), there have been no studies done on the quality of environmental disclosure in oil and gas industry. However, these two studies are suffering from many limitations such as limiting themselves to annual reports and the samples are small. Furthermore, the samples in prior studies have tended to be small and more concentrating on developed countries. Hwoever, the prior research has also shown inconclusive results regarding the relationships between the environmental disclosure quality and some independent variables, and their relationship signs and therefore it is considered to be productive to empirically re-examine the relationships between them. Therefore, this study attempts to fill the existing gaps and overcome the limitations of the literature by the following: 1) investigating environmental disclosure quality of oil and gas companies in developing countries; 2) investigating the main reporting mediums of environmental information (namely, annual reports, stand-alone environmental reports and corporate homepages in aggregate.

3. RESEARCH METHODOLOGY

This study aims to determine the level of environmental disclosure quality of oil and gas companies in developing countries. In order to achieve the objective of this study this study adopted a quantitative research methodology and probability cluster sampling technique was employed. A number of 116 oil and gas companies originated from 19 developing countries (namely, Argentina, Brazil, China, Colombia, Egypt, India, Indonesia, Kazakhstan, Kenya, Kuwait, Nigeria, Oman, Pakistan, Qatar, Republic of Korea, Saudi Arabia, Thailand, Trinidad and Tobago, and Turkey) were included in the sample. To measure quality of environmental disclosure, a 42-items disclosure index was developed by adapting pertinent established indices. The study also used Wiseman`s (1982) scoring scheme which was widely adopted by many pertinent studies (e.g. Cormier et al., 2004; Hughes et al., 2001; Kuo and Chen, 2013; Sulaiman et al., 2014; Zeghal & Ahmed, 1990). Using Wiseman's scoring method, the present study allocated the greatest weight (3) to quantitative disclosures environmental disclosures explained in EDI. This is followed by the next highest weight (2) that is allocated to non-quantitative but distinct information related to indicators. The lowest weight (1) is granted to general qualitative disclosures. A zero is granted to firms which did not provide information regarding a specific indicator. Thus, the total possible maximum score for the overall environmental disclosure index is 126 (i.e. 3×42= 126). The scores were converted into percentages by dividing the disclosure score of each company to the maximum possible score. The financial year ending on December 31, 2010, or June 30, 2010, or March 31, 2011, depending on the company`s financial year, was chosen for the research. Annual reports, stand-alone reports and environmental related sections on homepages were downloaded from companies` websites.

4. RESULTS AND DISCUSSION

The objective of this study is to determine the level of environmental disclosure quality of oil and gas companies in developing countries. To determine the level of environmental disclosure quality, content analysis has been conducted to extract disclosure quality from annual reports, stand-alone reports, and corporate homepages of sampled companies for the year 2010. For this purpose an environmental disclosure index which adapted from various previous related studies and scoring system of Wiseman (1982) were employed. However, overall quality of environmental disclosure of the sample companies, in addition, the quality of disclosure in each categories and each reported indicators were specifically analyzed.

Annual reports, environmental stand-alone reports, environmental related sections on corporate homepages were carefully reviewed and related data extracted and coded into copies of coding sheet that has been designed for this purpose. The valid coding sheets were then entered into database of SPSS software, and then different statistical analyses were adopted. The collected data was checked for missing and outliers values. A few cases with outlier values were detected. Further checking revealed that they could not be considered unrepresentative of the population, and therefore were not excluded from the sample. In addition, goodness of data was ensured by testing data validity and reliability.

The disclosure index and scoring system were tested for reliability and validity. Cronbach`s coefficient alpha is used for this purpose. The results show that Cronbach`s coefficient alpha for the scale used in this study is 0.893, indicating ta high level of internal consistency for the current study's scale (Hair et al., 2007; Sekaran, 2003). This high level of internal consistency also indicates the content validity of the disclosure instrument. As it is argued that an examination of the internal consistency of the disclosure index provides some insights into the validity of the disclosure scores, as internal consistency reliability is an indirect way to test a content validity of an instrument (Sekaran 2003; Walsh, 1995). Thereafter, the data was tested using minimum, maximum, mean and standard deviation.

Table 1 displays the descriptive statistics for the environmental disclosure quality of the 116 companies in the sample. It shows the means for each of the eight index categories and overall quality of environmental disclosure. The table shows that the range of environmental disclosure quality scores varies widely, from 33 to 106. The mean score of total environmental disclosure quality per company is 68.98, which represent 54.75% out of all possible environmental disclosure scores of 126 (i.e., 42 items × maximum score of 3). This level of disclosure quality is similar to that found by Eljayash et al. (2012) who revealed that the average of quality of CED in annual reports by oil companies in the Arab oil countries was 26.66 (55.54%) in 2010. However, the level of environmental disclosure quality of the current study is relatively high compared to those found by the majority of previous studies (cf. Ahmad and Haraf, 2013; Ane, 2012; Comyns and Figge, 2015; Cuesta and Valor, 2013; Dong et al., 2015; Eakpisankit, 2012; Haji, 2013; Harun et al., 2013; Hooks & Van Staden, 2011; Michelon et al., 2015; Oba and Fodio, 2012a; Sulaiman et al., 2014).

The reason behind this relatively high quality of environmental disclosure made by oil and gas companies in developing countries is the fact that firms affiliated with more environmentally sensitive industries provided more comprehensive social and environmental disclosure than firms affiliated with less environmentally sensitive industries (Bowrin, 2013), due to the environmentally sensitive sectors receive more public scrutiny (Aburaya, 2012; Kolk and Fortanier, 2013). Another explanation is that environmental disclosures of the oil companies increased significantly in response to the spill incident which occurred from oil platforms owned by BP in the Gulf of Mexico (Eljayash et al., 2012; Summerhays and De Villiers, 2012), as the accident was an environmental crisis that not only impacted the BP image and legitimacy, but also impacted on the image and legitimacy of other oil companies (Summerhays and De Villiers, 2012). This increasing is consistent with prior research which pointed that the threats arising from specific major social and environmental incidents influence the disclosure practices of the particular corporation and other corporations within the same industry (cf. Islam and Islam, 2011; Patten, 1992, Suttipun and Stanton, 2012). Overall, given the environmentally-sensitive nature of the oil and gas industry and the increasing adverse media attention and public concern with numerous incidents associated with this industry, it is expected to observe that the quality of environmental disclosure of oil and gas industry is higher than in other industries. Also, the rationale behind this relatively high quality disclosure may be due to that the previous studies have restricted their analyzing to a single reporting medium, mostly annual report, while companies use different disclosure mediums to communicate their environmental information.

Despite there are numerous companies disclose all index items, but no one of these companies disclose full information in monetary or quantitative form. However, the maximum score obtained by the sample companies is 106 out of a possible 126, indicating significant scope for improvement even among the companies with the highest level of environmental disclosure. In addition to, the variation in the disclosure quality among the sample companies suggest that there is a need for governments and related organizations in developing countries to devise more detailed guidances that specify environmental disclosure requirements to enhance the quality of environmental disclosure.

Table 1 also presents the level of quality of environmental disclosure for each category. It shows that the quality of environmental disclosure of each of eight categories is different. It shows that the environmental disclosure quality of each of eight categories is different. This result is in line with some previous studies such as Hewaidy (2016) who evidenced that the disclosure level varies by disclosure category. However, analysis of the different categories showed that, the category "sustainable development" has the highest average mean of scores with 2.123, followed by "pollution abatement" (2), "health and safety" (1.86), "disturbances to land and land remediation" (1.657), "environmental management" (1.629), "economic factors" (1.404), "laws and regulations" (0.97), and lastly, the category "spills & environmental incidents" has the lowest average mean (0.80).

Among all the environmental items studied, the descriptive analysis of the disclosure showed that the item "conservation of natural resources" under the category "sustainable development" represents the highest disclosure quality with mean of 2.78, followed by "air emission information" under the category "pollution abatement" and "health and safety incidents and accidents" under the category "health and safety" with means of 2.71 and 2.70 respectively. On the other hand, "future environmental operating costs" under the category "economic factors" represents the lowest disclosure quality with mean of 0.28, the second lowest item is "costs of treatment of spills" under the category "spills& environmental incidents" with mean of 0.34, and the third lowest item is "litigation" under the category "laws and regulations" with mean of 0.40.

However, from data review it was noted that for companies that scored low on the quality index did not disclose some items and/or did not disclose in monetary/quantitative terms, or did not address specific issues in their reporting. The results of this study suggest that there is a significant scope for additional and better quality environmental disclosure in various reporting mediums of oil and gas companies in developing countries. Issuing regulations and guidelines on corporate environmental disclosure is needed to motivate companies to improve their environmental disclosure.

Table 1. Descriptive Statistics of Environmental Disclosure Categories and Items

Categories	Min.	Max.	Mean	Std. Deviation
Economic Factors				
Past and current environmental capital expenditures	0	3	2.39	1.133
Past and current environmental operating costs	0	3	1.69	1.411
Future environmental capital expenditures	0	3	.97	1.264
Future environmental operating costs	0	3	.28	.798
Environmental liabilities and provisions	0	3	1.70	1.385
Total	**0**	**15**	**7.02**	**4.230**
Average Mean			**1.404**	
Laws and Regulations				
Litigation (present and Potential)	0	3	.40	.959
Fines and Penalties	0	3	.53	1.008
Environmental legislations and regulations requirements	0	3	1.99	.552
Total	**0**	**9**	**2.91**	**1.722**
Average Mean			**.97**	
Pollution abatement				
Air emission information	0	3	2.71	.528
Water discharge information	0	3	2.28	1.062
Waste disposal information	0	3	2.54	.727
Noise, odours and visual quality	0	2	.48	.839
Activities, products and services impacts on environment	1	3	2.04	.333
Installation of environmental control systems, facilities or processes described	0	3	1.92	1.040
Total	**2**	**17**	**11.98**	**2.804**
Average Mean			**2**	
Sustainable development				
Conservation of natural resources	0	3	2.78	.576
Recycling	0	3	1.57	1.300
Progress toward sustainability	0	3	2.52	.597
Research and development activities for sustainable development	0	3	1.63	1.026
Total	**0**	**12**	**8.49**	**2.472**
Average Mean			**2.123**	
Disturbances to land and land remediation				
Sites	0	3	1.54	1.106
Disturbances to land	0	3	1.71	1.111
Efforts of remediation/ Rehabilitation (present and future)	0	3	1.72	1.117
Total	**0**	**9**	**4.97**	**2.574**
Average Mean			**1.657**	
Spills & Environmental incidents				
Number and nature of spills	0	3	1.27	1.295
Efforts to reduce and / or prevent spills	0	3	.78	1.045
Costs of treatment of spills.	0	3	.34	.835
Total	**0**	**9**	**2.40**	**2.509**
Average Mean			**.80**	
Environmental management				
Environmental policies or company concern for the environment	2	3	2.06	.239
Environmental management system (EMS)	0	3	1.83	.608
Environmental auditing	0	3	1.44	1.024
Goals and targets	0	3	2.11	.872
Environmental Awards and Recognition	0	3	1.03	1.012
Department/ committee for environmental affairs pollution control	0	2	1.08	.988
Joint projects with other firms on environmental management	0	3	1.54	.888
Involvement to environmental organizations	0	3	1.31	.973
Environmental activities and programmes	0	3	2.16	.844
Environmental training and education programmes	0	3	1.72	1.139
Total	**2**	**26**	**16.29**	**4.936**
Average Mean			**1.629**	
Health and Safety				
Employee health and safety policy	2	3	2.05	.222
Health and safety laws and regulations	0	3	1.97	.347
Health and safety management systems	0	3	1.76	.730
Health and safety at work	0	3	2.13	.880
Toxic hazard	0	3	1.11	1.070
Health and safety training	0	3	1.78	1.072
Health and safety auditing	0	3	1.39	1.011
Health and safety incidents and accidents	0	3	2.70	.531
Total	**6**	**21**	**14.88**	**3.182**
Average Mean			**1.86**	
Total	**33**	**106**	**68.98**	**15.514**

Note: N= 116

5. CONCLUSIONS

The objective of this study is to determine the level of environmental disclosure quality of oil and gas companies in the developing countries. In order to achieve this objective this study adopted a quantitative research methodology and probability cluster sampling technique was employed. A number of 116 oil and gas companies originated from 19 developing countries were included in the sample.

To measure the quality of environmental disclosure, a 42-items disclosure index, scoring scheme and decision rules were developed by adapting pertinent established indices and decisions rules of prior studies. Annual reports, stand-alone reports and environmental related sections on homepages were downloaded from companies` websites.

Using the index and scoring scheme, content analysis was conducted. The data was analyzed using descriptive analysis to determine the level of disclosure quality. The results of the analysis revealed that, the total scores in annual reports, stand-alone reports and homepages range from 33 to 106 scores with an average of 68.98 scores (54.75%). The descriptive analysis for the environmental disclosure quality also revealed that, the means of scores across different disclosure media are varied. Particularly, the mean of annul reports scores is 52.63, for stand-alone reports 65.64 scores and 38.53 scores for homepages. These results indicate that, there is variation in the quality of environmental disclosure among the three mediums, and suggest that stand-alone reports have the highest level of environmental discourse quality, while, the corporate homepages have the lowest level.

The results also revealed that the level of environmental disclosure quality differs across different categories. The category "sustainable development" has the highest level of the disclosure quality with average mean of scores 2.123, whereas, the category of "spills & environmental incidents" has the lowest level of the disclosure quality with average mean 0.80. With respect to all disclosure items, the results indicated that the item "conservation of natural resources" under the category "sustainable development" has the highest disclosure quality with mean of 2.78, while the item "future environmental operating costs" under the category "economic factors" has the lowest disclosure quality with mean of 0.28.

Prior environmental disclosure literature has not given much emphasis on disclosure quality; instead, it focused more on the quantity of disclosure. The current study seeks to fill the gap in the literature by considering the issue of environmental disclosure quality (rather than quantity). Assessing the quality of the environmental reporting enables an identification of the strengths and weaknesses in current reporting practice and advances our understanding. In addition, contrary to the most available literature that only focuses on sole medium of environmental disclosure (mostly annual report), the current study contributes to the literature by covering most common vehicles of environmental disclosure, particularly, annual reports, stand-alone reports and corporate homepages. This study also fills the void in prior environmental disclosure literature regarding whether various reporting mediums vary regarding their disclosure quality.

The present study also contributes to the environmental disclosure literature by focusing on the ED practices of specific sector (i.e. the oil and gas industry) in the DCs. It was argued that, in order to enhance our understanding on environmental disclosure behavior, it is important to focus on a specific industry (Gray et al., 1995; Ahmad and Haraf, 2013). Thus, this study contributes to environmental disclosure literature as it provides insight into the environmental disclosure practices of oil and gas companies within developing countries, where there are limited published studies.

Understanding the ED practices of oil and gas companies enables various interested parties, such as, investors, creditors, governments, regulators and standard setter, and environmental groups to determine the quality of ED, and to assess the requirements for environmental information. It is hoped that the findings of this study serve as input towards the development of improved regulations concerning environmental reporting for the oil and gas industry, and provide guidelines to the regulators to make relevant decisions on environmental information items to be incorporated in the regulatory standards.

The findings of this study have many implications for various interested parties. The present study provides insights into environmental disclosure of a single highly environmentally sensitive industry. The study focuses on the quality of environmental disclosure in different reporting media by oil and gas companies across several countries. By assessing the quality of environmental disclosure, it enables ones to identify of the strengths and weaknesses in environmental disclosure of the sampled companies, therefore, advances our understanding of current disclosure practice by oil and gas industries in developing countries.

This study may motivate oil and gas companies in developing countries to provide environmental information in their annual reports, stand-alone reports and websites. Particularly, the findings may help the companies to focus on what should be disclosed and how to disclose. In this respect, the disclosure index serves as a guide to best practice of environmental disclosure.

In addition, by identifying the state of environmental disclosure practices, the results of this study would benefit the policy makers, regulators and reporting standards setters in proposing laws and regulations, issuing new standards, and improving environmental reporting guidelines, which in turn will lead to more transparency and better quality of environmental disclosure.

Finally, this study makes a methodological contribution to the literature by constructing an environmental disclosure quality index, which can be considered as a comprehensive enough –to some extent- and suitable for oil and gas industry, as it includes specific environmental disclosure items for this industry. Thus, the disclosure index of this study can be used as a tool for future oil and gas industry corporate environmental disclosure related research.

6. LIMITATION AND FUTURE RESEARCH

This study focused on the three main channels of environmental disclosure. As companies are using different channels and are likely using other channels to disclose environmental information, future research should investigate a wider range of those channels. Thus, besides the reporting mediums covered in this study, other common channels such as advertisements, environmental

brochure or corporate booklets, newspapers and magazines, television and radio, could be covered by future research. Moreover, future research could include reports and information that are published in other languages.

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