DISCLOSURE PRACTICES OF ENVIRONMENTAL COSTS: EVIDENCE FROM OIL AND GAS COMPANIES OPERATING IN TANZANIA

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ABSTRACT

This article discusses disclosure practices of environmental costs in the oil and gas companies operating in Tanzania so as to determine whether the disclosure reflects what companies are actually doing or claim to have been doing about disclosure of environmental costs. Further, the article identifies the types of environmental costs which are mostly disclosed by the oil and gas companies. Content analysis method was used to obtain data from the annual reports for the year ended 2013. The results revealed that companies use mostly a narrative rather than a numerical approach in disclosing information on environmental costs. Also, the study found out that companies disclose more information on environmental defensive costs than on environmental aggressive costs. Moreover, companies disclose environmental costs without specific classification. Consistent with earlier findings, this research affirms that classifying environmental costs into appropriate cost centres enables investors, shareholders, society and other stakeholders to understand how the companies respond to their environmental responsibilities. This study recommends that oil and gas companies should focus more on environmentally preventive measures rather than reactive measures to avoid damage to the environment and curative related costs. Further research might want to involve a bigger sample and a longer period, e.g. five years from 2013, to get a broader picture of disclosure of environmental costs.

***Key words*:** *Environmental costs, Environmental costs classification, Legitimacy Disclosure Theory, Social Contract Theory, Content analysis*

INTRODUCTION

Disclosure of information on social and environmental costs and financial reporting are voluntary thus, systematic approaches to environmental reporting are rare (Godfrey *et al.*, 2006). This has resulted into some companies disclosing environmental information in financial reports in an inconsistent manner. Environmental reporting has been seen to be more regular among companies with either vested interests in the natural environment or which are subject to pressure from the public or regulatory authorities. Such companies deal with, for instance, chemicals, petroleum, water and power (Godfrey *et al.*, 2006:644). Similarly, Husillos (2007) argues that the publication of information on social, economic and environmental costs is mainly due to demand and pressure of interest groups and the desire of the entity to legitimise itself before the society.

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Business Management Review 22 (1), pp.110-129 ISSN 0856-2253 (eISSN 2546-213X) ©Jan-June 2019

Disclosure of information on environmental costs is mainly grounded on two theories: Legitimacy Theory and Social Contract Theory (Branco *et al*., 2008). Legitimacy Theory is undoubtedly the dominant theory in the literature and it asserts that "companies disclose environmental information in annual reports as a strategy of obtaining society's acceptance and approval of their activities, and it plays an important role in the process of legitimising their businesses". On the other hand, the Social Contract Theory explains the boundaries of acceptable interaction between participants in the society. The theory is based on *justice* within the society and recognises the *costs* (financial, social, and environmental) related to the operations of firms in the community or society (Godfrey *et al.*, 2006). The operations of companies in the oil and gas industry are hazardous to the environment and society at large; thus, relevant controls must be put in place to ensure safety and security. This may include disclosing all relevant information on the environment in annual reports or in separate sustainability reports.

In 2013, Tanzania established the Tanzania National Gas Policy (TNGP). This policy consists of five pillars and pillar number four of the TNGP stipulates that the policy intends to *"ensure adequate disaster management systems to prevent adverse impact and protect people's health, safety and environment".* The main objective of this policy is to provide guidance for the sustainable development and utilisation of the natural gas resource and maximisation of the resulting benefits, and contribute to the transformation and diversification of Tanzania's economy.

Companies in the oil and gas industry have been accused of 'green washing' in their marketing campaigns in respect to environmental responsibility (Pulver, 2007). What companies claim about environment friendliness or environmental costs disclosure does not appear to reflect what they do in actual practice. It is common to find companies' environmental policies which claim that they are committed to environmental management by recognising, avoiding and or minimising environmental impacts to society. Also, some companies claim to be aware that protection of the environment requires careful planning and commitment. Some of them show how seriousness they are in protecting nature by allocating huge sums of money on environmental issues. However, regardless of their commitment, some companies end up being accused of damaging the environment and suffer a lot of fines, penalties, clean-up costs, and ultimately damage their reputation. For example, BP Plc had a good environmental policy which aimed at detecting and protecting the environment before the incidence of 20th April, 2010 (PB Annual Report, 2009).

The 2009 BP annual report showed that BP was committed to invest in, or jointly fund research and development that sought "opportunities to reduce potential environmental impacts" (BP, 2009:60). Further, the report showed environmental expenditure of about 15% of the profit made in 2009 as indicated in Table 1. However, in April 2010, BP was accused of recklessness as well as negligence after causing an explosion on the Deepwater Horizon oil rig in the Gulf of Mexico that led to loss of many fish species, and killed 11 and injured 17 workers. Consequently, BP Plc paid about $43 billion as fine, clean-up costs, and settlement. In addition, $18 billion was charged as fine for violation of the Clean Water Act. These environmental costs could not be recovered from profits generated by the company in the preceding two years (i.e. 2008 and 2009). The profit for the year ended 2008 and 2009 was $21 billion and $16.7 billion respectively. This implies that environmental detection and

prevention costs were just like 'window dressing' or 'green washing' to indicate that the company cared about the environment.

Table 1: Environmental expenditure estimates of BP Plc for the year ended 2009[3]

Item	**$ millions**		
	2009	**2008**	**2007**
Operating expenditure	701	755	662
Clean-ups	70	54	62
Capital expenditure	955	1,104	1,033
Additions to environmental remediation provision	588	270	373
Additions to decommissioning provision	169	327	1,163
Total	2,483	2,510	3,293

Source :(BP, 2009: 60).

Despite the companies' good policies about protecting the environment, many oil and gas companies paid fines and penalties and lost their reputation in relation to environmental degradation (see for instance Table 2). This shows that companies give the impression that they are environmentally friendly while they are not willing to incur protective costs. We argue that protection is better than cure; thus, companies should be committed in incurring protective environmental costs so that they could reduce the chances of incurring environmental remedial measures which are relatively much higher than protective costs. As a result, these remedial costs reduce the firms' cash flows and lump the burden on shareholders.

Table 2: Some oil and gas companies' penalties

Company and impact	**Fine and penalties**
March 24, 1989, Exxon Valdez oil tanker spilled 11 million gallons of crude oil, fouling approximately 1,300 miles of coastline.	Exxon paid a $25 million fine for an environmental crime as restitution for the injuries caused to the fish, wildlife, and lands of the spill region. Exxon also agreed to pay $900 million for Civil Settlement. Further, the Exxon Valdez oil spill angered many consumers and it triggered boycotts of Exxon's retail outlets (Shabecoff, 1989).
In April, 2010, BP caused an explosion on the Deepwater Horizon oil rig located in the Gulf of Mexico. Apart from loss of many fish species, the incident killed 11 and injured 17 workers.	BP was accused of recklessness as well as negligence, and therefore paid about $43 billion as fine, clean-up costs, and settlement as a result of the oil spill. In addition, $18 billion was charged as fine for violation of the Clean Water Act. Profit for the year was 16.7 billion in 2009 and 21 billion in 2008 (BP, 2009).
Big West Oil	Big West Oil LLC paid $175,000 penalty and spent approximately $18 million to install emission controls at its refinery in North Salt Lake. Environmental Protection Agency (U.S. EPA, 2013).

[3] (BP, 2009: 60). "Operating and capital expenditure on the prevention, control, or elimination of air, water and solid waste pollution is often **not** incurred as a separately identifiable transaction. Instead, it **may** form part of a larger transaction that includes, for example, normal maintenance expenditure. The figures for environmental operating and capital expenditure in the table are therefore estimates, based on the definitions and guidelines of the American Petroleum Institute".

Shell Company	Shell oil company violated the Clean Air Act in the US and paid $115 million to manage the air pollution and paid $2.6 million civil penalties in 2013 (U.S. EPA, 2013).
Sinclair Oil Corporation	Sinclair Oil Corporation violated air pollution limits and paid penalties totalling $3.8 million and spent approximately $10.5 million on additional pollution control equipment and other projects to resolve the allegations The U.S. Environmental Protection Agency (U.S. EPA, 2012).

Sources: (Shabecoff, 1989; BP, 2009; U.S. EPA, 2012, 2013).

The incidences that have been elaborated in Table 2 would have been prevented if the companies had incurred environmental detective and preventive costs. Motivated by this background and the establishment of the Tanzania National Gas Policy in 2013, this study sought to find out whether or not the oil and gas companies operating in Tanzania embrace the fourth pillar of the TNGP that is disclosing information on environmental costs, thus adhering to theories of the Legitimacy Theory and Social Contract Theory. The study is novel and contributes significantly to the scant literature on environmental costs disclosure practices in emerging economies, particularly Tanzania.

This research is of a great importance to firms, government, investors, accounting regulatory bodies and the general public in ensuring that oil and gas companies protect the environment during their operations. Future research may be directed towards examining the factors influencing disclosure of environmental costs and determining why some companies disclose more information than others or why some information on environmental costs is more forthcoming than other types of information. Also, as mentioned earlier, future research may consider increasing the sample size and the research span.

LITERATURE REVIEW

Overview of the oil and gas industry

According to Yergin (2008) and Schweitzer (2010), there are three broad categories of oil and gas companies: upstream, midstream, and downstream. The upstream companies deal with exploration and production of crude oil. This sector involves the researching for potential underground or under water natural gas and crude oil fields, drilling of exploratory wells, and subsequently drilling and operating the wells that recover and bring the crude oil and or natural gas to the surface. The midstream category deals with distribution of the crude oil and includes tankers and pipe lines that carry crude oil to refineries. The downstream sector deals with refining, marketing, and retail distribution of refined oil, through gasoline stations and stores. This study was concerned with the upstream oil and gas industry.

Environmental and social impacts of oil companies in Africa

Research on oil and gas companies reveals that in 2010, Africa accounted for 13% of total global oil production, and Sub-Saharan Africa (SSA) contributed 7.25% (Baumuller *et al.*, 2011). Moreover, there were about 500 companies that operated in the African upstream oil and gas industry and a large part of the oil production comes from Nigeria and Angola. It is also interesting to note that Tanzania has more than 40 trillion cubic feet of gas which is expected to rise over the coming years (Reuters, 2013). Tanzania has shown strong hydrocarbon potentials in its upstream oil and gas industry; however, only 20 wildcat explorations and 8 development wells have been drilled in a 222,000 sq. km area. Thus

Tanzania can be classified as under-explored. Current natural gas reserves in Tanzania are estimated to be 2 trillion cubic feet.

Research on oil and gas companies conducted in Sub-Saharan Africa concludes that oil and gas companies are the 'dirtiest' companies that pose major direct risks to the environment and human health, which consequently undermine economic activities such as fishing (Baumuller *et al.,* 2011). Baumuller *et al.* observed a number of hazardous situations. First, the oil and gas industry in Sub-Saharan Africa threatens not only the health of local communities, but also the livelihoods of other creatures living in water, air or soil. Secondly, while oil and gas companies have policies to address environmental impact, actual practice largely remains piecemeal and short-term. Thirdly, members of the society are inadequately engaged in the companies' decisions about corporate social responsibility and there is insufficient transparency about environmental degradation issues. Lastly, in oil and gas-producing countries, the main challenge is lack of political will and capacity to implement and enforce national regulations, highlighting underlying governance challenges that need to be addressed.

One of the motivations of this study stemmed from the second observation that implementation of environmental policies in addressing environmental impact has remained theoretical. This may imply that the policies are tools for 'green washing'; that is, what companies are claiming to do might be far from the reality. It is hoped that the results of this study will inform the oil and gas companies about the categories of environmental costs that are important for enhancing corporate image.

Environmental costs

Environmental costs emerge from companies' operations which intend to detect, prevent, eliminate or reduce releases of hazardous material to the environment. Such costs include fixing the degraded environment, compensation of destructed human health, and cost related to compliance with environmental regulations (Kumaran *et al.,* 2001). In the process of production, oil and gas firms pollute the air, water and soil and unless these pollutions are prevented, they will have negative impact to society, as it is clearly shown in Table 2. Normally, the costs for remedying related environmental problems are always relatively higher than preventive costs. When environmental costs are not detected and prevented, a large portion of environmental degradation costs should be shouldered by the society (Shield *et al.,* 1996). These externality costs have greater economic and social impacts to the nation, society and individuals.

Previous researchers have clearly noted that environmental costs take a large portion of a country's Gross Domestic Product (GDP). For example, it was noted that environmental costs range between 2.1% and 7.4% of GPD per year in the Middle East and North Africa (MENA); 5% of GDP in Europe; and 2-3% in OECD countries (Hussein, 2008)[4]. Moreover, damage to the global environment was estimated at 0.5-1.6% of GDP. These costs are relatively high and require attention because they spoil companies' good reputation (Hussainey & Salama, 2010). Further, previous studies have found that environmental insensitivity reduces firms' sales and increases firms' operating costs (Porter & Linde, 1995). Similarly, it was revealed that community pressure and informal sanctions on environmental degradation can penalise corporations' value (Pargal & Wheeler, 1996; Arora & Cason,

[4] OECD stands for Organisation for Economic Co-operation and Development.

1996). Likewise, it was noted that higher environmental costs lead to higher cost of capital and lower market value of firms (Konar & Cohen, 1998). Moreover, Chika and Tomoki (2014) observe that the impact of corporate carbon emissions reduces firms' market value of equity while disclosure of carbon management has a positive relationship with the market value of equity. This implies that well-designed disclosure of environmental information is important for enhancing the value of a firm. Indeed, Branco *et al.* (2007) and Perez *et al.* (2007) argue that categorical disclosure of environmental information in annual reports has positive impact on the perceptions of investors because information affects a firm's cash flow. In this context, it is important to understand disclosure of environmental information in an environmentally sensitive sector such as oil and gas, especially in Tanzania, where this sector is at an infant stage.

In Tanzania, the oil and gas industry is still at its early stage with the first major offshore discovery of gas made in 2010 in the Indian Ocean (Tveit, 2015). The estimated gas and oil reserves amount to 50 trillion cubic feet with the amount expected to rise to 200 trillion cubic feet in the next two years. East Africa is regarded as one of the emerging hydrocarbon provinces of the 21st century with Uganda and Kenya recording major onshore oil discoveries while Tanzania and Mozambique have recorded large offshore gas reserves (Purcell, 2014). As a result of this large discovery of oil and gas, Tanzania is likely to experience environmental hazards from this industry; therefore, it is crucial to examine how oil and gas companies operating in Tanzania are prepared to detect and prevent the environmental side-effects arising from these companies. The literature above derives the following motivating questions: Do oil and gas companies implement their environmental protection policies and strategies? Does the narrative information on environmental costs reflect the numerical environmental costs information? What should be done to protect the environmental clean-up and compliance costs to the companies?

Environmental costs classification

There are different ways of classifying environmental costs. According to U.S. EPA (2014), classification of environmental costs depends on how the information is utilised[5]. Environmental costs may include *conventional costs* which comprise raw materials and energy costs related to the environment; *potentially hidden costs* which comprise costs captured by the accounting system but then lose their identities in overheads; *contingent costs* which include future costs, contingent liabilities; and *image and relationship costs* which may include environmental clean-up costs, fines, penalties and other costs which are intended to build company image and good relationship with the society.

According to the Division for Sustainable Development of the United Nations, environmental costs are classified into three main groups (UNCTAD, 2004). The first group includes environmental costs which are intended to *reduce the environmental effects* of companies' operations by using 'end-of-pipe' measures and technologies. The second group comprises environmental costs which are intended to *prevent environmental effects* of companies' activities before the end of the production process, for example, by establishing environmental management systems. The last group consists of environmental costs which are associated with *non-product output* including wastes, lost energy, and all costs related to purchases of the materials and the production costs for producing the non-product output.

[5] US EPA stands for United States of America Environmental Protection Agency

Another categorisation of environmental costs was identified by Hansen and Mowen (2000) in their Environmental Quality Reporting (EQR) Model. In this model, environmental costs are grouped into four main categories. The first category includes *environmental detection costs.* These include costs relating to auditing environmental activities, inspecting products and processes, developing environmental performance measures, and testing contamination and measuring contamination levels. The second category is *environmental pollution prevention costs.* These include costs relating to evaluating and selecting pollution control equipment, quality environment consumables, designing processes and products which prevent pollution, carrying out environmental studies, auditing environmental risks, environmental management systems, recycling products, and obtaining ISO 14001 certificate[6]. The third category involves *environmental external failure costs or environmental externality*. These include costs related to cleaning up polluted natural land, lake and environment, cleaning up oil spills, cleaning up contaminated soil, settling personal injury claims, and restoring land to its natural state. The last one comprises *environmental internal failure costs or environmental operating expenses.* These include costs for operating pollution control equipment, treating and disposing of toxic wastes, maintaining pollution prevention equipment, licensing facilities for producing contaminants, and recycling scraps.

There is a thin line of distinction between environmental detection costs and environmental protection costs on the one hand, and environmental externality and operating costs on the other hand. To avoid mixing up the categories identified above and for the purposes of this research, environmental costs have been classified into two main categories: environmental preventive *(defensive)* costs and environmental remedy (*aggressive)* costs. Environmental defensive costs refer to costs incurred by firms when detecting or preventing possible future environmental problems resulting from their operations, while environmental aggressive costs are costs incurred by firms to restore the degraded environment, giving compensation to the community, and paying fines for failure to comply with the environmental laws and regulations.

Disclosure of environmental costs

The International Accounting Standards (IAS) 1, which is *Presentation of Financial Statements,* sets out the overall requirements for disclosure of financial information in financial statements. The requirements include the structure of the financial statements, the minimum requirements for the contents of financial statements and overriding concepts, the accrual basis of accounting and the current/non-current assets/liabilities distinction. Also, IAS1 stipulates that companies operating in industries which are environmentally sensitive can produce a separate environmental report, because environmental information can influence the economic decisions of the users of the financial statements. When environmental costs are disclosed in a separate report, the accounting policies have to specify what the environmental costs represent. Absence of clear disclosure on environmental costs in an environmentally sensitive industry such as oil and gas may cause

[6]The International Organisation for Standardisation (ISO) 14001 is the most important standard within the ISO 14000 series. ISO 14001 specifies the requirements of an environmental management system (EMS) for small to large organisations. The ISO 14001 standard is based on the Plan-Check-Do-Review-Improve cycle. The Plan cycle deals with the beginning stages of an organisation becoming ISO 14001-compliant. The Check cycle deals with checking and correcting errors. The Do cycle is the implementation and operation of the ISO 14001 standard within an organisation. The Review cycle is a review of the entire process by the organisation's top management. And the Improve cycle is a cycle that never ends as an organisation continually finds ways to improve their EMS (Certification Europe, 2014).

criticism among stakeholders, mainly investors and the community. In turn, it may lead to firm value destruction (Branco *et al.*, 2007; Perez *et al.*, 2007).

Researchers in disclosure of environmental costs have affirmed that environmental costs are rarely shown separately in the financial statements, unless they represent an exceptional item (Ibanichuka & James, 2014). Disclosure of explanatory and classified information on environmental costs in environmentally sensitive companies is important to users. Ibanichuka and James (2014:42) argue that companies disclosing environmental costs should clearly identify costs relating to preventing, reducing or repairing damaged environment because disclosure of this type is likely to reduce negative environmental impacts (Letmathe & Doost, 2000), and enhance positive perceptions of investors as information affects a firm's cash flow (Branco *et al.*, 2007; Perez *et al.*, 2007). Also, Letmathe and Doost (2000) note that classified information on environmental costs should be taken into account in any assessment of environmental performance because they can provide information that may reduce environmental costs in future.

Ironkwe and Promise (2016) argue that environmental laws in emerging economies are ineffective, inadequate and less enforced, thereby leading to low or non-disclosure of information on environmental costs. Moreover, they argue that oil and gas companies should embrace accountability and integrity norms in their business actions and operations. They conclude that adequate environmental and sustainability performance reporting is needed by oil and gas companies.

The literature review suggests that studies on disclosure of environmental costs are relatively few in emerging economies especially in East Africa where there have been massive discoveries of oil and gas in recent years. Moreover, companies disclose environmental information differently, i.e. there is no uniformity in disclosing environmental accounting information. Thus, this study examines the practices of disclosing environmental costs for companies operating in Tanzania.

METHODOLOGY

Source of data

This study evaluated the disclosure of environmental costs of nine oil and gas companies operating in Tanzania. It used the annual reports of selected oil and gas companies for the financial year ended 2013, to obtain information about the disclosure of different categories of environmental costs. The choice of this year is underpinned by two aspects: the establishment of the Tanzania National Gas Policy (TNGP) in 2013, and the theories of social contract and legitimacy. Moreover, sustainability reports were used in addition to supplement annual reports or as the only source of the required data where annual reports did not include environmental costs/information. Some companies report environmental and other corporate social responsibilities in their annual reports while other companies report them separately.

Company annual reports are documents which are produced regularly and comply with statutory requirements; thus, they are reliable sources of data and have largely been used by various previous studies (See for example Beck *et al.*, 2010; Owolabi, 2008; Enahoro, 2007; Guthrie & Abeysekera, 2006; Campbell, 2004, 2003). Moreover, the audited annual reports are credible and argued to be the most important documents for the organisation in constructing their social image. The annual reports for this research were obtained from the companies' websites.

Research design and data collection

The research design for this study was survey which is entirely based on description and explanation of the disclosure of information on environmental costs in the companies' annual reports and/or sustainability reports. In order to achieve the intended objectives, this research applies the content analysis method.

Content analysis method

Content analysis is a research tool for an objective, systematic and qualitative description of the manifested content of communication (Neuman, 2011). Further, Duriau *et al.* (2007) argue that content analysis can be used for both qualitative and quantitative research. Content analysis involves selection of a unit of analysis such as words, sentences, paragraphs, or number of pages (Beck *et al.,* 2010; Guthrie & Abeysekera, 2006; Campbell, 2004, 2003) which are then coded to allow systematic presentation, analysis and interpretation of the results. Researchers in accounting, especially in environmental disclosure have favoured content analysis as an appropriate research method. This research uses interpretative content analysis and words in sentences are used as units of analysis. Environmental costs related sentences were coded and categorised into two groups. Sentences which appeared to prevent environmental costs/damages were categorised as *defensive disclosure*, and the sentences which appeared to repair environmental damages were categorised as *aggressive disclosure*. The two categories were determined using the following key search words: *environment, detection, prevention, pollution, clean-up, fines, penalties, disposing, recycling, restoration, compensation, injury,* and *claim*. These words are summarised in Table 3. As these words may be used in other non-environmental contexts, in this study they were only counted when included in a sentence which related to environmental issues. The 'find' command (on the computer) was then used to search for such words in reports.

Table 3: Words used for content analysis

Defensive disclosure		**Aggressive disclosure**	
Sub-category	**Words**	**Sub-category**	**Words**
Disclosure of environmental costs related to detection of pre-environmental damages	Detection	Disclosure of environmental costs related to remedies or post-environmental damages	Pollution
	Auditing		Clean up
	Performance measures		Waste disposal
	Contamination test		Oil spill
	Inspection		Restoration
	Precaution		Penalties
Disclosure of environmental costs related to protection of the detected pre-environmental damages	Prevention		Contamination remedy
	Protection		Injury claim
	Impact study		Compliance
	Management systems		Control equipment
	Recycling		Treating disposal
	ISO 14001		Licensing facilities

Source: (Researchers' Classifications, Annual Reports, 2013)

Disclosure of environmental costs related to detection of pre-environmental damages (defensive costs disclosure) can be narrative or numerical; the following phrases capture the

information related to environmental defensive costs: auditing of environmental activities, inspecting products and processes, developing environmental performance measures, testing contamination and measuring contamination level. Information on environmental prevention costs can be reflected in following phrases: evaluating and selecting pollution control equipment, designing environmental management systems, programmes or plans, carrying out environmental impact studies, auditing environmental risks and recycling products, and obtaining ISO 14001 certificate.

Disclosure of environmental costs related to remedies of post-environmental damages (aggressive costs disclosure) can be captured in the following phrases: costs for cleaning up polluted natural land, lake and environment, cleaning or handling oil and gas spills, cleaning up contaminated soil, settling personal injury claims which are related to the environment, restoring land to natural state, costs for operating pollution control equipment, treating and disposing of toxic wastes, maintaining pollution prevention equipment, licensing facilities for producing contaminants, and costs resulting from recycling scrap.

RESULTS

Pooled results

The objective of this study was to determine the practices of disclosing information on environmental costs of nine oil and gas companies operating in Tanzania for the year 2013. The results are presented in Table 4 and Figure 1.

Table 4: Environmental costs information disclosure

Item	Defensive disclosure		Aggressive disclosure		Total disclosure	
	NTV[7]	QTY[8]	NTV	QTY	NTV	QTY
Detection	1	0	0	0	1	0
Audit	4	0	0	0	4	0
Performance measures	1	0	0	0	1	0
Contamination test	1	0	0	0	1	0
Inspection	7	0	0	0	7	0
Precaution	1	0	0	0	1	0
Prevention	25	0	0	0	25	0
Protection	25	0	0	0	25	0
Impact study/training/assessment	23	0	2	0	25	0
Management system/ plan/ programme	19	0	0	0	19	0
Recycling	6	0	0	3	6	3
ISO 14001	10	0	0	0	10	0
Pollution	7	0	18	0	25	0
Clean-up	0	0	9	0	9	0
Waste management/disposal	2	0	17	0	19	0
Spills oil/gas	0	0	25	2	25	2
Restoration	0	0	9	4	9	4
Penalties/fines	0	0	2	0	2	0
Contamination remedy	0	0	10	0	10	0
Injury claim	0	0	5	0	5	0
Compliance	0	0	12	0	12	0

[7] NTV stand for narrative disclosure

[8] QTV stand for quantitative disclosure

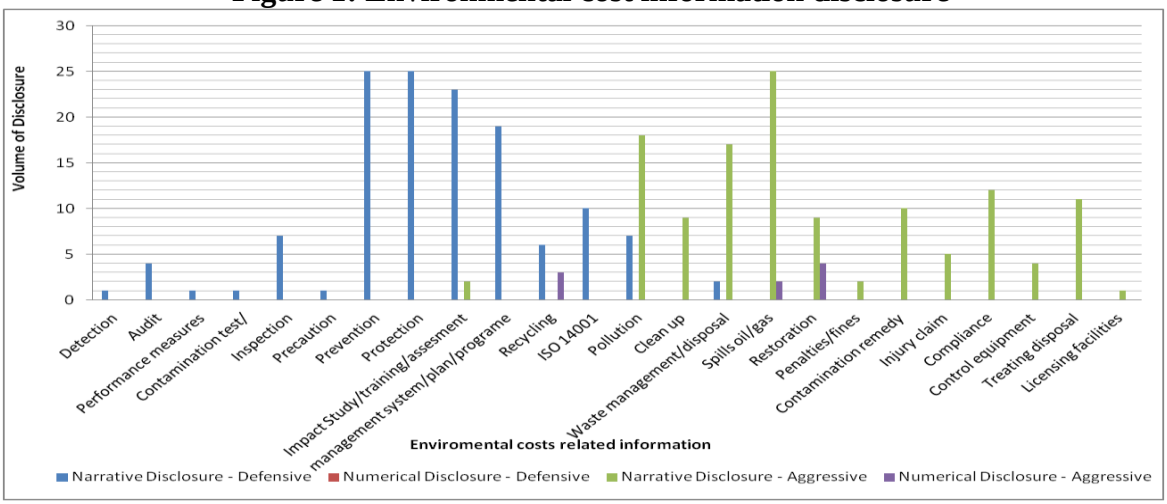
Control equipment	0	0	4	0	4	0
Treating disposal	0	0	11	0	11	0
Licensing facilities	0	0	1	0	1	0
TOTAL	130	0	124	9	254	9

Source: (Researchers, Annual Reports, 2013).

The results show that the incidences of narrative defensive and narrative aggressive disclosure of the nine annual reports are 254 (96.6%) of the total disclosed sentences. The numerical disclosure (disclosure which indicates level of commitment to attending the environmental issue) is only 9 sentences (3.4%) of total disclosure. Further, results show that sentences regarding environmental prevention, protection, environment impact assessment of study and environmental management systems are highly disclosed recording 92 out of 130 incidences (70.1%). The findings indicate that companies disclose more environmental defensive costs than environmental aggressive costs. Moreover, the findings show that companies disclose information on environmental costs in a purely narrative way rather than numerically. The findings imply that companies are green washing in the sense that what they say about preventive environmental disclosure is not what they are actually doing.

Meanwhile, disclosure of aggressive environmental costs on gas or oil spills, pollution management, waste management, treating disposals, and compliance to environmental standards have been disclosed in more than ten (10) incidences, while other types of information for example penalties/fines, recycling, clean up, restoration and injury claim have been disclosed in less than ten incidences. This implies that some information on environmental costs appears to be more important than others. The possible reasons for this disclosure practices might be threefold. One, companies are strategically disclosing narrative information on environmental costs in order to align with the Social Contract Theory. This theory is based on justice to individuals within the society and the costs to the society that emanate from firms' operations (Godfrey *et al.*, 2006). This is due to the fact that the information disclosed in more than ten incidences seems to have direct impact to the society. Two, companies may be strategically disclosing information to align with pillar number four of Tanzania's National Gas Policy. Three, companies might need to win the confidence of environmentally friendly investors. In the same vein, the information disclosed in more than ten incidences seems to have more appeal to investors. These findings are consistent with previous studies such as Branco *et al.* (2007), Perez *et al.* (2007), Baumuller *et al.* (2011), and Ibanichuka and James (2014). For instance, Baumuller *et al.* (2011) found that although oil and gas companies have policies to address environmental impacts, their actual practices largely remain piecemeal and short-term.

Figure 1: Environmental cost information disclosure



Source: Annual Reports, 2013

Individual companies' results

Apart from the pooled results, disclosure of the environmental costs for individual companies, whose results are presented in Table 5 and Figure 2, were also examined. The results indicate that some companies disclose more environmental costs information than others. For instance, Maurel and Prom discloses 44.6% (58 incidences) and 26.6% (33 incidences) of the total defensive and aggressive narrative disclosures out of 130 and 124 incidences respectively. Aminex Plc discloses 0.77% (1 incidence) and 1.6% (2 incidences) of the total defensive and aggressive narrative disclosures respectively. Moreover, Maurel and Prom and Afren Plc are the only companies whose annual reports indicated the numerical aggressive disclosure recording 66.7% (6 incidences) and 33.3% (3 incidences) respectively of the total numerical aggressive disclosure (9).

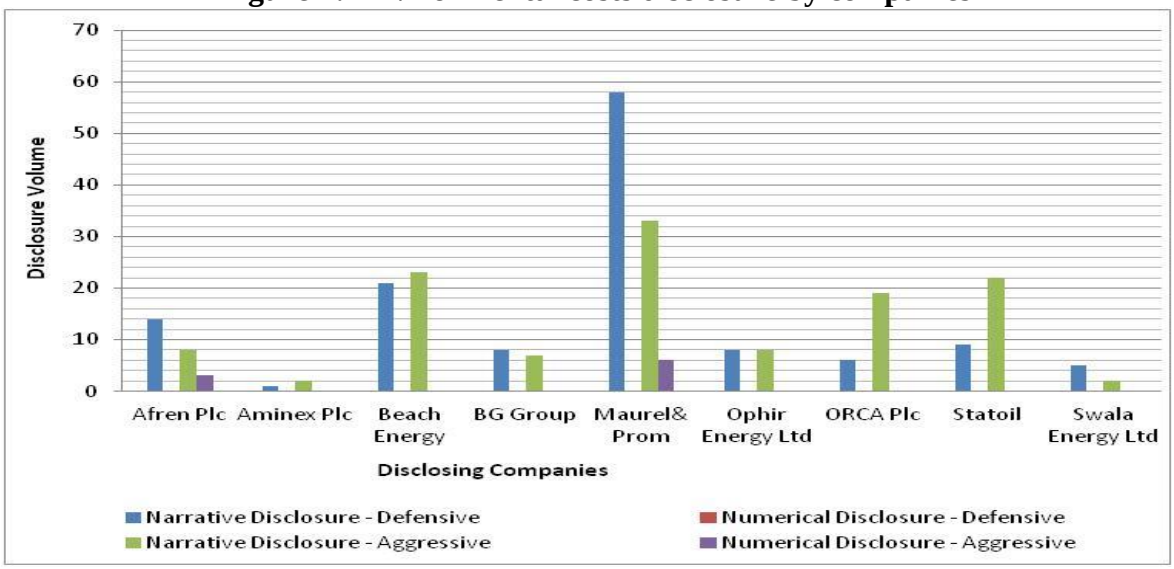
One notable finding is that Maurel and Prom is a relatively small company (411 employees), compared to Statoil which has 23,413 employees and BG Group which has 5,536 employees. This may imply that firm size has little influence on disclosure of environmental cost. This finding is inconsistent with earlier research which revealed a positive relationship between firm size and the level of environmental disclosure (e.g. Patten, 1992; Deegan & Gordon, 1996); Liu & Anbumozhi, 2009, Pavelin & Brammer, 2008). These studies argue that large firms are subject to greater exposure and visibility, have greater competitive advantage and resources, need to improve their public image and reputation, and face pressure from different stakeholders; thus, they are compelled to disclose more environmental information than smaller firms. The findings of this study can be explained by the regulatory environment in which the companies operate in the sense that prior studies took into account mandatory regulatory reporting while this study took into account voluntary reporting. This calls for further research to empirically investigate the relationship between firm size and disclosure of environmental costs under voluntary corporate reporting.

Table 5: Environmental costs disclosure by companies

Company	Company size - 2013	Defensive disclosure		Aggressive disclosure	
	Number of Employees	NTV	QTY	NTV	QTY
Afren Plc	294	14	0	8	3
Aminex Plc	22	1	0	2	0
Beach Energy	180	21	0	23	0
BG Group	5536	8	0	7	0
Maurel & Prom	411	58	0	33	6
Ophir Energy Ltd	197	8	0	8	0
ORCA Plc	91	6	0	19	0
Statoil	23,413	9	0	22	0
Swala Energy Ltd		5	0	2	0
TOTAL		130	0	124	9

Source: Annual Reports, 2013.

Figure 2: Environmental costs disclosure by companies



Source: Annual Reports, 2013

CONCLUSION

This study aimed at examining disclosure practices of environmental costs of oil and gas companies operating in Tanzania. Nine companies were used as sources of data, and content analysis was used to collect this data. The results reveal that narrative defensive disclosure of information on environmental costs of the oil and gas companies operating in Tanzania is 96.6%, while the narrative aggressive disclosure is 3.4% of total volume of environmental costs disclosure.[9] It seems that lack of International Financial Reporting Standards (IFRS) and enforcement by regulatory authorities requiring the disclosure of environmental costs and liabilities both have a direct effect on environmental disclosure practices (Ibanichuka & James, 2014). In addition, the absence of a clear classification of environmental costs prohibits the need to disclose and classify these costs. It is evident that firms operating in environmental sensitive sectors incur considerable costs in an attempt to protect their operations from causing harm to the environment.

[9]Total narrative disclosure appears to 254 (96.6%) sentences while numerical disclosure is only 9 (3.4%)

Through this article, and consistent with Ibanichuka and James (2014), it could be argued that classifying environmental costs into appropriate cost centres enables investors, shareholders, society and other stakeholders to determine how the companies respond to corporate negative externalities and to their environmental responsibilities. Further, prevention is better than cure, so oil and gas companies should put more focus on environmental preventive measures rather than waiting to incur curative costs for handling damaged environments.

This study recommends that environmental costs incurred to prevent, fix and compensate injuries should be reported in the financial statements as environmental costs, and the notes of financial statements should indicate the specific category of the environmental costs. Branco *et al.* (2007) and Perez *et al.* (2007) argue that categorical disclosure of information on environmental costs in the annual reports has impact on the perceptions of investors because the information affects a firm's cash flow. This idea of categorical disclosure of information on environmental costs is similar to the idea of an environmental cost centre which was argued to reduce negative environmental impacts (Letmathe & Doost, 2000).

As per requirements of the International Accounting Standard (IAS) 1, environmental costs information should be disclosed in the financial reports so that shareholders and other key stakeholders understand the nature of environmental liabilities and costs. It is therefore important that the recognition of environmental costs and liabilities should be clear in identifying and defining the nature of underlying costs. In this context, the categorical disclosure of such information, with appropriate explanation, is important to users in this era of increasing importance of environmental issues.

This research is important to a wide range of users including firms, governments, investors, accounting regulatory bodies and the general public in ensuring that oil and gas companies protect the environment surrounding their operations. Future research may examine the factors influencing disclosure of environmental costs and seek to understand why some companies disclose more information than others. Also, such studies could examine the factors that influence disclosure of environmental costs in voluntary corporate reporting settings. Moreover, future research could increase the sample size and the research span to get a broader picture of disclosure of information of environmental costs.

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Appendix 1: Some of environmental costs information

Company name	Detection	Prevention	Externality	Operating
(ORCA, 2013) Employee - 2013 - 91 2012 - 86	ORCA indicated that environmental inspection is performed to detect risks. ORCA conducts environmental impact study. ***No cost identified***	The company is aware and complies with environmental laws and regulations related to waste disposal, pollution and control. The costs of complying with environmental laws and regulations are expected to increase in the future. However, no cost has been mentioned to be incurred in 2013.	The company is aware that damages, clean-up costs or penalties on environmental damages could have a material adverse effect on the company.	ORCA noted that no future site restoration costs are expected in Tanzania because the company currently has no legal, contractual or constructive obligation.
(Statoil, 2013) Employee 2013 - 23,413 2012 - 23,028		Statoil incurred and expected to incur more substantial costs of preventing, controlling, and eliminating environmental harm. However, no cost has been mentioned for these activities.	Statoil is aware that damage to the environment may lead to a significant reduction in revenue, an increase in costs, a shutdown of operations, and could have a materially adverse effect on financial condition. Statoil is expect to continue to incur substantial costs of compensation of persons and/or entities claiming damages as a result of operations. Statoil control policy covers costs relating to pollution and clean-up costs.	In 2013, operating expenses increased compared to 2012 mainly due to increased environmental tax expenses caused by increased CO2 tax. ***No amount has specifically been incurred for environmental activities.***
(Maurel & Prom 2013) Employee 2013 - 411 2012 – 343 (Maurel & Prom, 2013)	In terms of environmental protection, the company's objective is to preserve the environment. Maurel & Prom implements an environmental management programme aimed at the identification, prevention and	Maurel & Prom caution that environmental protection has to be respected by all employees. Maurel & Prom's environmental policy is based on control of its greenhouse gas emissions and optimal management of waste release. Maurel & Prom's management	In 2013 there were seven accidental hydrocarbon spills into the natural environment totalling 63 m3. Six of these spills occurred in Gabon and one in Tanzania. The spills led to the formation of environmental teams to tackle clean-up operations, pollution containment and the	In 2013, costs on provisions and guarantees for environmental risks across the group were nil. In 2013, more than 180 employees were assigned to environmental prevention and pollution risk issues.

Company name	Detection	Prevention	Externality	Operating
	mitigation of environmental risks. Maurel & Prom provide training on environmental inspection, protection, awareness, and risk analysis to employees. Measures to prevent, reduce or remedy releases into the air, water and soil that seriously affect the environment	programmes about environment are built around waste management and environmental impact assessment. Maurel & Prom measures to prevent, reduce or remedy environmental damages are in place.	excavation of contaminated soil, along with the involvement of external companies.	
(BG Group, 2013) Employee 2013 - 5536 2012 - 6568.	BG Group's environmental, social and governance performance is measured using the following index: Dow Jones Sustainability Indices (DJSI); FTSE 4 Good Index; Carbon Performance Leadership Index (CPLI);and Carbon Disclosure Leadership Index (CDLI).	BG Group makes a positive contribution to the protection of the environment. BG Group maintained 100% certification to ISO 14001. In 2013, BG Group had no major environmental incidents.	BG Group aims to minimise impact on the environment, using best available techniques. BG Group sets a five-year climate change target and invests in research into lower-carbon technologies BG Group is aware that its activities may adversely affect the environment which may result in significant fines, liabilities or other losses.	BG Group maintains an insurance programme to provide some mitigation against significant losses.
(Aminex Plc 2013) Employee 2013 - 22 2012 – 23 (Aminex, 2013)		Aminex is aware that protection of the environment requires careful planning and commitment. Aminex complies to legislative requirements and committed to good environmental management.		
(Afren, 2013) Employees	In 2013 Afren Plc aimed to	Afren Plc states that it will comply with the	Annual report of Afren Plc indicates	

Company name	Detection	Prevention	Externality	Operating
2013 - 294 2012 – 281	improve the monitoring of its environmental performance through environmental audits and ISO 14001 standards, policies and procedures. Afren Plc's intensity ratio is measured as tons of CO2e against 1000 tons of hydrocarbon production.	relevant local and national regulations, frameworks and guidelines. Afren will conserve resources and protect the environment. Afren will apply re-use and re-cycling methods wherever possible. Afren will minimise waste generation and dispose waste. Afren have a detailed environmental management system that applies to all operations. In Afren Plc, 95% of press chemicals are recycled for further use and, on average 99% of any waste associated with this production will be recycled.	that provision for environmental clean-up and associated costs depend on the legal requirements	