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THE INFLUENCE OF LEGITIMACY AND MARKETING IN THE CONTEXT OF ACCOUNTING FOR THE ENVIRONMENT IN A SUB-SAHARAN AFRICAN COUNTRY

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ABSTRACT: *Purpose – The paper intends to serve as a contribution to the requirements for organizations to account for and disclose the social and environmental (SE) consequences of their activities, aspects of the concept of sustainability accounting (SA). In particular, this research study investigates the current practices of environmental accounting (EA), whether it is influenced by the same values as that of society and is used as a marketing tool of the oil and gas sector in Uganda, a less developed country. Design/methodology/approach – The study involved 57 oil and petroleum supply chains. Major data collection methods included a review of 13 annual reports/statements by oil companies and both a structured and a semi-structured questionnaire involving 272 respondents, with a response rate of 57.0%. A mixed-methodological approach was employed to analyze the qualitative and quantitative data together. Findings – (1) There are no detailed archival records related to EA; (2) respondents' (106) responses to the possible consequences of not accounting for the environment were almost indifferent on issues that influence marketing, indicated by the small differences in the mean (1.83 to 2.50) and standard deviations (0.504 to 0.925); (3) responses on the influence of legitimacy and marketing on accounting for the environment ranged from 8.3% to 90.0%, while the mean ranged from 1.92 to 3.90 and the standard deviations from 0.303 to 1.482; (4) we suggest that EA is currently not being done, which is an indicator of poor management of the environment; (5) the results support that a marketing tool is not a significant determining factor of accounting for the environment, despite having a social role to fulfill; and (6) the results do support the theory of legitimacy, because oil and petroleum products suppliers in the country respond to environmental laws, regulations and guidelines. Originality/value – The highlighted perspective on how organizations account for and disclose the environmental trends of their activities – an aspect of the concept of SA in Uganda, a country with a youthful population, open markets, abundant resources and significant unexploited oil and gas reserves – distinguishes this study from others on similar topics.*

KEYWORDS – environment, legitimacy, marketing, oil and gas sector, sub-Saharan Africa, sustainability accounting

INTRODUCTION

In this paper, we explore the influence of legitimacy and marketing in the context of accounting for the environment of Uganda, a country with a youthful population, open markets and abundant resources, which has significant unexploited oil and gas reserves. The

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oil and gas sector is a major industry and will most likely continue driving foreign direct investment in the country if the current macro-economic stability carries on improving and the investment climate is maintained. Interest in the link between sustainable development (SD) and corporate management (CM) action is at an all-time high and has gained considerable public attention (Schaltegger & Burritt, 2005; Freedman & Jaggi, 2005; Windolph *et al.*, 2013) and developments in the mainstream accounting and management research involve an increasing range of authors and regions (Cho & Patten, 2007; Rika, 2009; Schaltegger *et al.*, 2013). Reasons given for this increasing interest, public attention, awareness and continuing popularity are the widespread public agreement that SD of a society and the economy requires SD on the part of corporations (Stone (1975) as cited by Schaltegger & Burritt, 2005) and the negative impact of human and corporate activities on the environment (Woodhouse, 2000; Schaltegger *et al.*, 2013). Moreover, green innovation – that is, green product innovation and green process innovation, as discussed by Alhadid and Abu-Rumman (2014) – has an impact on organizational performance.

As examples, major causes of negative environmental impact are oil and gas companies' adverse environmental issues that have received increasing awareness and wide publicity, including the 1989 *Exxon Valdez* oil spill disaster in Alaska (Gray & Bebbington, 2002); displacement of Amazonian people from the Ecuadorian Amazon and the release of millions of gallons of untreated toxic wastes, gas and oil into the environment (Sebastian & Hurtig, 2005); the intended, but not executed, sinking of the Brent Spar oil platform in the Atlantic Ocean by Shell (Gray & Bebbington, 2002); environmental problems associated with oil exploration and exploitation in Nigeria (Ite, 2007; Olukoya, 2008); recent displacement of people in Uganda for oil exploration (Banfield, 2009); environmental degradation, pollution of land and rivers and loss of income-earning opportunities for the population in the Niger Delta region in Nigeria (African Network for Environment and Economic Justice (ANEEJ), 2004); and the Gulf Coast of Mexico oil spill by BP that eclipsed the *Exxon Valdez*.[1] Water, air and soil pollution caused by economic business activities associated with oil also illustrate the magnitude of environmental problems (Mwesigye, 2003; The Economist, 2008).

It seems therefore that such environmental problems have led organizations to account for and report information that highlights the integration among the three linked elements of corporate sustainability, which are the economic, social and environmental (Adams, 2001) aspects associated with oil exploration, as well as the exploitation and use of the environment. For instance, Quirke (1996) points out that companies use their annual reports to disclose environmental aspects that were previously undisclosed. Thus, by accounting for and disclosing environmental information, this data, as Wagner (2007) argues, significantly influences the four important drivers of businesses' economic performance – market, reputation, efficiency and risk – and improves organizations' marketing strategy of the traditional marketing mix of the 4Ps of product, price, place (distribution) and promotion (communication) via green practices (Trujillo *et al.*, 2014). As a result, good sustainability management links aspects of legitimacy, market success and internal improvement with the functional areas of businesses: public relations/communications, marketing, research and development (R&D), purchasing, logistics/distribution, production, human resources (HR), finance and accounting (Windolph *et al.*, 2013). Furthermore, corporate sustainability

[1] On the Gulf Coast of Mexico, off Louisiana, where 5,000 barrels or 200,000 gallons of crude oil were spilled, threatening hundreds of species of fish, birds and other wildlife. This happened on April 20, 2010 and is likely to trigger losses of at least US $1.5 million a month (http://news.yahoo.com/s/ap/20100430/ap). <LINK DOES NOT WORK, ALSO NEED ACCESSED DATE>

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requires good management decisions and good decisions require superior information as a prerequisite (Schaltegger & Burritt, 2000). In this context, environmental management accounting provides management with the necessary information to increase profits through environmental measures.

Researchers have stated that accounting educators and researchers, accountants and company management will have to adopt more radical approaches in accounting for the environment (Gibbon & Joshi, 1999; Wheeler & Elkington, 2004) and to disclose information to the public (Mathews, 1997). This practice of environmental accounting research, however, has tended to focus particularly on Western European and North American countries and companies (Gamble *et al.*, 1996; Patten, 2002). In the newly industrialized countries of the Asia-Pacific region, there remains a low incidence of environmental accounting outside Australia, New Zealand and Japan (Lee, 2002; Sahay, 2004; Mirshekary & Saudagaran, 2005; Kokubu & Nashioka, 2007), with limited studies conducted across African countries. The exception here is the Republic of South Africa, whose significant accounting activity and economy are considered to be on a par with those of many developed countries (De Villiers, 2004). The mega-like countries of Southeast Asia are also growing fast at the expense of environmental degradation, something that calls for environmental accounting and audit.

Given this context, we conclude that surveys and studies on environmental accounting are limited in Uganda and other sub-Saharan countries generally. It is not clear why there has been very little work done on environmental accounting in Uganda, all the more so since with the discovery of petroleum products, such research work and studies are inevitably important. The established current environmental accounting practice by oil chains in Uganda supports the development of more sustainable plans for oil exploration in the country, as well as promoting excellence in accounting education and research on a worldwide basis.

In this paper, we investigate the role that accounting for the environment plays in the achievement of corporate legitimacy and marketing perspectives in the Ugandan oil sector, with a view to directing a business purposefully with sound environmental practices. In addition to studying 57 oil and petroleum supply chains, via a survey questionnaire we sought the views of those in the environmental accounting supply chain, especially environmental inspectors, auditors, District Environmental Officers and social accountants. We also reviewed 13 annual reports/statements by oil companies. Hence, the general research question analyzed is how an environmental management accounting (EMA) approach can be designed for small and medium enterprises (SMEs).

Accordingly, the paper addresses three research questions: (1) Are environmental accounting practices in Uganda linked to other attributes of performance, such as marketing success and legitimacy? (2) Do informed and important stakeholders react to environmental accounting and disclosure in Uganda's oil supply chains? (3) Is environmental accounting of any relevance to users? Soliciting explanations for the ranking of challenges hindering accounting for the environment was intended to find out the level of awareness and demand for disclosures in environmental accounting. The highlighted perspective on a sub-Saharan African country and the oil industry distinguishes this study from others on similar topics. The lessons drawn can be useful to sustainability accounting within a similar context and is a contribution of accounting academics to the development of accounting practice.

The next section starts by presenting a short overview of accounting theories and their impact on environmental accounting. Data and methods used to study the research questions are

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covered in section three. The results and discussions of the results are presented in section four. The paper ends with an overview of the study based on the findings presented in section five.

Accounting Theories

In this section, we therefore present a short overview of accounting theories derived from document reviews and their impact on accounting for the environment (Table 1).

Table 1: Selected Accounting Theories and Their Impact on Environmental Accounting

Accounting theories	Explanations	Impact on environmental accounting
No accepted theory (AAA, 1977)	Provide information useful for decision purposes of investors. Emphasize the needs of direct users rather than other interested parties	Profitability of businesses is number one goal. No consideration of other impacts, e.g. environment
Systems theory (Miller, 1972)	Organizations are a collection of specialized subsystems	Market characteristics should focus on profit maximization. Disregard other stakeholders; thus ignore environmental considerations
Valuation model (Williams, 1938)	Based on the time value of money	Accounting for environmental shareholder value (Schaltegger & Figge, 2000). This is a special case between the stakeholder approach to environmental accounting and a financial market view
Capital Asset Pricing Model (CAPM) (Sharpe, 1964)	Greater investment risk will result in higher expected returns for investors	
Agency or principal-agent theory (Eisenhardt, 1989)	The principal is in command, hence the person whose welfare should only be maximized	
Decision-making theory (Rosana, 2008)	A humanistic view of the interrelationships between people and the implications for organizational decision making	Organizations have a social role to fulfill in the wider society. Emerging social awareness, environmental consciousness and preferences for environmentally friendly products and services
Stakeholder approach (Schaltegger & Sturm, 1992; Schaltegger & Burritt, 2000)	Different accounting and environmental accounting systems emerge to serve the information needs of different, relevant and important powerful stakeholders	Managers are challenged to introduce and manage different environmental accounting systems and performance indicators
Legitimacy theory (Gray *et al*., 1996)	Emphasizes the relation between organizations, the state, individuals and groups	Environmental policy incentive based on instruments or regulatory approaches. Emerging institutional structures, e.g. political opponents of environmentally oriented groups. Account for and disclose all relevant information pertaining to business activities

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Source: Researchers (various document reviews).

Drawing from the accounting theories in Table 1, we conclude that the boundary of accounting is continuously changing and now includes the wider society in which businesses operate. Thus, investors who require accounting information concerning organizational activities are not alone. Various other interested parties require accounting information pertaining to the business tailored to their needs. In this paper we extend this discussion by exploring the influence of legitimacy and marketing on environmental information in the oil and gas sector in Uganda, a less developed country with numerous investment opportunities (Shinyabulo-Mutende, 2005).

DESCRIPTION OF STUDY SITES, DATA AND METHODS

Description of Study Sites

Uganda is a less-developed country situated in the African Great Lakes region, with a series of lakes constituting part of the Rift Valley lakes in and around the East African Rift. Additionally, its strategic location in the heart of Africa with approximately 159 million people and with 100% investment capital allowance for mineral exploration, training and scientific expenditures offers other investment opportunities (Shinyabulo-Mutende, 2005). It has open water bodies covering 36,527.4 square kilometers (15.1% of the country's total area) and wetlands covering 4,500 square kilometers (1.9% of the total area).

The study sites for this research are Kampala, the capital city, and Mbarara Town, which is aspiring to become a city by 2017. Mbarara Town is located in the southwest of the country, and is the largest urban center in western and southwestern Uganda. The town lies between longitude 30° 37´E and 30° 42´W and latitude 00° 35´N to 00° 38´S. The Rwizi River, a source of water for domestic, industrial and agricultural activities, passes through the town and most drainage channels flow into it with adjacent sewage lagoons (Figure 1). The other water catchment area is Kiyanja, which has a filling station within a radius of approximately 100 meters. In a period of just ten years, the number of filling stations in Mbarara Town has increased from the original 6 to 25 and many more are still being established. With an area of approximately 51.47 square kilometers (19.87 square miles), it has 1 filling station per 2.06 square kilometers, and approximately 38 informal garages.

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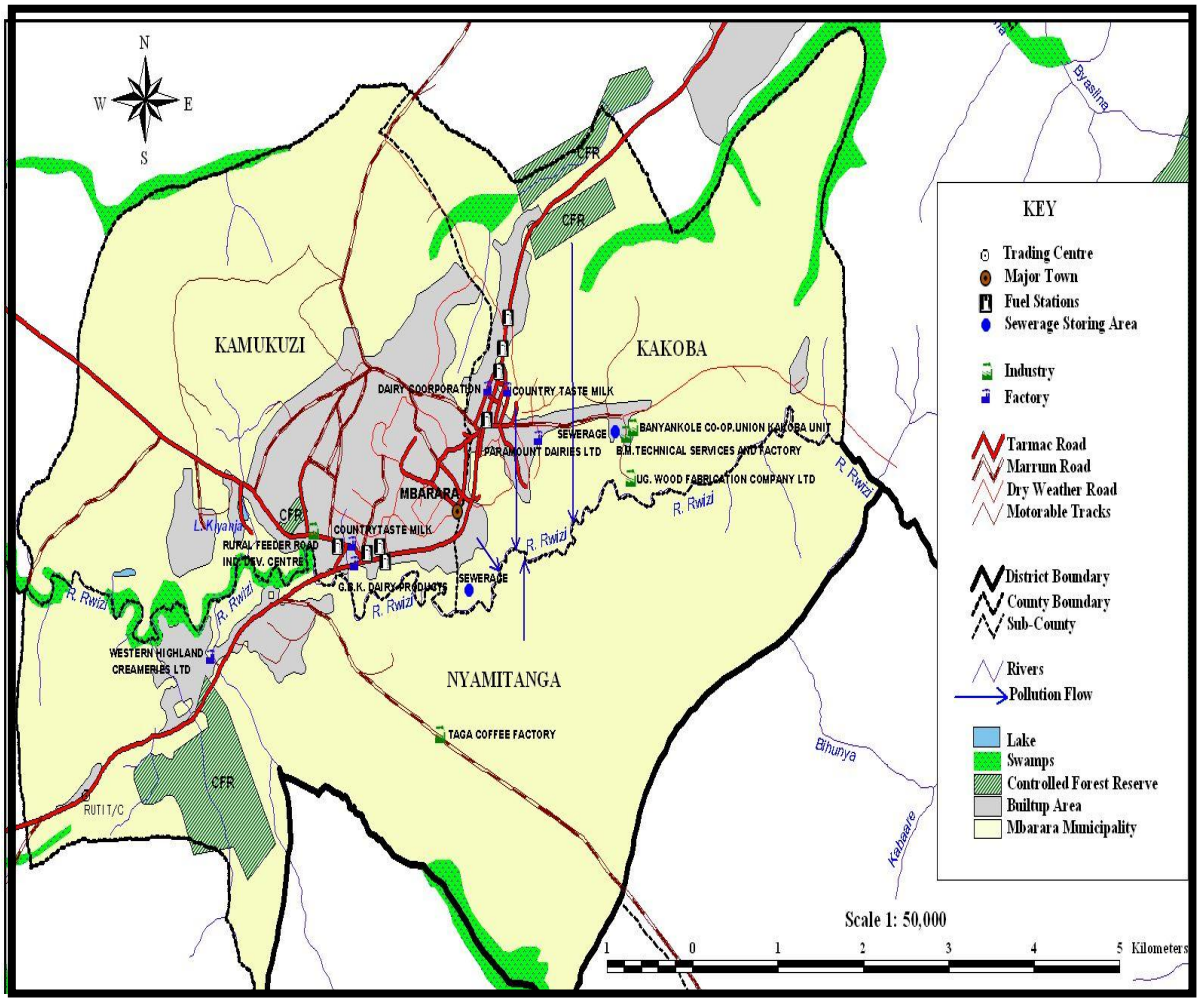

Figure 1: Mbarara Town Water Catchments and Pollution Flow

Kampala, the capital city of Uganda, is situated at 0° 15´N and 32º 30´E. It has a total area of 195 square kilometers, of which 31 square kilometers (15.9%) are covered by wetlands (Ogwal, 2004). The city is situated 8 kilometers north of Lake Victoria, the largest tropical lake and the second largest freshwater lake in the world, which covers an area of 68,800 square kilometers (Matagi, 2002; Okungu, 2004). The lake area is home to about 30 million people, many of whom depend on the lake for their livelihood, largely from fishing. Most drainage channels from Kampala City flow to Lake Victoria and pass through Lubigi, Mayanja, Nakivubo, Kansanga and Kawagga swamps (Figure 2). In addition, Kampala City has experienced rapid population growth, which has led to haphazard practices, largely dominated by urban informality in most sectors, including oil and gas. In addition, during the rainy season flooding is a common problem and some roads become impassable (Tushabomwe-Kazooba & Kemeza, 2008).

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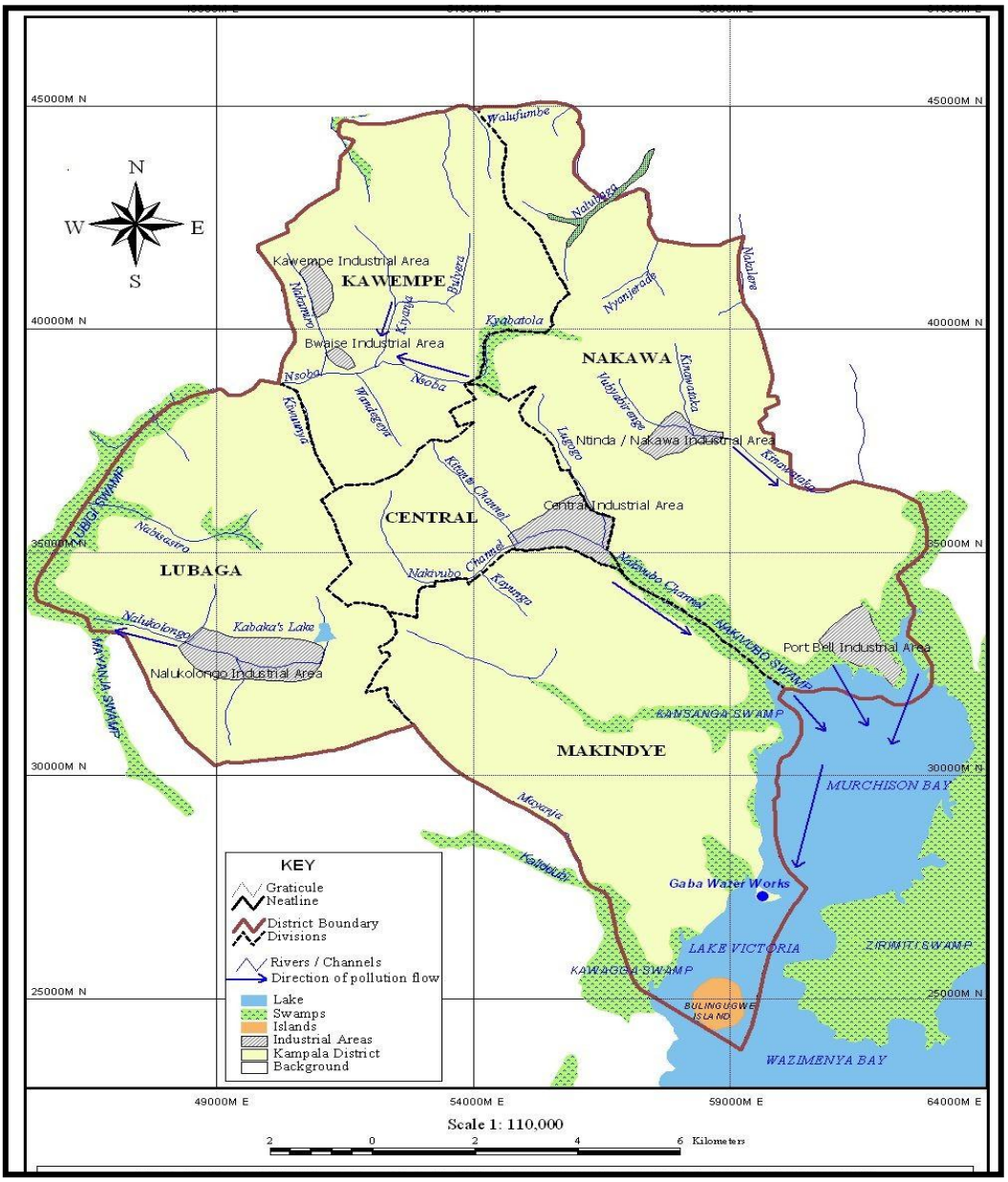

Figure 2: Kampala City Water Catchments and Industrial Zones

Data and Methods

The populations studied were those that have influence in the oil supply chains in Uganda's liberalized fuel business. Data collection methods included review of annual reports/statements by oil companies. Prior research suggests that annual reports are major channels for corporate communication. For example, Neimark (1992) examined hidden dimensions of annual reports. Adams and others (1995) studied environmental, employee and ethical reporting in Europe, whereas Gray and others (1995) explored the methodological

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themes of social and environmental reporting, and all concluded that annual or "other" reports contained information on corporate environmental performance. Burchell and others (1980), who studied accounting functions in practice, concluded that corporate annual reports are influential in shaping what is considered important in society. On the other hand, Neimark (1992) indicates that annual reports are a significant source of accounting information with regular and wide distribution, where management has the opportunity to include comments on important or problematic issues. Hence, this study sought to find out whether oil companies' annual reports submitted to the Registrar General's Department (RGD), Ministry of Justice and Constitutional Affairs (MoJCA), contained disclosures on environment issues. The type of data found in the 13 files of oil and petroleum product suppliers reviewed is presented in Table 5. These are the files of oil companies that were available for this study and represent 22.8% of licensed oil companies at the time of the study. Other data collection methods were using a questionnaire and conducting an in-depth interview. Using both structured and semi-structured questionnaires produced a response rate of 57.0% (range 23.1% to 100%; mean 67.7%) (Table 2).

Table 2: Types of Categories of Respondents and Justification for Their Inclusion

Category	Justification for inclusion	Number selected	Response (number)	Response rate (%)	% of sample
Managers and preparers of environmental reports of oil companies, garages and filling stations	Implementers of environmental laws and regulations; part of the reporting entity's operations; prepare environmental performance reports	33[1] 54[2]	28[3] 45[4]	84.8 83.3	18.1 29.0
Environmental practitioners	Environmental impact assessors of oil companies	48	26	54.2	16.8
Independent environmental auditors	Provide assurance of different supply chain environmental impacts (past, present and future); assess risks and internal controls	14	11	78.6	7.1
District Environmental Officers	Environmental law enforcement officers at district level	82	26	31.7	16.8
Regulatory agency personnel	Inspections to determine compliance status of regulated community and to detect violations; negotiate with individuals or facility managers; education programs	8	7	87.5	4.5
Academics/ educators and environmental journalists	Research; promote awareness	5	4	80.0	2.6
Environmental law practitioners	Involved in environmental litigation matters	26	6	23.1	3.8
Planners/local authority administrators	Planners of establishment of supply chains	2	2	100	1.3
Total		**272**	**155**	**57.0**	**100**

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[1]Oil companies, 8; formal, 10; informal, 15. [2]At filling stations, 54 (i.e. two per station). [3]The figure includes 5 respondents from informal garages. [4]Eleven of these respondents are managers and supervisors.

These respondents were situated in Kampala City and Mbarara Town, the study sites. The objective behind the selection of respondents was to cover a wide range of stakeholders in the oil supply chain in Uganda. Based on information obtained from reviewing policies and legal frameworks to determine the way in which environmental accounting is regulated and developed; reviewing printed and electronic social reports by oil companies; pre-testing for clarity, functionality and understanding on 20 respondents, a final questionnaire was redesigned while at the same time allowing for translation to the Ugandan context.

The final questionnaire included sets of 15 questions under five sections on: (A) classification (2); (B) regulatory environmental accounting (2); (C) environmental impacts (3); (D) environmental accounting (6); and (E) general comments (2) (range = 2–6, mean = 3, median = 2). In addition, section D explored consequences of not accounting for the environment by oil companies, filling/petrol stations, formal garages and informal garages using a 4-item Likert scale (essential, useful, of interest or not relevant). It had 10 possible consequences. Results are presented in Tables 7 through 10. The sections were purposely chosen because of their linkage to specific research questions and study objectives. It is only section E – which comprised two open-ended questions asking respondents to detail information on personal difficulties that the companies face in attempting to remain in compliance with environmental regulations and to provide additional comments that may be relevant for the study – which cut across the research questions and study objectives. This paper for the most part presents results of Sections D and E.

In order to match what the respondents said with what was actually happening on the ground, oil companies' value chain sites, processes and products were observed using an observation checklist. During the period of the study, the first author also attended five training courses and workshops related to environmental management and governance. Permission to conduct the study and interviews was obtained from: (1) Uganda National Council of Science and Technology (UNCST); (2) The Research and Ethics Committee of Mbarara University of Science and Technology (MUST); (3) National Environment Management Authority (NEMA); (4) Ministry of Energy and Mineral Development (MEMD); (5) Energy Institute of Uganda; and (6)S numerous oil and petroleum supply chains in Uganda.

A mixed-methodological analysis to transform qualitative and quantitative data into each other was used (Trow, 1957; Caracelli & Greene, 1993). In agreement with Greene and McClintock (1985), the primary purpose for using a mix of methods is complementarity. Greene and McClintock (1985) also indicate the benefits of this strategy as to ensure the integrity of the assumptions and methodology through the triangulation of results.

RESULTS AND DISCUSSION

The Practice of Environmental Accounting Systems in Oil Supply Chains

The study findings indicate that slightly below three-quarters (73.7%) of the supply chains studied recognize the value of the environment through the preparation of environmental impact assessment (EIA) reports. Over a quarter (26.3%), all of them informal garages, do

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not prepare EIA reports. Moreover, 116 respondents (74.8%) said that EIA reports are prepared to fulfill the obligations of environmental laws, regulations and guidelines. Only 5 (33.3%) owners of informal garages studied said that they were concerned about the environment, although this study indicates that they never have prepared EIA reports. On this issue, a respondent who is a senior urban manager suggested that oil supply chains, whether small or big, should all be subjected to EIA before they are allowed to operate (pers. com., 2009). The entire 34 service bay attendants (21.9%) interviewed said that they were less concerned about EIA reports, which they viewed as the responsibility of owners.

On the question of environmental auditing, the results of this study show that oil companies (100%) do self-auditing because the law requires them. Despite this, a District Environmental Officer with experience of implementation and enforcement of oil chains reported that there is almost no self-auditing by oil marketing chains (pers. com., 2008). This revelation seems to be supported by the absence of audit reports at NEMA library, Kampala study site and Mbarara District environmental offices, unlike the EIAs that were readily available at these places.

The study findings indicate that originally the objective of environmental audit is a tool used by enterprises to evaluate their own environmental performance and to provide an opportunity for organizational improvements (Venturelli & Pilisi, 2005), but not to introduce an environmental accounting system. Moreover, oil and petroleum product suppliers are more concerned with profits than environmental conservation. Overwhelmingly, 143 (92.3%) respondents mentioned that the number one objective of oil and petroleum product suppliers is to make profit. The reason why oil companies run into environmental ethical problems is because of only pursuing the wealth maximization model, ignoring stakeholder and legitimacy theories, which complement each other (Deegan, 2002).

There was a general consensus by environmental practitioners and independent auditors (28, 75.7%) that audit involvement in environmental reports was not a reality in the oil-sector chains surveyed. A regulatory agency staff member, however, with over seven years' working experience working with the Ministry of Water, Lands and Environment, and with a Master's in Environment Science, cited reasons for verifying oil companies' environmental reports for conformance with policy, standards and regulation. He indicated that this should be done to ensure compliance with existing laws, regulations and policy (pers. com., 2009). The findings of this study agree with this position, as oil and petroleum product suppliers do not see the need to reduce their environmental burdens. Instead, they look at doing so as an additional cost to their operational expenses, as environmental issues are costly and time consuming.

Therefore, it seems evident that environmental issues are considered to be of secondary importance. Slightly below a quarter of respondents (23%) were of the opinion that oil and petroleum products suppliers should take more environmental responsibility than they currently are. This can be explained by the fact that today in the eyes of consumers there is little scope for differentiation of products and services, with pricing remaining the prominent frontier for competition and demarcation within the industry. Still, what is important is all about accounting for and disclosing actions taken or not taken. There is a need to differentiate natural and man-made actions.

This study finding is similar to that of Lefebvre and others (2003) when they studied Canadian small and medium-sized enterprises (SMEs) operating in four very different

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industries. Accordingly, for SMEs environmentally responsive practices are still driven by compliance with legislation and risk avoidance. This supports the legitimacy theory (Gray *et al.*, 1996). In this era of the global economy, and due to varied services, it is important for the long-term sustainability of an organization, even for SMEs like those dominating the oil and petroleum suppliers in Uganda, that environmental responses should be integrated into decision-making processes.

Like Unerman and O'Dwyer's (2007) argument, this study reveals that the impact of accounting for the environment on shareholder value is long term and indirect. This is understandable, as the owners are motivated by profit to set up these businesses, and the enterprises are also small and local. It is imperative to note that business activities must take place with due regard for their effect on the environment. This study indicates that environmental responsiveness varies within the same supply chain, size and geographical region. At Total filling station, Kajjansi the researcher was provided with the records of used oils generated and dates collected by the representative of the oil company, Epsilon (U) Ltd.

As derived from the academic literature, the impact of environmental performance related to marketing and financial performance varies (Miles & Covin, 2000). The impact on multinational oil companies and formal garages, however, was significant (36%). Perhaps related to these developments are the growing importance and attention paid to environmental issues in the international context. An example is the Cooper Motor Corporation (U) Ltd, a vehicle dealer that provides after-sales service. Even here, the findings indicate that the emphasis is on environmental responses, but less on documenting their practices, as seen in Table 5.

As Table 6 shows, filling stations and informal garages' adherence to environmental performance and accounting, although higher in the former, was weak. The informal organizational context of these businesses and their market segmentation practices, especially for informal garages, partly explains this result. At the same time, the complexity of environmental regulation or the ease of understanding regulations was a major concern (72%).

Not surprisingly, in response to society's reaction to environmental accounting by oil companies, all the 26 (16.8%) District Environmental Officers (DEOs) who responded to the survey commented that society normally has very low environmental knowledge in this area and mostly looks at the tangible outcomes of the opportunities. The study observes that DEOs are the ones who have the responsibility for awareness creation, providing advisory services to the council and communities, and enforcing legislation and policies. Therefore, DEOs are aware of society's knowledge, attitudes and perceptions.

As support to the above, one DEO indicated that there is no commitment by stakeholders; another said that society does not mind. Yet another went further and gave reasons for society's reaction to environmental accounting, indicating that many people do not know environmental accounting processes. Furthermore, he stated that it is only environmental managers who are aware of this requirement in Uganda, but that in enlightened countries it is a popular idea in society, although not popular among oil companies in Uganda (pers. com., 2009). It can be concluded that lack of knowledge by various stakeholders, combined with a negative attitude, cannot increase accounting for the environment. Yet, the current practice of accounting systems for all users of environmental reports is fundamental for the conduct of businesses in the country.

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A major obstacle to accounting for the environment by oil companies in Uganda is concealment. Users are unable to access environmental reports the way they do with financial accounting information. As an example, a practicing environmental officer with knowledge of policy and institutional reform as well as social environmental assessments indicated that environmental information is always concealed. A suggestion given by some respondents is to make EIA/audit reports a prerequisite for access to credit facilities from banks, product marketing and investment opportunities. This position suggests that this is currently not the case. Interestingly, an environment officer who has specialized in development and the environment suggested that the Ugandan government should adopt a green accounting system while formulating national budgets and calculating Gross Domestic Product/Gross National Product (GDP/GNP), like in developed economies (pers. com., 2008). This reasoning, although the only one from the respondents, like the argument by Aryamanya-Mugisha (2007), recognizes the relation between poverty, environment and development.

Responses to Environmental Accounting Issues

The study sought to find out respondents' responses to challenges faced in accounting for the environment. Respondents were asked to rank 12 challenges hindering environmental accounting for oil companies that had been revealed by the document review. Soliciting comments for the ranking was needed to understand this new field and the ranking (Table 3). The responses captured excluded those from staff at filling station service bays and informal garages (49).

Table 3: Difficult Environment Accounting Issues Facing Oil Companies *(multiple)*

Environment accounting issues	Number of responses (106 respondents)	Examples of exemplary responses
Accountability, externalities, missing markets and prices	90 (84.9%)	"Level of complexity means that it is not cost effective for individual oil chains to keep all the expertise they need" **"**Difficult to maintain industry best practice standards without comparative experience"
Environmental assessors and auditors	55 (51.9%)	"High fees for certification and registration" "Costs of consultants for EIAs is too high" "Weak UAIA (lack of an enabling law)" "EIAs take a long time to complete and are expensive"
Regulatory and compliance issues have increased dramatically	95 (89.6%)	"We expect to see many more changes in the regulatory area" "Regulations that impose unnecessary costs should be eliminated, while new ones avoided altogether" "As environmental law grows in this area, regulations will be better" "Measures put in place to limit impact of petrol stations"

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Environmental accounting (inherent limitations to the accuracy, precision and completeness of environmental data)	94 (88.7%)	"There is government interference" "Accuracy monitoring/implementation" "Politically, environmental issues cannot be solved. They are always influenced by political and economic reasons" "Low awareness and appreciation of the concept of environmental protection" "Uncertain capacity to collect relevant statistics" "Absence of a common framework" "The attendant cost may demotivate some prospective 'candidates', particularly SMEs"
Lack of disclosure	89 (84.0%)	"Continue sensitization through the media" "Join other stakeholders in helping to sensitize the people"
Non-existence of external validation of environmental reports	63 (59.4%)	"Validation from outside resources builds confidence or a solution and enables an organization to clearly demonstrate its commitment to compliance" "Reports should be made at the request of the verifying body" "We have to balance economic and environmental interests"
Lack of tailor-made best practice	73 (68.9%)	"Effective environmental accounting requires industry- specific and organization-specific steps"

Note: Responses to question: "Provide ranking of the following challenges hindering environmental accounting for oil companies in Uganda."

Source: Field data 2009–2011.

These findings give a good indication that legitimacy and marketing cannot significantly affect accounting for the environment by oil companies. Despite the above challenges and the environmental accounting gap in Uganda's oil supply chain, some chains show evidence of environmental accountability. For instance, one of the oil companies, Total (U) Ltd, has come up with a proforma for recording used oils at filling station service bays (Table 4). At Total (U) Ltd's Kajjansi filling station in a period of one month, 341 liters were collected by the appointed contractor, Epsilon (U) Ltd, during November 2008. What was generated during the same month, however, could not be verified because of poor records.

Table 4: Suggested Proforma for Recording Used Oils at Filling Stations

Date	**Registration no. of vehicle serviced**	**Amount of oil generated (liters)**	**Cumulative total (liters)**	**Amount collected by appointed contractor (liters)**
10/12	Y_1	X_1	XX_1	
10/12	Y_2	X_2	XX_2	
11/12	Y_3	X_3	XX_3	
11/12	Y_4	X_4	XX_4	
11/12	Y_5	X_5	XX_5	
12/12	Name of appointed contractor	-	-	XXX_n
12/12	Balance carried forward		XX_o	Signatures of filling station manager and appointed contractor
12/12	**Name of verifying agency (i.e. NEMA, DEO) and oil company**			

Note: $XX_o = XX_5 - XXX_n$

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In comparison, at the Shell Kibuye filling station, in the Kampala study site, there is a clear Health, Safety, Security and Environment (HSSE) objective statement and used oil policy by the company at the service bay. It states: "All Shell outlets will have two, 200 litre, drums, painted in green with the inscription, 'Used Oil'." Additionally, used oil is supposed to be kept free of rubbish, chemicals and water, the responsibility for which lies with the dealer. At this station, the two drums marked "Used Oil" were seen. The respondent at this station, who has 10 years' working experience, indicated that the appointed contractor on average collects 200 liters a month. There was, however, no record to verify this claim like the record at the Total filling station at Kajjansi. On the question of whether environmental agency staff monitor how they dispose of the oils, this same respondent indicated that they rarely do so. This indicates wise use of oil wastes in a prime area. This study indicates that the display of HSSE objectives and used oil policy statements, the availability of marked drums for used oils and the requirement to keep them free of rubbish are best practices for environmental accounting issues.

Inventory for Environmental Accounting

Information contained in files at the Registrar General's Office was reviewed. Data disclosed that specifically pertain to environmental disclosure are denoted by √. Companies that have types of data that have no implications for environmental disclosure are denoted by ø. This is clearly illustrated in Table 5, which presents the type of data found in the files and links it to environmental disclosure.

Table 5: Types of Data Found in Files for Oil Companies at the Registrar General's Offices and Links to Environmental Disclosure

Name of company	Type of data found on files	Link to environmental disclosure
Cooper Motor Corporation (U) Ltd	Balance sheet and income statement for the year ended 30 September 1994. No mention of environmental performance	ø
PetroCity Enterprises (U) Ltd	No annual report on file; information on file for the year ended 2006 indicated address, situation of registers of members and debenture holders, summary of share capital and debentures, particulars of indebtedness, list of past and present members, particulars of directors and secretaries, and external auditor – PKF, Uganda	ø
Total (U) Ltd	Annual report seen was for the year ended 31 December 1990; indicated the name of the external auditor – KPMG Peat Marwick	ø
Shell (U) Ltd	Indicated annual report for the year ended 2005 submitted, however not on file	ø
Caltex (U) Ltd	Indicated annual report for the year ended 2005 submitted, however not on file	ø
Kobil (U) Ltd	Indicated annual report for the year ended 2002 submitted, however not on file; indicated external auditor – PricewaterhouseCoopers	ø
Petro Services	Indicated annual report for the year ended 1999	ø

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Ltd	submitted, however not on file	
Motor Care (U) Ltd, formerly NIS (U) Ltd	Indicated annual report for the year ended 2001 submitted, however not on file; indicated the name of the external auditor – KPMG Peat Marwick	ø
Hyundai Motor (U) Ltd	No annual report on file	ø
Spear Motors Ltd	Indicated annual report for the year ended 2005 submitted, however not on file; indicated external auditor – Mungereza & Kariisa Certified Public Accountants	ø
Walusimbi Garage Ltd	Indicated annual report for the year ended 2005 submitted, however not on file; indicated external auditor – F. R. Baliruno & Co	ø
LONRHO Motors (U) Ltd	Annual report for the year ended 2005 available but contained no form of environmental disclosure; indicated external auditor – Ernst & Young	ø
Chevron (U) Ltd	Indicated annual report for the year ended 2005 submitted, however not on file; indicated external auditor – PricewaterhouseCoopers	ø

Source: Registrar General's Office files, January 2010.

In general, the above findings therefore indicate the absence of published annual reports, a likely indicator of minimal environmental disclosure. Based on the results of this review, this demonstrates that disclosure of environmental information is still emerging, and the level of awareness and demand for the disclosure are low. Increasingly, however, there is a recognition that the commercial context is being affected by social and environmental trends. This is unlike the study findings in earlier research by Kisenyi and Gray (1998), who concluded that environmental reporting in Uganda is scarce, of low grade and of little importance.

The above findings are also supported by the response of the Executive Manager of Oilex Ltd about not accounting for the environment. He gave various reasons for this: lack of the value of corporate public responsibility at some organizations, limited knowledge, no established standard systems for reporting, unavailability of software to assist in reporting and public awareness about the environment (Executive Manager, Oilex Ltd – Kampala study site, 2009). In support of this position, a respondent from the Ministry of Water, Lands and Environment indicated limited knowledge capacity, costly methods, lack of political will, poor enforcement, lack of interest and limited awareness as the major obstacles hindering the costing of environmental issues (Regulatory Agency Personnel – Kampala study site, 2009).

In general, the study results suggest that environmental accounting is still in its infancy. That is why any mention of it was unclear to some respondents and sometimes led to low response rates on some issues. An example was a remark from an officer at the Institute of Corporate Governance in Uganda. This officer indicated that "accounting for the environment was started in 2007" (pers. com., 2008), whereas we have lived with green accounting since the 1980s. This is in contrast to the growth of students joining accountancy schools to acquire new knowledge of accounting, and continuous review of the CPA(U) examination syllabus

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structure to include the impact of environmental, social and cultural factors on corporate reporting and auditing.

In such a situation, linkages of environmental accounting to marketing could not be established. As mentioned above, the files for oil companies and formal garages reviewed at the Registrar General's Office did not contain acceptable environmental statements. Even at the Resource Center of NEMA, despite it containing many EIAs for a number of oil supply chains, there were few audit reports. Those that were available were kept by the Environmental Auditor of NEMA. It can be concluded that if they were to be used as marketing tools, information could have been readily available like the assessment reports. This is also supported by the reluctance to provide the information for this study.

To probe further into the environmental accounting agenda for oil companies in Uganda, respondents were asked two open-ended questions placed at the end of the questionnaire:

i) List the three most significant difficulties the company faces in attempting to remain in compliance with environmental regulations.

ii) Please give other comments that you might have which are useful to this research towards the environmental accounting agenda for oil companies in Uganda.

Overall, three key codes or themes emerged from the responses: the regulator is weaker than the regulated (8.5%); lack of mandatory environmental accounting and disclosure (15.1%); and lack of research in environmental accounting (25.5%). Table 6 presents the codes and some examples of responses.

Table 6: Other Comments about the Environmental Accounting Agenda *(multiple responses)*

Code or theme name	Description	Number of responses (106 respondents)	Examples of responses
Regulator is weaker than regulated	NEMA as regulator is weak and underfunded	9 (8.5%)	"Oil companies are too strong to be admonished by the authorities and thus no incentive to comply" "Oil companies are only interested in environmental issues of their depots" " NEMA should do follow-ups and enforce its laws"
Mandatory accounting and disclosure	Involuntary nature of environmental accounting and reporting	16 (15.1%)	"Should become a prerequisite for access to credit facilities from banks, product marketing and access to investment opportunities in Uganda" "Influences voluntary accounting" "Ensure environmental accounting not disjointed from the mainstream accounting procedures" "Need to tackle the informal garage owners"

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Lack of research	Overall dearth of research on accounting for the environment	27 (25.5%)	"Research more on the new companies" "Make sure all stakeholders get a copy of the research in summarized form" "Environmental accounting is introduced in Uganda's business arena and not only oil companies" "Is a positive study, authorities will look at especially the policy implementations and monitoring aspects with regard to informal and formal garages" "Uganda as a nation needs to develop and entrench the culture of sound environmental management. Not to wait to react to disasters" "Environmental capabilities of the manager" "Ecological footprint of oil companies and their activities"

Source: Field data 2009–2011.

The comments to these two open-ended questions indicate that there is limited knowledge/awareness about compliance provisions and that environmental accounting in Uganda calls for specialists, thus there is a need to train more in the country. These data provide further evidence that currently environmental accounting of Uganda's oil companies is not used as a marketing instrument.

Irrespective of the low numbers of comments exemplified (maximum 25.5%), these results suggest a limited inventory for the environmental accounting agenda. As an example, a respondent who is a senior officer of NEMA involved in environmental impact assessment and monitoring remarked: "This is a positive study which I hope the authorities will look at especially in regard to the policy implementations and monitoring aspects with regard to the informal and formal garages which are left out of the monitoring, record keeping, measurements and publishing of the environmental impacts of the work which they are engaged in" (Regulatory Agency Personnel, Kampala study site, 2009). Another respondent supported this proposition by saying: "Renewal of oil companies, petrol stations and formal garage licenses should be conditioned to environmental auditing reports done by subject matter specialists" (Local Government Planner, Mbarara study site, 2009).

A senior Environmental Impact Assessor who doubles as an Environmental Auditor concurs with the above observation by stating that there is a need to tackle the informal garage owners who are not accounted for in most of the state-of-the-environment reports by NEMA. He went on to state that those informal firms contribute to high levels of pollution and must be checked by the environment watchdog (pers. com., 2009). Obviously, when environmental accounting is a voluntary activity led by business organizations, there is a likelihood of not finding a strong improvement. A situation like this is responsible for the inadequate nature of accounting for the environment (Kamla, 2004). As this study has revealed, the situation in a developing country like Uganda is still far behind in understanding and applying environmental accounting techniques and methods.

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Consequences of Not Accounting for the Environment

This study was also interested in the consequences of not accounting for the environment by oil supply chains in Uganda. The study had come up with 10 consequences arising from the various literature reviews that were considered to have a link with legitimacy and marketing. The respondents' responses were given based on a 4-item Likert scale: Essential, Useful, Of interest and Not relevant. A total of 106 (68.4%) responses were received. Tables 7 through 10 present the responses to this question.

Table 7: Consequences of Not Accounting for the Environment

Possible consequences	Essential n (%)	Useful n (%)	Of interest n (%)	Not relevant n (%)	Consequence[a] Mean (std)	Frequency[b] Mean (std)	n (%)
A: Oil companies							
Poor management of the environment	66 (84.6)	6 (7.7)	6 (7.7)		3.77 (0.579)	2.77 (0.579)	78 (74.3)
Loss of trust or confidence	30 (38.5)	6 (7.7)	18 (23.1)	24 (30.8)	2.54 (1.286)	2.22 (0.925)	78 (74.3)
Fraud and error may occur in environmental management	54 (69.2)	6 (7.7)	18 (23.1)		3.46 (0.848)	2.46 (0.848)	78 (74.3)
Environmental accountability and transparency are compromised	42 (53.8)	24 (30.8)	12 (15.4)		3.38 (0.743)	2.38 (0.743)	78 (74.3)
Difficulty in decision making	30 (38.5)	18 (23.1)	6 (7.7)	24 (30.8)	2.69 (1.273)	2.44 (0.691)	78 (74.3)
Hampers publicity	24 (33.3)	6 (8.3)	6 (8.3)	36 (50.0)	2.25 (1.371)	2.50 (0.775)	72 (68.6)
Complicates environmental audit	24 (30.8)	24 (30.8)	12 (15.4)	18 (23.1)	2.69 (1.143)	2.20 (0.755)	78 (74.3)
Credibility of the organization questioned	12 (15.4)	36 (46.2)	24 (30.8)	6 (7.7)	2.69 (0.827)	1.83 (0.692)	78 (74.3)
Continuity and sustainability of the environment curtailed	36 (50.0)	36 (50.0)			3.50 (0.504)	2.50 (0.504)	72 (68.6)
Hampers profitability and competitiveness	6 (8.3)	18 (25.0)	12 (16.7)	36 (50.0)	1.92 (1.045)	1.83 (0.697)	72 (68.6)

Note: Response to question: Consequences of not accounting for the environment by oil companies: In other words, how relevant to you are the following consequences. For ranking use: Essential, Useful, Of interest or Not relevant. [a]Mean was computed by giving a value of 4 to the response "essential," 3 to the response "useful," 2 to the response "of interest" and 1 to the response "not relevant." [b]Mean was computed by giving response category "essential" a value of 3, "useful" a value of 2 and "of interest" a value of 1 – "not relevant" was excluded in this computation.

Source: Field data 2008–2011.

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Table 8: Consequences of Not Accounting for the Environment

Possible consequences	Essential n (%)	Useful n (%)	Of interest n (%)	Not relevant n (%)	Consequence[a] Mean (std)	Frequency[b] Mean (std)	n (%)
B: Filling/petrol stations							
Poor management of the environment	48 (66.7)	24 (33.3)	24 (33.3)		3.50 (0.769)	2.50 (0.769)	72 (68.6)
Loss of trust or confidence	18 (25.0)	18 (25.0)	18 (25.0)	18 (25.0)	2.50 (1.126)	2.00 (0.824)	72 (68.6)
Fraud and error may occur in environmental management	60 (90.9)		6 (9.1)		3.82 (0.579)	2.82 (0.579)	66 (62.9)
Environmental accountability and transparency are compromised	54 (75.0)	12 (16.70)		6 (8.3)	3.58 (0.868)	2.82 (0.389)	72 (68.6)
Difficulty in decision making	12 (16.7)	30 (41.7)	18 (25.0)	12 (16.7)	2.58 (0.960)	1.90 (0.706)	72 (68.6)
Hampers publicity	24 (33.3)		6 (8.3)	42 (58.4)	2.08 (1.392)	2.60 (0.814)	72 (68.6)
Complicates environmental audit	30 (41.7)	6 (8.3)	6 (8.3)	30 (41.7)	2.50 (1.394)	2.57 (0.737)	72 (68.6)
Credibility of the organization questioned	30 (45.4)	18 (27.3)	18 (27.3)		3.18 (0.840)	2.18 (0.840)	66 (62.9)
Continuity and sustainability of the environment curtailed	36 (60.0)	12 (20.0)		12 (20.0)	3.20 (1.176)	2.75 (0.438)	60 (57.1)
Hampers profitability and competitiveness	12 (20.0)	18 (30.0)		30 (50.0)	2.20 (1.260)	2.40 (0.498)	60 (57.1)

Note: Response to question: Consequences of not accounting for the environment by oil companies: In other words, how relevant to you are the following consequences. For ranking use: Essential, Useful, Of interest or Not relevant.

[a]Mean computed by giving a value of 4 to the response "essential," 3 to the response "useful," 2 to the response "of interest" and 1 to the response "not relevant." [b]Mean was computed by giving response category "essential" a value of 3, "useful" a value of 2 and "of interest" a value of 1 – "not relevant" was excluded in this computation.

Source: Field data 2008–2011.

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Table 9: Consequences of Not Accounting for the Environment

Possible consequences	Essential n (%)	Useful n (%)	Of interest n (%)	Not relevant n (%)	Consequence Mean (std)	Frequency Mean (std)	n (%)
C. Formal garages							
Poor management of the environment	54 (81.8)		12 (18.2)		3.64 (0.777)	2.64 (0.777)	66 (62.9
Loss of trust or confidence	30 (45.5)		18 (27.3)	18 (27.2)	2.64 (1.308)	2.25 (0.978)	66 (62.9)
Fraud and error may occur in environmental management	30 (45.5)	24 (36.3)	12 (18.2)		3.27 (0.755)	2.27 (0.755)	66 (62.9)
Environmental accountability and transparency are compromised	48 (72.7)	12 (18.2)	6 (9.1)		3.64 (0.648)	2.64 (0.648)	66 (62.9)
Difficulty in decision making	12 (18.2)	36 (54.5)	12 (18.2)	6 (9.1)	2.82 (0.840)	2.00 (0.638)	66 (62.9)
Hampers publicity	36 (54.5)	6 (9.1)	6 (9.1)	18 (27.3)	2.91 (1.321)	2.63 (0.703)	66 (62.9)
Complicates environmental audit	30 (45.5)	24 (36.3)	6 (9.1)	6 (9.1)	3.18 (0.943)	2.40 (0.669)	66 (62.9)
Credibility of the organization questioned	30 (45.5)	18 (27.3)	18 (27.2)		3.18 (0.840)	2.18 (0.840)	66 (62.9)
Continuity and sustainability of the environment curtailed	36 (54.5)	6 (9.1)	12 (18.2)	12 (18.2)	3.00 (1.215)	2.44 (0.839)	66 (62.9)
Hampers profitability and competitiveness	30 (45.5)		12 (18.2)	24 (36.3)	2.55 (1.383)	2.43 (0.914)	66 (62.9)

Note: Response to question: Consequences of not accounting for the environment by oil companies: In other words, how relevant to you are the following consequences. For ranking use: Essential, Useful, Of interest or Not relevant. [a]Mean computed by giving a value of 4 to the response "essential," 3 to the response "useful," 2 to the response "of interest" and 1 to the response "not relevant." [b]Mean was computed by giving response category "essential" a value of 3, "useful" a value of 2 and "of interest" a value of 1 – "not relevant" was excluded in this computation.

Source: Field data 2008–2011.

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Table 10: Consequences of Not Accounting for the Environment

Possible consequences	Essential n(%)	Useful n(%)	Of interest n(%)	Not relevant n(%)	Consequence Mean (std)	Frequency Mean (std)	n (%)
D: Informal garages							
Poor management of the environment	54 (90.0)	6 (10.0)			3.90 (0.303)	2.90 (0.303)	60 (57.1)
Loss of trust or confidence	36 (60.0)			24 (40.0)	2.80 (1.482)	3.00 (0.000)	60 (57.1)
Fraud and error may occur in environmental management	30 (45.4)	30 (45.5)		6 (9.1)	3.27 (0.869)	2.50 (0.504)	66 (62.9)
Environmental accountability and transparency are compromised	54 (90.0)	6 (10.0)			3.90 (0.303)	2.90 (0.303)	60 (57.1)
Difficulty in decision making	30 (50.0)	18 (30.0)	12 (20.0)		3.30 (0.788)	2.30 (0.788)	60 (57.1)
Hampers publicity	42 (70.0)		6 (10.0)	12 (20.0)	3.20 (1.260)	2.75 (0.668)	60 (57.1)
Complicates environmental audit	42 (70.0)	12 (20.0)	6 (10.0)		3.60 (0.669)	2.60 (0.669)	60 (57.1)
Credibility of the organization questioned	42 (70.0)	12 (20.0)		6 (10.0)	3.50 (0.930)	2.78 (0.420)	60 (57.1)
Continuity and sustainability of the environment curtailed	42 (70.0)		6 (10.0)	12 (20.0)	3.20 (1.260)	2.75 (0.668)	60 (57.1)
Hampers profitability and competitiveness	36 (60.0)		6 (10.0)	18 (30.0)	2.90 (1.386)	2.71 (0.708)	60 (57.1)

Note: Response to question: Consequences of not accounting for the environment by oil companies: In other words, how relevant to you are the following consequences. For ranking use: Essential, Useful, Of interest or Not relevant.

[a]Mean computed by giving a value of 4 to the response "essential," 3 to the response "useful," 2 to the response "of interest" and 1 to the response "not relevant." [b]Mean was computed by giving response category "essential" a value of 3, "useful" a value of 2 and "of interest" a value of 1 – "not relevant" was excluded in this computation.

Source: Field data 2008–2011.

Respondents to possible consequences of not accounting for the environment by oil companies were almost indifferent on issues that influence marketing. As an example, loss of trust or confidence was ranked 46.2%: 53.8%, whereas profitability and competitiveness were ranked 41.7%: 58.3%. Of interest are the recognition by respondents of influence on the credibility of the organization (61.6%: 38.4%) and profitability and competitiveness (33.3%: 66.7%). When responses of "not relevant" were disregarded in the computations, almost all the factors of not accounting for the environment were ranked the same. This is indicated by the small differences in the mean (1.83 to 2.50) and standard deviations (0.504 to 0.925). This seems to suggest the influence of legitimacy and marketing on accounting for the environment by oil companies. This same explanation is also true for formal garages, whose

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standard deviations when "not relevant" responses are excluded in the computation ranged from 0.648 to 0.978.

Interestingly, as we continue to go down the supply chain, all the 10-item issues are rated the same, either "essential" or "not relevant." Responses for all 10 items for "essential" ranged from 45.4% to 90.0%. On the other hand, the mean ranged from 2.90 to 3.90. These results suggest that environmental accounting is currently not being done and are also an indication of poor management of the environment. These factors could explain the fact that the larger the firm, the more resources (financial and non-financial) is available to integrate environmental concerns into its environmental governance. And secondly, large supply chains are more visible and therefore subject to greater external pressure (Lefebvre *et al.*, 2003).

The question also asked for comments from the respondents on the options. Data collected was edited and exemplary quotes used for the ranking are presented in other sections of this paper. Table 11 offers some examples of the responses.

Table 11: Examples Relating to Consequences of Not Accounting for the Environment

Oil supply chain	Examples
Oil companies	"Total negligence by the authorities on environmental issues" "Society not aware, so loss of trust or confidence not significant" "Developers and regulators end up defrauding environmental management" "Lack of proper accounting is evidence of lack of transparency" "Lack of proper accounting information leads to a reduction in publicity" "Audits generally perform very well where all information is available and correct" "The oil companies are multinationals, therefore an organization that does not properly account for all its activities is usually not a very credible one" "An oil company that ignores it can be blackmailed by others"
Filling/petrol stations	"Poor management of the environment is true as their location is poor" "The consumers cannot trust a petrol station if it is seen to be destroying the environment" "Law enforcement officers can be compromised" "Local media can easily distort facts" "These are credible organizations but they lack documentation" "They do not understand the relationship between accounting for the environment and profitability. This is applicable in the long run"
Formal garages	"Customers who are environmental activists are assured by a report" "A garage should be located where it does not cause environmental damage" "Environmental reporting ensures compliance that cannot be easily ignored" "An audit report may contain recommendations that law enforcement officers cannot ignore" "Decisions are not made on the basis of that kind of information" "A garage can easily be accused by environmentalists unless it has an environmental report" "Lack of environmental records" "Competitors can maliciously accuse a given garage unless it has an environmental report to defend itself"

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Informal garages	"These are not licensed. They indiscriminately pour oil and oil products into the environment without regard to the consequences of their actions" "Management learns on the job, lacks knowledge and awareness" "The ownership is not even likely to understand the need for concepts such as accounting for the environment" "Owner manager is interested in survival only" "The monitoring body lacks the capacity and means of enforcing them" "These are informal organizations that are there when need arises" "They are not aware of continuity and sustainability of the environment"

Source: Field data 2008–2011.

At the same time, the study was interested in the challenges hindering environmental accounting for the oil and gas sector in Uganda. To understand the challenges highlighted, respondents were asked to comment on the opinions given (Table 12). The above findings support the results of earlier research by Quirke (1996). This position was in the 1990s in developed countries, but interestingly, the findings of this study indicate that it is still relevant in the case of Uganda.

Table 12: Ranking Challenges Hindering Accounting for the Environment

Challenges	Respondents' ranking	Sample explanations for ranking
Identifying and measuring the impacts, assessing costs and liabilities	1	"NEMA is trying to come up with a list of practitioners; however, this is hardly done by anybody" "Largely ignored due to limited knowledge on the impact of oil companies"
Prolonged review process of EIS/Audit reports	2	"NEMA takes a long time to do this work because of being understaffed and under facilitated. As a result, developers get frustrated and end up bribing or using other means to have their projects approved. However, this is not always the case for all projects"
Qualification and training in EIA and environmental auditing	3	"No professional body exists apart from NEMA, which is a government body" "Few trained auditors exist" "Few professional skills and knowledge/subject matter specialists"
Dominance of foreign practitioners	4	"They are not there in big numbers but foreign projects do not use Ugandan professionals very much"
High fees for certification and registration	4	"This would not be a problem if knowledge is well understood across the board. The reasoning is that these are small costs compared to the profits earned by oil companies and the immeasurable cost of environmental degradation"
Ethics and integrity	5	"Developers are generally not bothered about consequences of their action. Their main concern is how to make more profit tomorrow than today. They think about themselves" "Man for himself and God for us all"

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Lack of equipment for baseline studies, expensive analytical methods	5	"There is a significant capacity and institutional facilitation problem. Adequacy of equipment is generally a problem"
Monitoring and evaluation	5	"Monitoring body required apart from NEMA" "The monitoring and evaluation tool is generally not used to monitor compliance"
Lack of enabling laws	6	"Laws are there but need updating and enforceability by imposing fiscal and punitive measures"
Lack of knowledge by developers	6	"They are aware but the enforcement from the regulatory agencies is weak"

Source: Field data 2008–2011.

Legitimacy and Environmental Accounting: An African Dilemma

One important aspect that was being examined was whether accounting for the environment by oil companies is in response to the legal environment, and is aimed at restoring confidence among relevant and interested parties. We summarize the most significantly different perceptions of respondents about the "greening" of oil companies' accounting and how this is related to legitimacy (Table 13).

Table 13: Relation of Legitimacy to Environmental Accounting

Motivations	Some of the exemplary quotes by respondents	
	From oil companies	From government departments, regulatory agencies, consultancy firms
Legitimacy	"As part of being responsible corporate citizens" "It should be our obligation" "We have clear information about how to deal with the problems, including working with the public to mitigate possible effects such as preventing fires and resisting waste oil pollution" "To alert the government about the likely dangers" "To guide government on policy formulation" "The environmental aspects and impacts on people's livelihoods (feeding, shelter and life support systems/services), natural resource productivity (i.e. the local economy) and physical (soils,	"As compliance with laws and regulations" "A constitutional right to be knowledgeable on the surrounding environment" "The public may not be aware that the companies are not accounting for the environment and yet are posting huge profits. So trust and confidence may not necessarily be effects" "Members of the discerning public would more than likely perceive the company to be making a real effort in complying with environmental regulations" "It is legal for an oil company to do a self-audit and submit an environmental report to NEMA on

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	water, atmosphere) and biological (flora/fauna) elements within the environment"	a yearly basis" "Compliance with the policies, regulations and standards" "Although some of the multinational companies have tried to comply on a number of environmental, health and safety regulations, most of these tend to be too prescriptive. Auditing at the moment is largely compliance related"

Source: Field data 2008–2011.

As an example, an environmental officer working with the Ministry of Water, Lands and Environment indicated: "To monitor the trend, put correct measures in place, provide information for decision making and, more so, ensure sustainable development" (pers. com., 2009). Another respondent from this ministry indicated that it is a constitutional right to be knowledgeable about the environment. This position was also supported by a member of staff of the Geological Survey and Mines Department, who gave the reason as "to keep the country clean" (pers. com., 2009). Also of interest are the comments by the Chief Town Planner (pers. com., 2009), Kampala City Council, where the majority (96.5%) of the headquarters of oil companies, filling stations and formal garages (100%) are situated. He indicated that the major reason for environmental accounting is "to monitor the integrity of the environment." He was, however, quick to add that "operationalization of the NES 1995 is cumbersome, making enforcement difficult, coupled with interference and inability of local authorities to withstand pressures." Lack of and/or inadequate tools to monitor the environment were also mentioned. Reasons for loss of trust and confidence tended to be average among the marketing chains.

The responses above lead this study to conclude that where environmental disclosure is done it is to respond to the opportunities and risks posed by regulation (Mathews, 1997; Buhr, 2002; Deegan, 2002; Gray, 2002) and as a legitimizing tool (Cho and Patten, 2007; Gray *et al.*, 1996). What was interesting was the non-participation by accountants in environmental assessment and auditing. Of the registered and certified environmental practitioners, none was a qualified accountant, despite the fact that environmental issues are supposed to be converted into accounting mechanisms. Such a revelation may explain the reason why financial statements do not contain notes to the accounts on environmental performance or standalone reports.

The Relationship between Marketing and Accounting for the Environment

Some respondents could not see the link between marketing and accounting for the environment, at least in the short and medium term. For instance, a respondent who is a promoter of social responsibility in the country indicated: "Yes, marketability could improve environmental accounting of the oil chain after some time, depending on the speed of attitudinal change, and efforts and resources invested in awareness about the environment and the roles and responsibilities of the respective actors" (pers. com., 2008). He was, however, quick to add that environmental accounting is not a reflex action, but a well-thought-out set of actions that should not only have a purpose, but be seen to have one or several.

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Another respondent with many years of environmental auditing disagreed, however. He indicated that in the eyes of consumers and all relevant stakeholders, there is little scope for differentiation of products and attendant services (pers. com., 2009). He added that pricing is the prominent frontier for competition and demarcation within the oil industry sector. In the words of Edgar Mugisha, an environmental practitioner, society is mainly concerned about the disclosure of the corporate social responsibilities of oil companies, as that is where they are most likely to benefit (pers. com., 2009). This finding gives a good indication of a failure to account for environmental actions taken or not taken and reported. This means a failure to account for the environment and report on it, a situation that this study revealed cannot influence the marketability of oil and petroleum products. There are some respondents, however, who saw a link between accounting for the environment and marketing, like the exemplary quotes from eight respondents in Table 14.

Table 14: Relation of Marketing with Environmental Accounting

Issue	Some of the exemplary quotes by respondents
Marketing	"It would improve public perception that the company is a good corporate citizen, which is always helpful in both the industry and for corporate governance"
	"The point to sell could be about how positively biased individuals are in all market segments about institutions that are making positive efforts in putting right the wrongs that have already been made to our environment. This is a global movement"
	"To ensure that consumers and customers are aware of the associated dangers"
	"There is worldwide concern about the environment and they need to do this for awareness programs"
	"To reassure the public that their operations are insidious to the environment"
	"To get a good public image and improve performance"
	"Due to the profit motive, not all the truth is revealed to the public"
	"To help restore confidence among members of the public, especially in so far as sustainability issues are concerned. This is because sustainability reporting has become routine practice in most companies"

Source: Field data 2008–2011.

The conclusions of the study indicate that the majority of reports are aimed more at publicity than providing environmental facts and figures. Surprisingly, companies like CityOil (U) Ltd, an independent company that operated three filling stations in Kampala City at the time of the study, had the best environmental protection. The chairman of the company observed that once it meets the environmental standards, the company will have a competitive advantage in addition to adding value to its business. The company employs an environmental expert to

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train staff on a part-time basis, who is paid UGX600,000 (equivalent to US$323) per session. On average training is done once a year.

CONCLUSIONS

The study demonstrates that oil and petroleum products supply chains have a very clear and visible impact on the environment. Some of the marketing chains studied when taken individually generate little pollution; however, when taken together they account for the bulk of the pollution. Even where environmental accounting is supposed to be very strong, like in the case of oil companies, because of weaknesses in monitoring and enforcement coupled with negative management, it ends up being weak. This was evidenced by lack of meaningful environmental accounting information.

The above challenges notwithstanding, we suggest that managers of oil and petroleum products who prepare environmental reports, despite operating in a resource-challenged environment, must pay attention to the growing societal concerns. Quantification of the likely costs of environmental impacts is one of the key reasons why the environmental accounting and reporting agenda is still in its infancy in the country. Slightly paradoxically, the link with legitimacy and marketing effects on accountability for the environment might actually be positive. Evidence shows that on accounting issues relating to environmental impacts, the views of preparers and informed users are different.

Finally, more development efforts in environmental accounting are urgently required. This should not only be in oil and petroleum products suppliers, but also in other industries in the country. Disaggregated best practice checklists are also needed for the different value chains to better strengthen environmental accounting. The reasoning is that respondents made it clear that, despite the existence of many international guidelines for accounting for the environment by oil and petroleum products suppliers, Uganda needs its own mechanisms. In other words, different supply chains need checklists appropriate to their situations.

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