



Effect of Environmental Accounting on Company Financial Performance in Kisii County

R. Magara¹, N. N. Aming'a^{2*} and E. Momanyi²

¹Kisii University, Finance Department, P.O.Box 408-40200, Kisii, Kenya.

²Kisii University, Research and Extension, P.O.Box 408-40200, Kisii, Kenya.

Authors' contributions

This work was carried out in collaboration between all authors. Author RM designed the study and wrote the protocol. Author NNA wrote the first draft of the manuscript. Authors RM and EM reviewed the draft manuscript. All authors managed the literature searches, read and approved the final manuscript.

Article Information

DOI: 10.9734/BJEMT/2015/19909

Editor(s):

(1) O. Felix Ayadi, Interim Associate Dean and JP Morgan Chase Professor of Finance, Jesse H. Jones School of Business, Texas Southern University, TX, USA.

Reviewers:

(1) Anonymous, University of Macedonia, Greece.

(2) Anonymous, MingDao University, Taiwan.

Complete Peer review History: <http://sciencedomain.org/review-history/10611>

Original Research Article

Received 2nd July 2015
Accepted 22nd July 2015
Published 19th August 2015

ABSTRACT

This research focused on the impact of environmental accounting on financial performance of corporate organisations in Kisii County. The main variables of the study were EA application being the independent variable, and perceived financial performance as the dependent variable. The study used descriptive research design. The study was carried out at Kisii County, the target population was 144 consisting accountants and auditors in the 16 corporate organizations. The study adopted a stratified sampling design where simple random sampling technique was used to identify a sample size of 49 employees drawn from all the 16 corporations. Both qualitative and quantitative data were collected using questionnaire, and secondary data and descriptive statistics were used to analyze the responses. The findings were presented in form of tables, charts and graphs.

Findings revealed that the perceived financial performance of the corporate organization in general was in good status as perceived by the employees. Analysis of individual perceived financial performance parameters shows that revenue generation has been improving, cash flows are seen to be in a good state and profitability has been on the increase. Constructs of EA application (environmental information, environmental evaluation, compliance of environmental laws and

*Corresponding author: E-mail: nemwelam@yahoo.com;

tracking of environmental cost savings) are significantly positively related to perceived financial performance of the corporate organizations.

Keywords: Environmental accounting; company financial performance; effect; environmental accounting application.

1. INTRODUCTION

Environmental accounting involves the identification, measurement and allocation of environmental costs, and the integration of these costs into business and encompasses the way of communicating such information to the companies' stakeholders. In this sense, it is a comprehensive approach to ensure good corporate governance that includes transparency in its societal activities [1]. In recent years, the adverse environmental effect of economic development has become a matter of great public concern all over the world.

Accountants, as custodian of economic development can no longer shut their eyes to the effect of environmental issues on business management, accounting, auditing and disclosure system. A careful assessment of the benefits and costs of environmental damages is necessary to find the tolerance limit of environmental degradation and the required level of development. It may appear that greater attention to environmental matters may lead to an increase in costs and hence lower profits. Environmental costs and obligations are significantly growing as the world is becoming more environmentally conscious. Public corporations are being held more responsible and accountable to the society. Many people are willing to pay more for a product that is environmentally friendly, [2].

It cannot be denied that environmental accounting and reporting thereof is of paramount importance today. Environmental accounting needs to work as a tool to measure the economic efficiency of environmental conservation activities and the environmental efficiency of the business activities of company as a whole. According to [3] EMA can generate information about the use of resources with environmentally related impacts and affects the financial position and performance of Organization.

1.1 The Concept of Environmental Accounting

Environmental accounting is a system that attempts to make the best possible quantitative assessment (in terms of either monetary or

physical units) of the costs and benefits to an enterprise due to the environmental preservation activities that it undertakes, [4]. Different studies refer to the subject in a variety of ways: environmental management accounting, corporate social accounts, social accounting, social and environmental accounting [5], social and environmental report, social and environmental accounting. Environmental accounting can more accurately identify true costs by clarifying the environmental impacts caused by material acquisition and processing, manufacturing, sales, distribution, use, maintenance, and disposal.

1.2 Legitimacy Theory

According to the legitimacy theory, a company's performance is legitimate when it is judged to be fair and worthy of support, that is, when it is socially accepted. Legitimacy gaps arise when societal expectations of the firm's behaviour differ from societal perceptions of its behaviour. A process of legitimating may be engaged in by a company either to gain or to extend legitimacy, to maintain its level of current legitimacy, or to repair or to defend its lost or threatened legitimacy [6]. [7] argues that where managers perceive that organization's operations do not commensurate with the social contract then, pursuant to legitimacy theory, remedial strategies are predicted. Because the theory is based on perceptions, any remedial strategies implemented by managers, to have effect on external parties, must be accompanied by disclosure.

1.3 Local Companies Practicing Environmental Accounting

There are many local companies practicing environmental accounting. They include Bamburi cement's Haller Park which is a popular nature recreation site for tourists and locals. Haller Park, and other projects of its kind, demonstrates the potential and benefits of the coexistence of industry with nature.

Ken Gen, a power generating company in Kenya has identified and documented its significant environmental aspects and impacts on the

environment and set in place intervention. The company further articulates its commitment in environmental management to the public and its stakeholders through an Environmental Policy Statement, which is also aligned with its vision and mission statements. All upcoming power projects are also subjected through Environmental Impact Assessment (EIA) studies and issuance of permits before implementation. Since 60% of the country's power need is from hydro, the company is financing catchment preservation in all the five-catchment towers on its own and through the Kenya Energy Sector Environment Program (KEEP).

1.4 Financial Performance

In the world of finance, financial performance is measured to give the account of stewardship by the management team to the shareholders. The key aspect of this involves measuring the profitability, market value and growth prospect of a company. Accounting-based measures examines the nature of the relationship between some indicator of the social performance (reputation, revelation of social information, environmental behavior etc.), with the company's FP obtained from the accounting information such as the historical audited financial statements of the respective companies. Financial performance is commonly used as an indicator of a firm's financial health over a given period of time. The financial performance of a firm can be defined or measured in various different ways including profitability, gauge return, market share growth, return on investment, return on equity and liquidity. In this study, financial performance was measured by the development of revenues and profits. Revenue development can be seen as a growth indicator of the firm and also as a competitive strategy for consecutive firms [8]. A firm can, by being environmentally sustainable, differentiate its products and thus increase its revenue. Similarly, a firm can save costs on resources, regulatory costs, capital and labor and therewith increase its profits.

1.5 Link between Environmental Accounting and Organizational Financial Performance

1.5.1 Producing environmental information and financial performance

Identifying environmental costs and related financial opportunities is a tangible way of

gaining the attention of upper management by linking environmental responsibilities with costs [9]. In 1998, the USEPA argued that the definition of environmental costs depended on how a company intends to use the information, for example in capital budgeting or product design. One should recognize that environmental costs are not a separate type of costs; rather they are part of money flowing throughout a corporation [10]. Management accounting techniques such as performance measurement, operational budgeting, costing or pricing are used for the transformation, all aspects of producing environmental information are positive for the company [11]. According to ACCA [12], there are two main vehicles that companies use to publish information about the ways in which they interact with the natural environment: the published annual report (which includes the financial statements, and a separate environmental report (either as a paper document or simply posted on the company website). All aspects of producing environmental information are positive for the company [11].

1.5.2 Compliance of environmental laws and financial performance

It has been postulated that organization's compliance with legislative requirements is only the first step on the path to sustainable development [13]. Compliance of environmental laws (and or environmental regulatory compliance) requires companies to track the use of hazardous substances and emissions of pollutants. Although actual compliance varies widely, especially among small firms with less to lose in the event of environmental incidents, major companies in the chemical and process industries who have devoted significant resources over the past decades to improving environmental performance [14].

For many organizations it has been said that for simple compliance with legislative requirements is only the first step on the path to sustainable development [13]. At one time, firms applied environmental compliance procedures largely to reduce their exposure to fines or penalties. Today, firms use these procedures in response to the consumer-driven green demand; they want to be perceived as having a green corporate image which can be used as a competitive advantage, even to the extent of facilitating global trade [15]. However, [16] established that some developers claimed not to be aware about the environmental impact assessment as they do

not want to comply with environmental requirements because they add an extra cost to their investment. Reactive management strategies such as remediation cleanups and paying penalties for breach of legislation are financial burden to the firms that undermine profitability and impact on cash flows negatively. According to [17], defiance to regulations by NEMA despite several warnings to stop disposal of large amounts of dust in the air during the night has not born any results. This therefore could lead to loss of revenue by the companies should the regulators swing into action.

1.5.3 Environmental evaluation and financial performance

Achieving the corporate goal of eco-efficiency requires firms to evaluate the internal and external benefits and costs of their activities. Understanding the environmental costs and benefits of processes and products can promote more accurate costing and pricing of products and can aid companies in the design of more environmentally preferable processes, products, and services for the future [18].

The UNDSD [19] recommends that an accurate analysis of the investment's sensitivity to the environmental costs should be carried out. The analysis need to use appropriate time-lines and indicators that do not discriminate against long-term savings and benefits. It also needs to recognize the impact of input price changes and future changes in the regulatory regime (fees, fines and penalties). EMA applicability enables integration of environmental considerations into financial appraisals and decision-making for new environmental friendly investments that will show increased profitability in the long run. New low-cost producers are entering global markets and tightening competition.

A profitability analysis should be done using appropriate time-lines and indicators that do not discriminate against long-term savings and benefits. An accurate analysis of the investment's sensitivity to the environmental costs should be carried out, which takes into consideration the impact of input price changes and future changes in the regulatory regime (fees, fines and penalties) [20]. Thus, EMA applicability is important for integration of environmental considerations into financial appraisals and decision-making for new investments: environmentally friendly investments will show increased revenues,

profitability and improved cash flows in the long term if all these factors are included in the EMA model.

1.5.4 Tracking of environmental cost savings and financial performance

The focus on environmental impact has been on the rise in several companies all over the world. Most companies are however struggling to keep up with the ever rising requirements. As this trend continues, industries are challenged to manage productivity that increases revenues and profits without causing damage to the environment [21]. One strategy is to integrate environmental related costs and benefits into the financial management accounting system to ensure efficiency of the resources including the environment. The EMA systems (EMS) identify and controls environmental costs, which help environmental managers, justify cleaner production projects and identify ways of saving money and improving environmental performance. Often, companies and managers believe that environmental costs are not significant to the operation of their businesses. For instance, the purchase price of raw materials and the unused portion that is emitted in a waste is not usually considered an environmental cost. These costs tend to be much higher than the initial estimates and should be controlled and minimized [22].

The solution is in the pursuit of environmental quality management via the development of an Environmental Management System (EMS) and this can only be achieved in environmental audit which is a concomitant feature of such a system [23]. In this respect, the organization becomes self-regulating by tracking environmental costs with a view to making cost savings and thereby sustaining the cash flows. [20] Identified management accounting techniques which are useful for the identification and allocation of environmental costs as: input/output analysis, flow cost accounting, activity-based costing (ABC), and lifecycle costing.

1.5.5 Environmental management accounting and financial performance

The above-mentioned accounting techniques are useful for EMA to identify and allocate environmental cost. In addition, there are alternative techniques to estimate environmental costs such as the 'environmental cost decision tree' as described by [24]. An understanding of

how a company's environmental performance affects its financial prospects, and how the stringency of the environmental policy regime might constrain a company's financial opportunities are issues of concern to policy makers [25].

Collectively, organizations spent millions of dollars annually when installing mandated pollution control technology, applying for environmental permits, and monitoring and reporting their environmental impacts [26]. These costs create an incentive for companies to reduce their environmental impacts below minimum reporting thresholds.

A company's superior financial outcomes may be mistakenly attributed to its improved environmental performance when financial performance is related more to the fact that a company is more efficient from the outset [27]. Moreover, previous research has not explored how the stringency of the environmental policy regime affects a company's EMA applicability and financial performance. Perhaps most importantly, the link between EMA applicability and financial performance has not been studied across multiple countries [25].

It is often argued that good environmental and commercial performance go hand-in-hand [25]. EMA as a new subject offers an interesting way of looking at ecological sustainability. It opens up the corporate gateway towards the continuous internalization of external effects [28]. Until now, the main incentive to develop EMA has not been generated in business community itself, even though there are some interesting examples of companies implementing innovative forms of EMA. This means there is room for additional government programmes to promote the adoption of EMA application. However, it is of great importance to actively involve the business community in developing those determinants [29].

2. MATERIALS AND METHODS

The study used descriptive research design to determine the impact of environmental accounting on financial performance among corporate organizations in Kisii County. The population for the study was 144 employees and the sample size was 49 employees drawn from finance department who consisted, auditors and

accountant staffs in the 16 corporation's organizations in Kisii County.

The study adopted a stratified sampling design, since accountants and auditors have different roles and this ensured equitable representation of the population [30]. The sample for this study was restricted to the finance department of each cooperate organization finance department is key in sourcing, guarding and accounting for an organization's resources. Simple random sampling technique was used to identify the required employees for this study. A self-administered structured questionnaire was used to collect primary data, secondary data of the corporate organizations was collected from financial reports and statements. For consistence the researcher reviewed the financial statement for the corporate for 5 year (2006-2011) to get the trend of the performance. Data was analyzed using both qualitative and quantitative techniques applying descriptive and inferential statistics. The scaling method was used and the weighted mean was in particular utilized in arriving at the general opinions of the respondents on the impact of environmental accounting on financial performance among corporate organizations in Kisii County. Data was tabulated into various categories, frequency distributions.

3. RESULTS AND DISCUSSION

3.1 Duration of Operation

From Table 2, 68.8% of the corporate organizations have been operating in Kisii County for over a period of 4 years, 18.8% for 3 years, 10.4% for 2 years and 2.1% for 1 year or less. This implies that most of the organizations have been in existence for long enough to give credible information on area of study. Therefore the researcher can rely on the information.

3.2 Age of Respondents

The frequency distribution table was used to describe the age distribution of respondents as Shown in Table 3.

Table 3 shows that most of the respondents were in the productive age group of 20-49 years constituting 84% of the respondents, 16% were 50 years and above and only 12% were below 20 years.

Table 1. Sampled corporate organizations in Kisii County

Corporate organizations	Accountants	Auditors
Kenya Power	10	5
Kenya Seed Co.	5	3
Kenya Rural Roads Authority	5	2
Kenya Urban Roads Authority	2	2
Coffee Research Foundation	5	2
Kisii University College	12	6
Jomo Kenyatta University of Agriculture and Technology	5	2
University of Nairobi	5	2
National Environment Management Authority	7	3
Bondo University College	5	2
Kenya Fisheries Research Institute (KEFRI)	6	3
Kenya Agricultural Research Institute (KARI)	8	5
Gusii Institute of Technology	7	3
Kisii Agricultural Training Centre	5	2
Kenya Industrial Estates Ltd	5	4
Agricultural Society of Kenya	4	2
Total	96	48

Source: Researcher (2013)

Table 2. Years of corporate operation in Kisii County

Years of operation	Frequency	Percentage
1 Year	2	4.08
2 Years	5	10
3 Years	9	18.8
Over 4 years	33	68.8
Total	49	100

Source: (Author, 2013)

Table 3. Age of respondents

Age	Frequency	Percentage
Below 20 years	6	12.2
20 – 29 years	15	30.6
30 – 39 years	20	40.8
40 – 49 years	5	10.2
50 – 59 years	3	6.1
60 years & above	49	100

Source: (Author, 2013)

3.3 Company Financial Performance

Findings on perceived financial performance are indicated in Table 4. Majority of the staff of selected corporate in Kisii agreed that their businesses were growing in revenue generation (27.1%), 31.3% agreed that there has been growth in company's profitability in the past five years, while majority 22.9% strongly agreed and 29.2% agreed that their company performed

relatively better compared to other players in the same industry. The expenditures incurred in the management of environmental aspects were also found not to have a significant effect on the financial performance of corporate as cited by 31.3% of employees who agreed and an equal number who strongly agreed. However, majority 39.4% and another 22.9% were not convinced that good environmental management practices, could improve their company' cash flows.

Table 4. Company financial performance

Company financial performance	Scores					Mode
	5	4	3	2	1	
The company's business in terms of revenue generation is growing rapidly	12.5%	27.1%	25.0%	25.0%	10.4%	4
The company's profitability has greatly increased over the past Five years	8.3%	31.3%	20.8%	22.9%	16.7%	4
The cash flows of company over the past five years have greatly improved.	14.6%	25.0%	29.2%	18.8%	12.5%	3
With good environment management practices, revenue generation of our company can greatly be improved	0.0%	12.5%	33.3%	31.3%	22.9%	3
With well defined environment management practices, the company profitability of our company can increase tremendously	4.2%	25.0%%	29.2%	25.0%	16.7%	3
With good environmental management practices, our company's cash flows can greatly be improved	2.1%	10.4%	25.0%	39.4%	22.9%	2
Our company's financial performance is very excellent compared with others in the corporate organizations	22.9%	29.2%	27.1%	16.7%	4.2%	4
With good environment management practices, the financial Performance of our company can greatly be improved.	29.2%	33.3%	27.1%	8.3%	2.1%	4
Management views environmental management practices as a costly activity that impact on our company's profitability negatively	8.3%	27.1%	29.2%	27.1%	8.3%	3
The expenditures incurred on management environment aspects do not have a significant effect on the financial performance of our company	31.3%	31.3%	25.0%	10.4%	2.1%	5

Source: (Author, 2013)

Assessing the general overall financial performance from the findings on Table 4, it can be observed that most of the employees rated their companies either on average or slightly above average on financial performance.

As evidenced, most of the respondents had a positive perception on the perceived financial performance of the corporate in Kenya. The findings were that the perceived financial performance of the corporate organization in general is in good status as perceived by the employees. Even the analysis of individual perceived financial performance parameters shows that revenue generation has been improving, cash flows are seen to be in a good state and profitability has been on the increase. After controlling for variables traditionally thought to explain firm-level financial performance, [34]

found that bad environmental performance is negatively correlated with intangible firm value. Environmental performance is argued that it goes hand-in-hand with commercial performance according to [31]. There was limited evidence as the financial statements of most of the corporate organisations cannot be accessed.

3.4 Relationship between EA Application and Perceived Financial Performance

Correlation tests were carried out to predict the degree to which perceived financial performance of the corporate organizations dependent on the EA application. Spearman's rank correlation coefficient was used to determine the degree of relationship between EA application and perceived financial performance in the corporate organizations as shown in Table 5.

3.4.1 Relationship between environmental information and perceived financial performance

There was a significant positive relationship between environmental information and perceived financial performance ($r = 0.467$, $P\text{-value} < 0.05$). This implies that good environmental information improved on the perceived financial performance of the corporate organizations in Kisii County.

A strong positive correlation exists between environmental information and perceived financial performance of the corporate organizations in Kenya. This implied that with good environmental information, the perceived financial performance of the corporate organizations improved. Recently, the need to disclose corporate social performance has become an international consensus and many countries have moved to pass new legislation. In Belgium, Canada, France, Norway, Netherlands and the USA governments have adopted mandatory regulations regarding greater disclosure of environmental and financial information [32]. This overall trend towards greater environmental information disclosure shows that by the corporate organizations maintaining sound environmental information structures and good social responsibility practices have become essential components in pursuit of improved financial performance.

3.4.2 Relationship between environmental evaluation and perceived financial performance

There was a significant positive relationship between environmental evaluation and perceived financial performance ($r = 0.297$, $P\text{-value} < 0.05$). This implies that environmental evaluation positively affected the perceived financial performance of the corporate in Kisii County.

A significant correlation exists between environmental evaluation and perceived financial performance of the corporate organizations. This means that environmental evaluation positively affected the perceived financial performance of the corporate organizations. Today when many people's bodies in industrial nations are, technically speaking, too toxic to be placed in landfills, it is time to establish a pathway to eliminate the poisons, a chain of actions and consequences that energizes business, that stimulates innovation, that preserves employment, and restores the environment [33]. This can only be achieved through a continuous environmental evaluation of the processes of the companies operations. The philosophy of continuous environmental evaluation in the corporate organizations may go beyond the hygiene of only curtailing waste; it garners sales as they are handled in the more acceptable way and therefore more income.

Table 5. Correlation between EA and perceived financial performance

		Financial performance	
Spearman's rho	Production of information	Correlation coefficient	0.467*
		Sig. (1-tailed)	0.049
		N	48
	Tracking cost saving	Correlation coefficient	0.456*
		Sig. (1-tailed)	0.038
		N	48
	Environmental evaluation	Correlation coefficient	0.297*
		Sig. (1-tailed)	0.038
		N	48
	Compliance	Correlation coefficient	0.335*
		Sig. (1-tailed)	0.031
		N	48
	Financial performance	Correlation coefficient	1.000
		Sig. (1-tailed)	.
		N	48

Source: (Author, 2013)

3.4.3 Relationship between compliance of environmental laws and perceived financial performance

There was a significant positive relationship between compliance of environmental laws and Perceived financial performance ($r = 0.335$, $P\text{-value} < 0.05$). This implies that compliance of environmental laws improved on the perceived financial performance of the corporate organizations.

A significant correlation exists between compliance of environmental laws and perceived financial performance in the corporate organizations. This implies that compliance of environmental Laws improved on the perceived financial performance of the corporate organizations. In our current global economy, what is good for global corporations and the market is not necessarily good for the human future. Economic systems should be re-designed so that what is good for business is good for the global environment and the human future. If we want a decent future, we must choices in the present to protect the future, both for ourselves, our children, and the larger global environment. According to [34], there is cognizant of environmental awareness and some of the activities provide the benchmark for compliance of environmental laws. To guide these choices, government puts in place laws and regulations to preserve the future of which the corporate organizations have to comply [35]. By complying with the environmental laws, punishments such as fines, environmental restorative costs, closure of businesses have been avoided, and therefore the perceived financial performance of the corporate organizations is improved.

3.4.4 Relationship between tracking of environmental cost savings and perceived financial performance

There was a significant positive relationship between tracking of environmental cost savings and Perceived financial performance ($r = 0.456$, $P\text{-value} < 0.05$). This implies that good tracking of environmental cost savings improved on the perceived financial performance of the corporate organization.

A strong correlation exists between tracking of environmental cost savings and perceived financial performance of the corporate organizations. This implies that good tracking of

environmental cost savings improved on the perceived financial performance of the corporate organizations. The purpose of integrating cost into pricing is not to provide a toll road for polluters, but a pathway to best job in restoring and preserving the environment, thereby reversing historical price and cost incentives of industrial system that essentially send wrong signals to consumers. The ultimate point of cost/price integration is to fully enfranchise the corporate organizations into the process of environmental restoration. Conclusively, significant positive correlation exists between all the variables composing determinants of EA application and perceived financial performance. This finding confirms the assertion advocated in the conceptual model of this research.

4. CONCLUSIONS

The study concludes that there exists a positive and significant relationship between variables of the study. Environmental information, environmental cost savings, tracking of environmental cost savings and compliance of environmental laws are significantly and positively related to perceived financial performance of corporate organizations in Kisii County. This therefore implies that the above factors have a positive effect on financial performance of corporate organizations.

5. RECOMMENDATIONS

The study therefore recommends that:

- i. Corporate organization should employ technical staff to enhance environmental evaluation periodically (say every two Years) in order to keep track of environmental activities. These skills can also be conveyed skillfully to stakeholders to constantly get involved in the environmental evaluation of the company's activities.
- ii. The companies need to keep pace of the regulatory framework put in place by government and other regulatory bodies (like NEMA). This will ensure that the Companies invest in improving their environmental performance record. It is necessary that the companies aim to improve their environmental performance faster/earlier than the competitors and by doing so, may enjoy the advantages of being faster compliers.

6. SUGGESTED AREAS FOR FURTHER STUDY

The researcher suggests that the study should be replicated to private institutions; this will enhance a comparative study between the institutions and ascertain whether they are practicing environmental accounting.

ACKNOWLEDGEMENTS

I wish to sincerely thank Mrs. Phanice Sandrizi and Mr. Timothy Mwangi for the advice, encouragement and constant guidance on the development of this paper. I wish to also thank Pastor Mercy Temu Chaplain at Nyanchwa Adventist School for inspiring me when I was in a point of despair. Finally, I must appreciate the patience of my family whose time and resources I sacrificed to develop this paper.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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