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Paper Title: **Small Holder Tea Industry Sustainability: Environmental Accounting and
Reporting as a Strategy to Cushion on Environmental Concerns**

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Abstract

Human activity over the years has caused environmental degradation which in turn has led to climate change. The reversal of climate change is one of the most pertinent agenda as expressed in the World's SDGs, Africa's Agenda 2063, and Kenya's Vision 2030. However, there has been unclear relationship between economic performances and environmental performance in organizations. Whether or not environmental reporting can be used as a mitigation measure to cushion environmental conservation and ensure sustainability is still unanswered. It is in this context that this study's objective was to establish the influence of environmental reporting on sustainability accounting in the Tea industry in the Mount Kenya region by analyzing. Data was collected from 93 factory unit managers and accountants selected through simple random sampling and analyzed by simple binary regression techniques. It was established that environmental reporting influences sustainability accounting as anchored under stakeholder theory. The study also found out that tea factories practice social activities and environmental activities for which they incur costs which were treated as overhead costs and benefits derived by tea factories in terms of long term financial gains and by stakeholders in terms of social and environmental gains. Tea factories are therefore advised to adopt and practice environmental accounting and reporting by integrating it in annual financial reports which will refocus attention to environmental concerns in the tea sector and cushion the tea industry from continuous degradation and eventual collapse.

Key words: Tea Industry, Environmental Accounting, Environmental Reporting, Sustainability

Introduction

Human activity over the years has caused environmental degradation (Mahendra, Govind, & Yogesh, 2015) which in turn has led to climate change especially over the last two centuries (Nafiu, Taherul, & Aboh, 2018). The reversal of climate change is one of the most pertinent agenda as expressed in the World's SDGs (Goal 13), Africa's Agenda 2063, and Kenya's Vision 2030. This means that climate change is a menace in both developed and developing countries. Some of the leading human activities that is creating climate change include overpopulation, agriculture, industrialization and deforestation (Tyagi, Garg, & Paudel, 214). The world has witnessed economic growth since the rapid industrialization which continues to utilize the diminishing scarce resources. There has been continued call for environmental reporting alongside economic reporting (Sulaiman, Theodore, & Hughes, 2003). However, there has been unclear relationship between economic performances and environmental reporting in organizations (Sulaiman et al., 2003). Whether or not environmental reporting can be used as a mitigation measure to cushion environmental conservation and ensure sustainability is still unanswered in the basis of accounting research.

Problem Statement

Management of the environment has become part and parcel of every business undertaking in the world. Environmental management is hence a business strategy both at strategic, operational and tactful levels of management. Accounting, as business language (Hall, Millo, & Barman, 2015) need to communicate every aspect of business to the stakeholders where financial reporting alone has fallen short of revealing complete, reliable and accurate information to the stakeholders (Nikolina, Renata, & Donato, 2017). . In the past, companies assumed that financial reporting was enough to tell of sustainability accounting (Al Amosh & Mansor, 2018). Businesses are required to report environmental information as a process of performing accountability and to reduce environmental remediation costs. Environmental financial reporting has continued to gain importance amongst businesses (Mahammad & Aziz, 2010) hence relevance of environmental accounting to financial reporting form Sustainability Assurance. Sustainability assurance improves the quality of information used for managerial decision making which in turn creates higher degree of sustainability investment by reducing asymmetry in information (Steinmeier & Stich, 2017). It is also revealed that sustainability assurance information boosts investors' confidence of a firm's sustainability performance (Reimsbach, Hahn, & Gurturk, 2017). However, despite these findings, there has been little research to demonstrate the cushioning of environmental concerns through environmental reporting as a strategy in Small holder Tea Industries in Kenya which informed this study's objective as:

To establish the influence of environmental reporting on sustainability accounting in the Tea sector in Mount Kenya region.

Literature Review

Literature was reviewed in terms of the predictor variable (environmental reporting) and the independent variable (sustainability accounting).

Sustainability Accounting

Sustainability is a concept that encompasses both present and forthcoming generations which envisages that the needs of the people be met. The needs which goes beyond normal profit, are both social and environmental (Gray & Bebbington, 2010). Sustainability hence entails meeting the needs of the present generation without interfering with the quality of life of the future generations. Sustainability accounting is a term used to refer to gathering, analysis, interpretation and communication of information related to sustainability of an organization's financial and economic dealings (Schaltegger & Burrit, 2010) and the purposes of such information to those who bear interest in them (Schaltegger, Zvezdor, & Bennett, 2013). According to Gray (2000) sustainability accounting has materialized from the philosophical debates and has emerged from conceptual developments in the field of accounting (Schaltegger & Burrit, 2010). This is both an extension of conventional accounting and a new accounting field in entirety (Knight, 2013).

Traditional system of accounting is a sticker of internal inventory and flow of financial information and value on the statement of business position and profits and loss on statement of comprehensive income (Parkin, Andy, Buckland, Brooker, & White, 2003). These internal reporting relates to the shareholders alone. Parkin et al (2003), further states that sustainability accounting reports shows costs and benefits accruing from performances on economic, sociocultural and environmental engagements. The magnitude with which stakeholders continue to pile up pressure in relation to organizational responsibility disclaimers, offer a good incentive towards organizational sustainability, to a much extent lead to effectiveness. Such pressures are guiding organizations to put in strategic management and sustainability reporting for stability in offering healthy and stable products (Lungu, Caraniani, Dascalu, & Guse, 2011). The 2012 United Nations Conference on Sustainable Development (Rio+20) further asserted that sustainability reporting in general is an enabling factor for businesses to foster Green Economy (Gobal Reporting Initiative, GRI, 2011). Sustainability Accounting can be categorized into two: Internal Sustainability Accounting (ISA) and External Sustainability Accounting (ESA). The ISA creates clear visibility between the linkage of unseen costs and benefits and those of financial performance within the context of the institutional operations (Parkin et al, 2003). ESA on the other hand deal with externalities which are not covered in the organization's financial accounts.

Sustainability accounting takes dimension of economic feasibility while incorporating social responsibility aspects and environmental sensitivity (Gray, 2010) in which proponents are putting pressure for better quality of information regarding sustainable practices (Albelda, 2011). The three proponents are not cost-free but bear economic trade-offs and opportunity costs between each other's contents. The social element and environmental components still carry economic viability (Gould, 2011) hence it is important that accountants consider accounting sustainability as part of strategic and routine decision making (Albelda, 2011).

Accountants, especially the management accountants, have a role to facilitate decision making at the strategic level management (Albelda, 2011). Annually throughout the centuries, the management accountant has had his role skewed towards financial disclosure, taxation and auditing which is related to the internal control of the organization. This function sidelines the sustainability in accounting to the externalities. In order to achieve this, accountants can use such tools as triple bottom line disclosure, Environmental Management Accounting System (EMAS) (Albelda, 2011), and balance scorecard (IFAC, 2011), techniques which are also confirmed by

(Horngrén, et al., 2011) as workable for accountants towards measuring sustainability accounting. The management accountant's role as influencer of decision making is one enough a strategic sustainability focus. While participating in strategy formulation, mission statement and vision declaration of the organization, management accountants need to play an active role in sustainability accounting right at this point (CIMA, 2011). The organization should hence develop concrete goals towards achieving sustainability accounting (Vinal, Sharma, & Low, 2012). Numerous reason exist justifying the need for accountants' engagement in sustainable development. First, new jurisdiction advancing towards sustainable development for organizations, secondly, the global pressure from international leaders pushing for organization's sustainability knowledge, and thirdly is the unwavering call for accountants to put in the forefront practices of sustainable development (Ferreira, Moulang, & Hendro, 2010).

Environmental Reporting

The phrase 'Environmental accounting' may take different dimensions of definitions. Simply it entailed consequences that arise due to a firm's usage of input and release of output (ACCA, 2015). The inputs are drawn from the environment while releasing outputs to it. These bear costs which leads to another definition of environmental accounting as the act of identifying, measuring and allocating environmentally associated costs whose integration to decision making is prudent which is then communicated to the stakeholders (Institute of Management Accountants, IMA, 2015). The careful examination of the impact of the organization's products and services while utilizing input is what is referred to as identification. Environmental reporting is therefore the practice with which accountants incorporate propositions of environmental management techniques and conservation modules into the conventional annual disclosures (International Federation of Accountants, 2015).

Environmental reporting is tool for measuring environmental practices and performance by organizations (Hajnalika, 2012), in which business terms focus on understanding the costs and returns from environmental engagements. The fundamental aim of environmental accounting system is to help in the comprehension of existing tradeoffs on conventional accounting and economic aims and environmental strategic purposes as a tool to formulate policies (Ahmad, 2012). Environmental Reporting (ER) forms part of the company's communication system. ER is valuable towards realization of the environmental performances apart from profit making objective. ER is hence a means of communicating to all stakeholders (Ahmad, 2012) whose concern on environmental issues continues to grow every other day.

Ahmad (2012) recommends that any environmental expenditure incurred while a company engages in environmental concerns, need to be treated as capital expenditure. This is so because it is from the environment that the business draws its resources that is converted for the purposes of further sales to earn considerable profits. These process can be guided by EMAS which reduces the organization's impact in the environment that also responds to environmental interests of both internal and external stakeholders (Pederson, 2007). Moreover, EMS is a way of complying with the regulations while minimizing costs of audits by customers and magnify market image and still lead to change management which is profitably achieved if sustainability accounting is accomplished (Mohamad, Saravanan, & Seetharaman, 2007).

Environment entails the totality of plants, animals, socioeconomics and cultural tenets which include physical factors such as land, air, biological factors, soil and water surrounding human

beings (GoK, 2013). Environmental issues according to (CSR Report, 2011) include environmental protection and improvements, careful resource use that lead to controlling the environmental impact on aspects of quantity of emitted gas, recycling of waste materials (Schaltegger, Bennet, Burrit, & Jasch, 2008). This leads in using resources to maximize production and so are returns while retaining the status of the environment or improving it (Ahuja, 2014). Accountants need to pay attention to environmental pollution prevention prevailing due to economic activities hence budget for costs pollution prevention rather than costs abatements (Russo & Fouts, 1997). Vision 2030, medium plans and sustainable development goals advocate for combating climate change, protection of freshwater and wetlands (water management), accounting for natural resources and depreciation of natural resources, soils fertility and depletion, protection of wildlife habitats, air quality (GoK, 2013).

Conceptual Framework

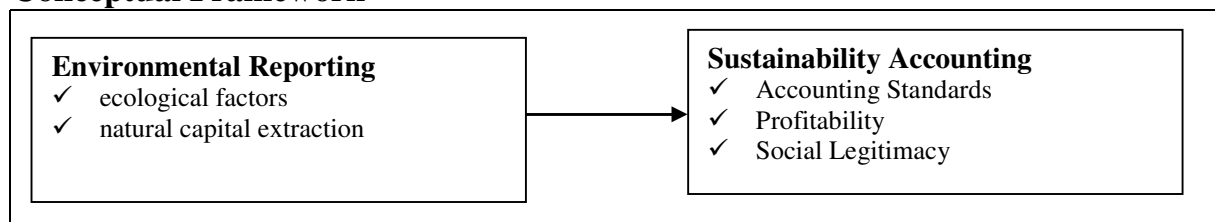


Figure 1: Conceptual framework

The conceptual framework in Figure 1 indicates the hypothesized relationship that environmental report influence sustainability accounting in the tea sector in Mount Kenya region among the industries of small holder tea farmers.

Research Methodology

The study adopted Mixed Method Research (MMR) design which was coined into existence approximately the year 2000 (Lund, 2012). Some researchers like (Venkatesh, Brown, & Bala, 2013) have also referred to MMR as the third methodological movement which was gaining imminence use among researchers. Adoption of MMR for this study was justified by the fact that it provided greater discernment (Creswell, 2012) in the understanding of SEA Accounting and Reporting and Stakeholders while determining their influence on Sustainability Accounting; assisted in obtaining mass knowledge in order to draw informed conclusions and arrive at future research areas as the researcher was not be pegged on one research design alone (Gail, 2013; Frels & Onwuegbuzie, 2013). In this context, the study found it even better to term MRR as Mixed Method Accounting Research (MMAR), (Ihantola & Kihn, 2011) as based on the study context.

The study targeted 111 respondents drawn from 37 tea factories around the entire Mount Kenya region. The tea factories included Chinga, Gacharage, Gachege, Gathuthi, Gatunguru, Githambo, Githongo, Gitugi, Igembe, Ikumbi, Imenti, Iriaini, Kagwe, Kambaa, Kanyenyaini, Kathangariri, Kiegoi, Kimunye, Kinoro, Kionyo, Kiru, Makomboki, Mtaara, Michimikuru, Mungania, Mununga, Ndarugu, Ndimu, Nduti, Ngere, Njunu, Ragati, Rukuriri, Theta, Thumaita, and Weru. The study sort information from Factory Unit Managers, Factory Accountants, Factory Assistant Accountants or Accounts Clerks drawn from each tea factory. Data was obtained from 68 tea factory unit managers and accountants. The Likert scale data was coded and transformed to

categorical qualitative values in which counts were obtained to run binary logistic regression model. Interview schedule was also applied in strengthening the findings of binary logistic regression.

Study Findings

The study findings were presented both descriptively

Association between Environmental Reporting and Sustainability Accounting

The study further assessed the how different strength of environmental reporting relate with the sustenance of sustainability accounting. The counts for the measure of environmental reporting (Table 4.26) was cross tabulated with the counts of the measure of sustainability accounting (Table 4.5). The output was presented in a contingency table where sustainability accounting was cross-tabbed by environmental reporting. The results indicated that all the respondents (n=9) who believed that the influence of environmental accounting is weak, also felt that it would make sustainability accounting unsustainable. Out of the 43 respondents that believed that the influence of environmental reporting is strong, 8.8% felt that even with the strength of influence it would lead to unsustainable practice of sustainability accounting while 54.4% felt that it would lead to sustainable practice of sustainability accounting. The output is as presented in Table 4.27.

Table 1: Tabulation of Sustainability Accounting by the Environmental Reporting

Strength	Unsustainable		Sustainable		Total	
	Frequency	Percentage	Frequency	Percentage	Freq	%
Weak	9	13.2	0	0.0	9	13.2
Moderate	13	19.2	3	4.4	16	23.6
Strong	6	8.8	37	54.4	43	63.2
Total	28	41.2	40	58.8	68	100.0

The study findings revealed that when the strength of influence of environmental reporting is intensified, then the practice of sustainability accounting is actually sustainable. This is taken into consideration that there are costs incurred and benefits derived from elements of environmental reporting.

This study further tested hypothesis that there was a significant influence of environmental reporting on sustainability accounting in tea factories of Mount Kenya region. The null hypothesis was stated as:

H₀₃: There was no significant relationship between environmental reporting and sustainability accounting in the tea sector of Mount Kenya Region

The Chi-square test of independence was first run to examine the association between social reporting and environmental reporting at 5% level of significance. The Chi-square test of independence revealed that the probability values were less than the level of significance as in Table 4.19. The null hypothesis was thence rejected and the study concluded that there was a significant association between environmental reporting and sustainability accounting as evidence

by Pearson chi-square as $(\chi^2_{(2)} = 36.622, p = 0.001)$. The findings were also confirmed by Likelihood Ratio value in which $(\chi^2_{(2)} = 41.943, p = 0.001)$. The output also revealed that linear by linear association between the variables was significant $(\chi^2_{(1)} = 33.589, p = 0.001)$. The results are presented in Table 4.28.

Table 2: Chi-square test for Sustainability Accounting against Environmental Reporting

	Value	df	Asymp. (2-sided)	Sig.
Pearson Chi-Square	36.622	2	.000	
Likelihood Ratio	41.943	2	.000	
Linear-by-Linear Association	33.589	1	.000	
N of Valid Cases	68			

The study findings hence confirmed that there was a statistically significant association between environmental reporting and sustainability accounting. This means that sustainability accounting is assured by the practice of environmental reporting to the stakeholders of the tea factories.

The influence of environmental reporting on sustainability accounting was further explored by running a simple binary logistic regression model. The output confirmed that environmental reporting had significance influence on sustainability accounting (*Wald's test: $\chi^2_{(1)} = 20.272, p < \alpha$*) at five percent level of significance. Further, the simple binary regression indicated that the sustainability odds ratio of sustainability accounting at 95% confidence level for environmental reporting was 28.659 with confidence interval of $(6.651 \leq CI \leq 123.488)$. This means that environmental reporting was 28.659 times more likely to increase sustenance of pursuit for sustainability accounting than when it is not practiced. The output are shown in Table 4.20.

Table 3: Odds Ratio for Logistic Regression of Sustainability Accounting on Environmental Reporting

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Step 1 ^a ER	3.355	.745	20.272	1	.000	28.659	6.651	123.488
Constant	-8.234	2.023	16.569	1	.000	.000		

The model produced is presented below:

$$\log \left\{ \frac{\pi(x)}{1 - \pi(x)} \right\} = -8.234 + 3.355X_3$$

The results indicated that environmental reporting positively influence sustainability accounting. These results were confirmed by the interview schedule in which some accountants asserted that sustainability accounting can only be pursued to a sustainable level when items of environmental reporting are disclosed since costs are incurred and the benefits are enjoyed by the stakeholders and the tea factory.

Discussion of Findings

The study findings indicated that the tea factory commits funds in undertaking environmental reporting factors that included undertaking forestry activities, protection of wildlife and habitats, maintenance of soil fertility management, use of renewable energy and innovative energy conservation measures. However, the tea factories itself rarely commit funds to use of alien species of tea. The study further reveals that the tea factories derived benefit from undertaking the ecological and energy factors like forestry activities and wildlife management. These findings are congruent to those of (Linda, Jan, Keizer, & Goda, 2014) which established that organizations incur costs and derive benefits in ecological factors and energy factors (Ileana & Antohe, 2014). However, in most occasions, environmental costs are allocated as overhead costs which make such costs invisible (Jamil, Rapih, Muhammad, & Amin, 2014).

The study revealed that the tea factories commit funds in undertaking natural capital extraction factors that included land degradation control program, combating of climate change, natural resource efficacy use, water management, agricultural waste control, waste management and control. This is agreement with the study by (Barbie, 2013) that studied how ecological capital is utilized. Further, by undertaking the activities, the tea factories derive financial benefits which benefit their stakeholders too. These findings are consistent with the study on environmental management accounting and its cost by (Ileana & Antohe, 2014) which found out that environmental costs are those expenses arising from economic firm which are incurred directly or indirectly by way of voluntary practice or due to legal fines. According to Dewi (2014), environmental costs at times are computed by comparing the company's waste generated with the total revenue, this is slightly different with the findings of this study where environmental costs are measured in terms of direct expenditure incurred.

The study established that the tea factories practices ecological and energy factors which included forestry activities, protection of wildlife, soil fertility and salinity management, use of renewable source of energy, and undertaking innovative energy conservation measures. These results are supported with the previously discussed results where the tea factory commit funds to undertake the activities. Hence such activities gauge the organization's efficacy in utilization of environmental resources (Elkins & Tomei, 2010). The study by Dewi (2014) had similar results with these findings in which it is shown that organizations have environmental exposure.

It was revealed that environmental reporting had significance influence on sustainability accounting (*Wald's test: $\chi^2_{(1)} = 20.272, p < \alpha$*) at five percent level of significance. Further, the simple binary regression indicated that the sustainability odds ratio of sustainability accounting at 95% confidence level for environmental reporting was 28.659 with confidence interval ($6.651 \leq CI \leq 123.488$). This means that environmental reporting was 28.659 times more likely to increase sustenance of pursuit for sustainability accounting than when it is not practiced. These findings were consistent with the findings by (Ferrero, Sanchez, & Beatriz,

2013). In most cases, company's annual reports are the ones used to communicate financial information (Othman & Ameer, 2010) from which some simply communicate positive information on environment in order to remain legitimate (Bouten et al, 2011). Stakeholder's require for environmental accounting information in order to make economic decisions is growing (De Villiers & Van Staden, 2010), but they are keen to check at the quantitative information in terms of costs and benefits as established by this study. According to (Gatimbu & Wabwire, 2016) environmental reporting not only influence sustainability accounting but also the practice increases organization's financial performance and improve eco-efficiency (Hossain, Rowe, & Mahammad, 2012) in developing countries like Kenya. Despite these merits environmental reporting has been found to be very incomplete and incredible (Bouten et al, 2011; Gillet, 2012) and this gap that this study has filled by establishing the areas of environmental reporting and its influence to sustainability accounting through the merits to stakeholder and the company; which are of economic importance (Zulkifli, 2012).

Conclusions and Recommendations

The study established that environmental reporting in terms of ecological and natural extraction factors highly influence sustainability accounting. Environmental accounting and reporting brings about environmental benefits accruing from environmental costs incurred. This study encourages practice of environmental reporting of environmental assets and liabilities. The study having established environmental costs, benefits, assets and liabilities; it recommends the integration of environmental reports into the annual financial reports. The study argues that such integrated reporting shall cushion small holder tea industries from environmental concerns. Such recommendation is pegged on the fact tea industries draw a lot of wood fuel from the environment, use a lot of fertilizer in the farms that may affect soil and hence water during run-offs and emits fumes from the factory into the air including vibrations and noise. The practice of environmental accounting and reporting is imperative of creating sustainability accounting that will lead to informed managerial decision making, investor confidence with performance of the industries, increased stakeholder confidence with the sustainability performance of the tea industries which in the long run transforms to improved industry performance.

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