Journal of Environment and Earth Science
ISSN 2224-3216 (Paper) ISSN 2225-0948 (Online)
Vol.4, No.2, 2014

Analysis of Environmental Initiatives on Business Performance Sustainability at the Lake Naivasha Ecosystem, Kenya

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Abstract
Increasing degradation of the natural environment is one of the main threats to human survival in the long term. Business enterprises' environmental commitment has, therefore, become an important variable in most of today's competitive business environment. Activities of most enterprises are the main causes of environmental degradation which in turn impact on their performance. This study therefore looks at the specific business environmental initiatives and how they impact on their performance. The overall objective of the study was to establish the impact of environmental initiatives on business performance sustainability around Lake Naivasha. In order to achieve this objective, the research was guided by various specific objectives which included examining forms of environmental degradation, examining environmental initiatives put in place to mitigate on degradation, and examining effects of environmental initiatives of various business operations on social capital. Both primary and secondary data were collected for the purposes of the study. Primary data was collected through various instruments including questionnaires administered to individual respondents, focus group discussions, in depth interviews and observation schedules. Secondary data was obtained from previous study reports, articles, professional journals, various businesses' monitoring records, annual sales reports and any other relevant literature that the researcher came across in the course of the study. The collected data was interpreted and analysed using discriminant analysis. The Scientific Package for Social Studies (SPSS) was used for the analysis. The study design was descriptive survey in order to pick behaviours which needed to be mitigated for purposes of enterprise performance sustainability. Purposive random sampling was used from the target population which comprised of farming, hospitality and fishing sectors. For purposes of establishing the views of the stakeholders, the officials of various organisations that have interests on the Lake Naivasha ecosystem were incorporated into a focus group and their views were sought through group discussions. The key findings of the study were that; the main forms of environmental degradation are nutrients discharge to the lake, water abstraction, cutting of trees, overgrazing and green house gases effects. The implication of the findings is that unless businesses concerned address environmental issues their performance sustainability may not be assured going forward. The study recommends that an evaluative criteria defining the impacts that are acceptable to the society be determined, policy bundles that are currently in place be reviewed to achieve diverse societal objectives, strategic decisions made by organisations operating in the area be assessed in light of the actors involved and investment in better information monitoring and enforcement of rules and regulations be undertaken. Lastly, since specific organisational sustainability outcomes seem to consistently fail to meet broad societal expectation, the articulation of stakeholder interests need to be considered by involving all actors in the environmental governance process.
Keywords: Environmental initiative on Business Performance Sustainability, Lake Naivasha, Kenya

1.0 Background

In this section the research undertook a review of the emerging issues that will inform the study by looking at the complex relationships between the business activities and the environment in which they operate. Increasing degradation of the natural environment is one of the main threats to human survival in the long term. Business activities are, to a great extent, responsible for this degradation. In this regard, environmental leadership is becoming a global corporate aspiration. This is well understood in terms of industrial sustainability which is widely embraced under environmental stability and production. Concerned people should therefore seek to limit the risks of ecological disaster and create more sustainable modes of business (Jeremy et al, 2006). Businesses relay on the environment for their inputs thus increased businesses activity implies increased strain on the available environment resources. Business leaders therefore attempt to play a leadership role in reforming the way business is done by making them more sustainable. Tools and approaches of rational management are therefore used to improve ecological behaviour. Businesses seek to comply with governmental or industrial regulations that maybe in place and outstretching their tentacles to embrace proactive sustainability approaches, referred to as 'going green' in an undertaking's strategic agenda (Woodward, 2008).
Existing literature indicates that there are a number of practices and initiatives that can be implemented by any

company to reduce its impact on the environment (Shrivastava, 1995b). This has grown out of the past legal and technical compromises. The current environmental problems are closely intertwined with broader issues of social, political and economic development. It is in this regard that all kinds of organisations are undergoing the fundamental challenge of value creation and policy execution at a time when global warming threaten whole sectors and long established industries. Becoming a more sustainable organisation in both good and bad times is therefore the main strategic challenge. The above developments have informed this study which is looking at environmental initiatives that are being adopted by specific enterprises that operate at the Lake Naivasha ecosystem and how they impact on business sustainability.

The relationships between the environment and the need for business performance sustainability brings about a complex multidimensional and multi faceted process in that businesses require more input at reduced costs in order to increase their profitability while exploitation of the environmental resources may lead to environmental degradation. The above scenario brings about many complex issues which need to be addressed concurrently in order to address the environmental degradation and enterprise performance sustainability. In the Lake Naivasha ecosystem, the most notable lake-use conflicts include the following; technical conflict (facts based), institutional and social, and conflict of interest.

Technical Conflicts (facts Based) conflicts are related mainly to disputes over interrelations between natural resources, the allocation of these resources, and the humans exploiting them. Factual disagreements include disputes about the effects of water abstraction on lake levels, and how much water can be safely abstracted; the size of the irrigated area, and the total water abstraction occurring thereof; Lake pollution by agro-chemicals (claimed by some environmental groups); disagreements on the contribution of pollutants from the upper catchment versus the large farms; extent of upper catchment water abstractions (thought to be considerable by some water users); reduced lake levels caused by abstractions that decrease the catch, agro-chemicals reducing the catch, and fish (fry) being pumped out of the lake during water abstraction (claimed by fishermen); lack of definition of sustainable water exploitation by the involved parties; growers using groundwater claiming they are not over-exploiting the lake's water resources; uncertainties regarding who has legal abstraction permits and who does not (it is speculated that many users abstract more than allowed by their permits); issues related to the tenure of riparian land as delimited by the riparian boundary which is government property under the custody of riparian landowners; disputes over the relationship between the lake levels and their dynamics; disputes over the ecological functioning of the lake and its surroundings; and the effects of geothermal plants on the environment (including lake levels, water quality and effect of emitted gases on the environment and people).

Institutional and social conflicts are of a legal, administrative, financial, social, or institutional order. These are mainly relational issues which include water users blame the forest department and (illegal) wood loggers for mismanaging the forest reserves, thereby diminishing water yields and increasing erosion, and causing accelerated filling of the lake; existing game and cattle corridors have been closed by agricultural land, and access to the lake generally has been closed; labour force claims it is exploited and underpaid; issues of whether or not the LNRA Management Plan really considers the interest of all stakeholders, or is it more the product of a group of environmentally-sensitized white people, conflicts between the media and stakeholders, with the news on Lake Naivasha being more often negative than positive; and some farms not respecting the official riparian zone.

Conflict of interest is brought about by different socio-economic groups pursuing different goals. They include conflict between environmental groups who want to protect the lake and its catchment from over-exploitation, and commercial growers intending to maximize their output; more water requirements by Naivasha town for its urban water supply; the tourist industry desires a natural landscape setting; the Maasai tribesmen claim historical traditional rights to the area, including access to the lake to water their cows; the large cattle farms claim that they have used the local natural resources in an environmentally-friendly manner, producing meat and milk for millions of Kenyans, instead of destroying the environment yet it is claimed the flower growers are the ones responsible; fishermen consider the large-scale horticultural industry, using agro-chemicals, as a threat to their livelihoods; whether or not the ordinary Kenyan or the Kenyan state generally benefits from this economic boom, or it is only a happy privileged few in the area; and if water is priced, would the government or local stakeholders, or both benefits from the revenues?

Due to the conflicts stated above, environmental degradation continues with no specific group taking responsibility. The end result is that performance sustainability of most enterprises that are operating around the Lake Naivasha basin will be affected in one way or the other. It is with this in mind that this study was been initiated to document the actual impact of environmental practices on the sustainability of the business performances. Kenya has made considerable effort to promote sound environmental policies both domestically and internationally. This effort is demonstrated by the country's hosting of the United Nations Environmental Programme (UNEP) and the United Nations Human Settlements Programme (UN-Habitat) headquarters. In view of this, Kenya cannot afford to lag behind the rest of the world in environmental management policy. The

country is thus a signatory to a number of Multilateral Environment Agreements (MEAs), including Agenda 21, the Montreal Protocol, the Basel Protocol, the Stockholm Convention, the Kyoto Protocol and the Convention on International Trade in Endangered Species (CITES) among others. In the twenty first century, all kinds of organisations are undergoing the fundamental challenge of value creation and policy execution at the same time global warming threatens whole sectors and long established industries. Becoming a more sustainable organisation in both good and bad times is therefore the main strategic challenge. The above developments have informed this study which is looking at environmental initiatives that are being adopted by specific enterprises that operate at the Lake Naivasha ecosystem and how they impact on their continued performance sustainability.

1.1 Statement of the Problem

Increasing degradation of the natural environment is one of the main threats to human survival in the long term and business activities are, to a great extent, responsible for this degradation. It will be noted that businesses are growing with the increased demand for their products coupled with the need to improve their operations performance. As businesses growing, they require additional land in which to build factories and offices. This development implies that more resources will require to be exploited to meet the increased demand leading to environmental degradation. In this regard, businesses must accept compromises in order to achieve what has been called 'sustainable development' (Hart, 1997). Existing literature indicates that proactive environmental initiatives rather than reactive environmental initiatives by businesses reduce their impact on the environment (Shrivastava, 1995b). The above developments have informed this study which seeks to explored the impact of business environmental initiatives on their performance sustainability.

Lake Naivasha and its ecosystem contribute immensely to the country's Gross Domestic Product (GDP) due the large horticultural farms through the flower and vegetables export and tourism activities. It is however faced with severe challenges which cause environmental degradation leading to the deterioration of social capital. There is, however, no known study that has been done to examine the relationship between environmental degradation and business performance around the Lake Naivasha ecosystem. This study therefore sought to establish the initiatives undertaken by various enterprises to address the above challenges for their performance and sustainability.

2.0 LITERATURE REVIEW

2.1 Forms of Environmental Degradation due to Business Activities

It is anticipated that adoption of environmental initiatives can provide a 'flow' of materials that yield business satisfaction and increased production thus improved sustainability of the enterprise in question. Environmental resources typically have public good characteristics that provide benefits to those who use the resources but do not bear the full cost of providing their sustainability. The private sector generally does not produce enough public goods since they are mostly concerned with economic efficiency and profitability rather than social well being. From the economic standpoint, a public good is not in any economic agent's best interest to supply. Individuals have an incentive to 'free-ride' by letting others bear the costs of providing the public good (Rudd et al., 2003).

In response to shortfalls in the production of public goods and conflicts between various interest groups, there is need for policy initiatives that prescribe or influence private behaviour by setting rules that prohibit, require, or permit specified actions designed to increase the supply of public goods. Policies that affect business operations have costs and benefits, both for businessmen and people in other sectors of the society surrounding the various businesses, that must be accounted for if social well being is to be maximised. Economics can be used to quantify the costs and benefits of various policy options available to the society, and make recommendations that improve overall economic efficiency. Overall well being (welfare) consists of the sum of surpluses accruing to products and consumers.

2.2 Studies on Forms of Environmental Degradation due to Business Activities

The relationship between environmental and business performance may depend on alignment of environmental management function to other business functions, and alignment of the firm's environmental management to external stakeholders. Grekova *et al*., (2010) noted that the ability to benefits from improved environmental performance can be realised by the alignment of environmental function to other business functions and alignment of environmental performance to external stakeholders such as suppliers, customers, competitors and government. In a study to investigate potential inter-organisational learning to improve the alignment of environmental function they performed an empirical research among 108 Dutch food and beverage firms. The results indicated that though internal and external alignment is associated with benefits from investments in environmental performance, the benefits can not offset the costs of those investments

Roberts and Sheila (2009) reviewed the economic value of environmental amenities and dis-amenities around the world and noted that although the environment is faced with air pollution, water pollution, solid and hazardous waste, application of valuation methods remain a monumental task as reliable measures of non-use

values remain elusive. They noted that the process calls for the need for valuing pollution emissions and abatement; natural resource amenities and ecosystems. The study found that there are no comprehensive measures of the value of everything as some ecosystem phenomena are very difficult to model and understand because they are rare and catastrophic. The current study seeks to identify the types of environmental degradation at the Lake Naivasha ecosystem. This will inform further studies in cases where there is need to develop methods that can be used to measure and value degradation in the area.

Sangle (2008) argued that there is a need for environmental user groups to think about how to structure programs for sustainable consumption. The EMS designed for use by individual organisations with the prevention of pollution as a main objective could be amended to apply to organisational management of sustainability. The study therefore proposes to bring sustainable consumption within the purview of EMS, especially, at the time of identifying aspects, attributing significance to environmental policy and action plans. Obviously, EMS audit criteria should also include suitability of management systems for sustainable consumption.

Gitahi *et al.*, (2002) found that pesticides use has resulted in acute and chronic ecological damage, either by direct injury to non-target organisms such as birds and fish, or by indirect effects such as elimination of natural enemies. They found out that most of the dead raptors sent to the Ornithology Department of the National Museums of Kenya, come from the Naivasha region which leads to the suspicion that agrochemicals are the culprits because of the rapid expansion in horticultural practices in the region although analysis of the cadavers had not been carried out during the study. The current study therefore seeks to fill the gap by first identifying the forms of environmental degradation and followed by the businesses that cause most degradation including the practices and initiatives that are being put in place by business enterprises to address the problem.

2.3 Practices and Initiatives by Businesses to Address Environmental Degradation

In order to mitigate on environmental degradation, most businesses have embarked on Corporate Social Responsibility (CRS). CSR as a concept means being ethical towards stakeholders, that is not harming or hurting any stakeholder (Jones, 2005). It represents voluntary company activities. It is sometimes taken to mean, at the minimum, being legally compliant to the rules of the land (Carroll, 1979). CSR has a dominant goal to better the condition of various stakeholders including the broader society, communities and most importantly the natural environment (Kotler & Lee, 2005). Further corporate social responsibility has been seen as a continuous process of engagement of the firm with the stakeholders (Waddock, 2004). The goal of CSR is to internalise the externalities in order to avoid the sources of conflicts between companies and the society in the long-run (Heal, 2007).

According to Heal (2005), there are six mechanisms linked to CSR programmes that lead to higher profits and enhanced competitiveness of the company in the long-run. These mechanisms include reduction of risk, reduction of waste, improvement of relations with regulators, generation of brand equity, improvement of human relations and employee productivity, and decrease in cost of capital. However, the European Competitiveness Report (2008) argued that the strength of the positive impact of each of these mechanisms, and the extent to which it is relevant to all companies varies. They state that each case of CSR is unique for different sectors, sizes and conditions related to the current situation of the companies. The strongest evidence of a positive impact of CSR programmes on competitiveness was found to be in the cases of human resources, risk management, brand equity generation and innovation.

With the publication of the Guidelines for the Implementation of Social Responsibility (ISO 26000:2010) by the International Organisation for Standards in November 2010 has however helped to standardise the way CSR activities are implemented thus creating close to same impact across all companies and societies.

2.4 Impact of Environmental Initiatives on Business Operations Performance Sustainability

The overall goal of voluntary initiatives is to foster continuous improvement in environmental management by utilising a properly designed and implemented environmental management system (EMS). According to the International Chamber of Commerce "Guidelines on Environmental Auditing," the objective of an environmental management system is to provide a structured and comprehensive mechanism for ensuring that the activities and products of an enterprise do not cause unacceptable effects in the environment. All stages of an EMS are, therefore, considered from initial planning and conception, to final termination. These includes, environmental auditing, reporting and communicating a company's environmental performance with its stakeholders (ICCBCSD, 1991).

The International Chamber of Commerce Business Charter for Sustainable Development (ICCBCSD) was developed by a working group on international business representatives to give guidelines on the implementation of voluntary environmental initiatives. The charter was introduced at the International Chamber of Commerce's Second World Industry Conference on Environmental Management in April 1991. It formed the International Chamber of Commerce's primary contribution to the United Nations Conference on Environment and development. It was endorsed by over 1,200 major companies worldwide. The charter sets out principles on the full range of corporate activities linked to environmental performance, including management priorities and

processes, environmental auditing, employee training and education, product development and manufacture, and community concerns.

Scott (2008) came up with the 7-P model using seven words (all beginning with letter p) to describe the waste-reduction aspects of sustainability in a business application context and the interplay they have on one another to ensure waste minimisation, resource maximisation, cost minimisations and resource deficit prevention (See figure 2.1). The model has been used by the European Foundation for Management Development to structure a guide to assess business sustainability. Briefly, the 7-Ps include: Preparation, process, preservation, people, place, product and production.

Preparation implies setting the stage for change, accepting the breadth of sustainability and understanding what the reformer is up against when trying to implement profitable, long term practices. Preservation encompasses collecting and displaying real-time measurements (internal) and keeping ahead of laws, pending legislation, trends and developments (external). Process stands for sustainable belief system, philosophies, business models and thought patterns that help match a business with customer demands, core capabilities and best practices. People implies accepting the importance of training and education and working diligently to avoid the wasting of people, especially employees (who seek security and motivation), shareholders (who want a return on their investment), customers (who want safe, value-laden products), and the world community (who require jobs and inclusion); place – the buildings and places where work is performed and/or products are sold). Product refers to goods and services that are free from unnecessary waste (non-product) and toxins – and designed so that the materials, energy and manpower that comprise them (and their packaging) are treated as investments continuously reused. Lastly production encompasses the physical, mechanical, biological and chemical processes used to transform raw materials into products or services and transporting them. In conclusion preparedness, process and preservation is classified as strategy; place, product and production as tactics; and people as the catalyst. The model will be used in this study to formulate a checklist to be completed during the field work.

Kielstra (2008) in a study conducted across the world to establish the states general understanding of corporate sustainability concludes that there are ten lessons that need to be learnt by corporate leaders. They include: working smart not hard (sustainability involves an alignment of social, environmental and financial goals); knowing thyself (companies need to figure out what they figure is right and acting accordingly); knowing thy impact (requires that an organisation establishes how its activities impact on those around it); focusing on core strengths of the business; asking what sustainability can do for the company by taking account of environmental and social issues; having clear and board level support; integrating the supply chain into the company's sustainability policies; monitoring and reporting on all activities; integrating sustainability into the corporate structures and processes; and engaging in public debates about the appropriate content and limits of corporate social and environmental policies.

2.5 Effects of Environmental Initiatives on Social Capital

Economic problems involve making choices under conditions of uncertainty and scarcity. Factors of production are transformed to produce commodities including diverse quasi-public goods such as education and public health, and universal public goods such as environmental quality or international order. Public goods share two characteristics important to theories of collective choice which are that they are under-produced and the fact that we would be better if more were produced (Coleman, 1987). A crucial cause of underproduction is the incentives rewarding the maximisation of short-term self-interests while leaving all participants worse off in aggregate than feasible alternatives.

Ostrom, (1998) notes that if optimal levels of public goods are to be produced and trade gains fully exploited, shared understandings and patterns of collective action develop beyond immediate kin. Research evolution psychology and experimental economics suggests that humans are more predisposed to social exchange through reciprocity than is expected under narrowly defined rational choice models. Cognitive science holds that a variety of heuristics and reciprocity are 'hard-wired' by evolutionary selection, resulting in a propensity to cooperate with others not perceived as foes, even if the functional mechanisms of reciprocity vary between societies. He outlines a behavioural approach to a 'softer' rational choice theory compatible with developments in evolutionary psychology and especially useful in developing concepts of social capital. He further notes that collective action is facilitated through the inhibition of short-term self-interested behaviour via a self-reinforcing cycle of trust and reciprocity. At the individual level, norms of trust and reciprocity lead to the formation of reputation, an important asset that can help reduce transaction costs associated with exchange in situations of information asymmetry. In the aggregate, increased returns are achieved via increased levels of generalised social trust and by institutionalizing mechanisms of trust, reputation and reciprocity both of which reduce transaction costs (North, 1990).

At the level of the individuals, Burt (2000) summarises results from extensive empirical studies on information networks that provide competitive advantage for business managers and entrepreneurs. Burt hypothesises that information circulates more within groups than among groups of people. Consequently, those people

maintaining weak ties between groups can exploit them and control the flow of information between non-redundant network contacts. Burt demonstrates instrumental returns for business managers to be a function of network size density and hierarchy.

3.0 Research Methodology

3.1 Research Design

The descriptive survey research design was chosen in order to pick behaviours which needed to be mitigated for purposes of enterprise performance sustainability. This was be done in two tiers; secondary data on the movements of the variables over the last five years to establish the resource use over this period and how the same has influenced the sustainability of business performance; and a questionnaire administered to the chosen categories of stakeholders to represent all the major actors in the Lake Naivasha ecosystem. A check list was also designed to assess the business sustainability initiatives using the 7-Ps model.

3 .2 Target Population

Cooper and Schindler (2000) define population as the total collection of elements about which inferences are made. The target population for this study were the businesses that operate within the Lake Naivasha Ecosystem and companies that were picked are those that cause most degradation to the environment. The research sample frame was based on three categories of the population; the business owners/top managers, the employees and the different types of stakeholder (that is, flower farmers, fishermen and hoteliers) using purposive random sampling. This method represents a group of different non-probability sampling techniques which include; maximum variation, homogenous, typical case, extreme (or variant) case, critical case, total population and expert. It is also referred to as judgemental, selective and subjective. It relies on the judgement of the researcher when it comes to selecting units that are to be studied. The method was chosen because it enabled the researcher focus on the characteristics of the population that are of interest which enabled him answer the research questions. This is because the sample being studied was not a representative of the population but meant for purposes of understanding the general practice and understanding of the environmental and business performance sustainability issues across categories of the identified population. The advantages of choosing purposive sampling include: provided wide range of sampling techniques that can be used; provided researcher with the justification to make generalisations from the sample that is being studied; and lastly it provided a wide range of non-probability sampling techniques for the researcher to draw from (Teddlie & Yu, 2007).

In order to guard against researcher bias, a clear criteria where a representative sample was chosen from among the owners, senior managers and the rest of staff. Further, to ensure the selected study sample was appropriate, the populations was classified into hospitality industry, farming and fishing which consists most of the stakeholders as shown in Table 1. With the above considerations in mind, the maximum variation sampling method also referred to as heterogeneous sampling method was chosen. This method was found appropriate because a limited number of the people in the identified population have expertise in business sustainability and environmental initiatives.

3.3 Sample Design and Sample Size

Enterprises that cause most of the environmental degradation were identified on the ground and these consisted of the target population. Purposive random sampling was used to select categories from a complete list of the target population. This enabled collection of data from a cross section of all the businesses that operate around the Lake Naivasha ecosystem in order to obtain an all inclusive data set. Purposive sampling was used to explore the range of different potential impacts like ensuring that the quota for managers in each business involved was selected from each department. The sample size represented the number of respondents who were selected through the use of purposive random sampling technique and issued with the questionnaires. Purposive sampling technique was selected because sampling was seen as a series of strategic choices about with whom, where and how to do the research. This enabled the researcher to firstly tie the selected sample to the research objectives. Secondly it enabled the assumption that the best sampling strategy depends on the context in which one is working and the nature of the research objectives. In this regard, stakeholder sampling technique was applied to identify the stakeholders, get their opinions on environmental issues and determine how they feel these will affect their business performance. Sample stratification was used to identify and capture the opinions of a cross section of owners, senior managers and lower level management staff in regard to the company's environmental initiatives and their impact on the sustainable performance.

In order to determine the sample size, the following formula was used (Watson, 2001):

$$n = \frac{P[1 - P]/(A^2/Z^2 + \{P[1 - P]/N\})}{R}$$

Where: n = sample size required
N = estimated number of people in the population
P = estimated variance in population, as a decimal

A = precision desired, expressed as a decimal
Z = confidence level
R = estimated response rate, as a decimal

For purposes of this study, the estimated variance in the population is 0.3, the desired precision is 0.05 and the confidence level was 95%. During the survey it was noted that most of the employees in both the farming and hospitality sectors are employed on part time basis while nearly all the actors in the fishery sector apart from the boat owners are engaged on temporary basis. For the purposes of the study, it was estimated that the total number of people in the population who are engaged on permanent basis is 550. The estimated response rate was estimated to be above 95% since the questionnaire was to be administered on the face to face interview basis. Based on the above understanding, the sample size was determined as follows:

$$n = \frac{0.3[1 - 0.3]/(0.05^2/1.96^2 + \{0.3[1 - 0.3]/500\})}{0.95} = 216$$

The sample size was rounded upwards to 220 for purposes of easy calculation. Based on the above sample size, the sampling frame was done from the target population consisting of farming and hospitality companies which employ more than 50 people on regular basis and the 50 fishermen who are registered to fish at the Lake Naivasha at any one time. The sample ratio was allocated to each category depending on the number of the targeted population as shown in Table 1. In order to give an equal distribution of the sample size to the identified population, we used a sample ratio calculated from the total population as shown in column three in Table 1.

Table 1: Population Sampling Frame Summary

Business Enterprise	Target Population	Proposed sample ratio	Number of Businesses to be Sampled
Hospitality	70	(70/220) x 100 = 32%	70 x 32% = 22
Farming a) Grower b) Pastoralists	70	(70/220) x 100 = 32%	70 x 32% = 22
	30	(30/220) x 100 = 13%	30x 13% = 10
Fishermen	50	(50/220) x 100) = 23%	50 x 23% = 16
Total	**220**	**100%**	

Based on the sampling frame in Table 1, the researcher chose three representatives (Owner/Senior Manager, Middle Level Manager and an additional number of respondents selected purposively) from each of the sampled businesses were chosen.

Table2: Grouping of Statements under Respective Hypothesis and the Outcome Measures

Hypothesis	Variable	Statement Number
H1	Environmental Initiatives	14, 15, 16, 18, 19, 20, 40, and 41
H2	Social Capital	8, 11, 17, 21, 22, 23, 24, 26, 27, 29, 30, 32, 33, 34, 36, and 42
H3	Business Performance	6, 7, 9, 10, 12, 13, 25, 28, 31, 35, 37, 38, and 39

To minimise response bias, the statements in the eleven research items were randomly mixed-up (statements belonging to a particular research question were inserted in other questionnaire items). However, statements belonging to each of the research questions were grouped together and analysed accordingly.

4.0 Research Findings and Discussions

4.1 Findings

The summary of the respondents is shown on Table 3.

Table 3: Summary of respondents

Business Enterprise	Owners/Senior Management	Middle Level Management	Other	Total Respondents
Hospitality (Hotels, Tourism and recreational fisheries)	22	22	22	66
Farming: a) Growers	20	20	16	56
b) Pastoralists	12	12	17	41
Fisheries: a) Fishermen	6	6	8	20
b) Fish Mongers	6	6	6	18
Total Targeted Sample	**66**	**66**	**69**	**201**

The un-weighted group means for the identified independent variables was performed followed by a stepwise procedure and the following results were obtained.

Table 4: Summary of Stepwise Discriminant Analysis Results (Source: Author, 2013)

Steps	Entered	Wilks' Lambda Value	Significance
1	H1	.656	0.000
2	H2	.580	0.000
3	H3	.386	0.000

In order to assess the level of significance of the discriminant functions that have been entered into the model Wilks' Lambda was used with a 0.05 or beyond significance level. As indicated in Table 5, the Wilks' Lambda values of all the three variables in the model are highly significant ($\rho < 0.001$).

Table 5: Canonical Discriminant Functions

Function	Eigenvalues	% of Variance	Cumulative %	Canonical correlation	Wilk's lambda	Chi-square	Significance
1	0.524	100	100	0.586	0.656	57.293	0.000
2	0.725	100	100	0.648	0.580	74.936	0.000
3	1.594	100	100	0.784	0.386	122.963	0.000

Table 6 shows the classification of results obtained from the analysis.

Table 6: Classification Results

		Business Sustainability	Predicted Group Membership		Total
			agree	disagree	
Original	Count	Agree	83	7	90
		Disagree	7	42	49
	%	Agree	92.2	7.8	100.0
		Disagree	14.3	85.7	100.0
Cross-validated(a)	Count	Agree	76	14	90
		Disagree	10	39	49
	%	Agree	84.4	15.6	100.0
		Disagree	20.4	79.6	100.0

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b. 89.9% of original grouped cases correctly classified.
c. 82.7% of cross-validated grouped cases correctly classified.

5.3 Analysis and Discussion of the Results

Discriminant analysis was used to estimate the relationship between a single non-metric dependent variable and a set of metric independent variables. This analysis was selected because it involves deriving the linear combinations of the independent variables that will discriminate best between prior defined groups. The primary object of the analysis was to identify the group that enters the model for business performance sustainability as developed in the conceptual framework.

5.4 Sample Size – Ratio of Cases to Variables

The minimum ratio of valid cases to independent variables for discriminant analysis is 5 to 1 with a preferred ration of 20 to 1 (Hair, et al., 1998). In this analysis there were a total of 139 valid cases and 3 independent variables as shown in Table 7. The ratio of cases to independent variables is 46.3 to 1 which satisfies the minimum requirement. In addition the ratio of 46.3 to 1 satisfies the preferred ratio of 20 to 1.

Table 7: Analysis Case Processing Summary

Unweighted Cases		N	Percentage
Valid		139	69.2
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	62	30.8
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	62	30.8
Total		201	100.0

5.5 Sample Size – Minimum Group Size

In addition to the requirement for the ratio of cases to independent variables, discriminant analysis requires that there be a minimum number of cases in the smallest group defined by the dependent variable. The number of cases in the smallest group must be larger than the number of independent variables, and preferably contains 20 cases or more. The number of cases in the smallest group in this study is as shown in Table 8. In all cases the number of cases is larger than the number of independent variables thus satisfying the minimum requirement. In addition, the number of cases in the smallest group satisfies the preferred minimum of 20 cases in all the three groups.

Table 8: Summary of Prior Probabilities for Groups

Hypothesis	Business Sustainability	Prior	Cases used in Analysis	
			Unweighted	Weighted
H1	Agree	0.676	96	96.000
	Disagree	0.324	46	46.000
	Total	1.000	142	142.000
H2	Agree	0.664	97	97.000
	Disagree	0.336	47	47.000
	Total	1.000	146	146.000
H3	Agree	0.647	90	90.000
	Disagree	0.353	49	49.000
	Total	1.000	139	139.000

5.3.3 Number of Discriminant Functions

The maximum number of discriminant functions is the smallest of one less than the number of groups defined by the dependent variable and the number of independent variables. In this study, there were 3 groups defined by environmental initiatives, social capital and business operations performance so that the maximum possible number of discriminant functions would be 2. Table 9 shows a summary of the eigenvalues showing the canonical discriminant functions used in the analysis. It was noted that the condition for the number of discriminant function being the smaller of one less than the number of groups defined by the dependent variable and the number of independent variables for discriminant analysis to be appropriate was met.

Table 9: Summary of Eigenvalues

Function	Eigenvalues	% of Variance	Cumulative	Canonical correlation
Environmental Initiatives	0.524	100	100	0.586
Social Capital	1.594	100	100	0.784
Business Performance	0.725	100	100	0.648

Further, in the table of Wilk's Lambda which tested functions for statistical significance, the direct analysis identified 1 discriminant function in each group that were statistically significant. All the Wilk's Lambda statistic for the test functions had a probability of <0.001 which was less than or equal to the level of significance of 0.05 as shown in Table 10. The significance of the maximum possible number of discriminant functions supported the interpretation of a solution using 1 discriminant function.

Table 10: Summary of Wilk's Lambda

Test of Functions	Wilk's Lambda	Chi-square	df	Sig.
Environmental Initiatives	0.656	57.293	8	0.000
Social Capital	0.386	122.963	16	0.000
Business Performance	0.580	74.936	13	0.000

5.3.4 Independent Variables and Group Membership

In order to specify the role that each independent variable plays in predicting group membership on the dependent variable, we link together the relationship between the discriminant function and the groups defined by the dependent variable, the role of the significant independent variable in the discriminant functions, and the differences in group means for each of the variables. Note that each discriminant function divides the groups into subgroups and the positive values to the other subgroup. Table 11 shows the summary of un-standardised canonical discriminant functions evaluated at group means.

Table 11: Summary of Functions at Group Centroids

Variable	Function 1 (Agree)	Function 2 (Disagree)
Environmental Initiatives	-0.497	1.038
Social Capital	-0.925	1.699
Business Performance	0.601	-1.189

Each function divides the groups into two subgroups by assigning negative values to one subgroup and positive values to the subgroup. Function 1 for example separates survey respondents from those who agree that the independent variable in question has an effect on the dependent variable.

5.6 Classification using the Discriminant Model

In order for the independent variables to be characterised as useful predictors on membership in the groups defined by the dependent variable, the cross validated classification accuracy rate should be significantly higher than the accuracy attained by chance alone. Operationally, the cross-validated classification accuracy rate should be 25% or higher than the proportional chance accuracy rate (Hair, et al., 1998). The proportional by chance rate is computed by squaring and summing the proportion of cases in each group from the tables of prior probabilities for groups. The researcher shows the computations for this study in Table 12.

Table 12: Summary of the Classification Accuracy

Variable	Prior Probabilities for Groups		Chance Accuracy Rate	Chance Rate Plus 25%	Cross-Validated Accuracy
	Agree	Disagree			
Environmental Initiatives	0.676	0.324	0.562	70.2	74.6
Social Capital	0.647	0.353	0.543	67.9	82.7
Business Performance	0.664	0.336	0.554	69.2	75.3

The results indicated that the criteria for classification accuracy are satisfied. The above analysis confirms that environmental initiatives, social capital and business operations performance influence the sustainability of businesses.

5.4 Types of Environmental Degradation

In order to establish the critical contributors to the environmental degradation around the Lake Naivasha ecosystem, respondents were requested to indicate in a four-point interval scale which among the nutrients discharge to rivers, cutting of trees, overgrazing, water abstraction and greenhouse gas effects they thought caused most of the degradation in the Lake Naivasha ecosystem. The results are shown in tables 13 and 14.

Table 13: Results for the Causes of Environmental Degradation

Variable	Strongly agree	Agree	Undecided	Disagree	Total Respondents
Nutrient Discharge	98	36	34	33	**201**
Cutting Trees	32	87	44	38	**201**
Overgrazing	46	65	41	49	**201**
Water Abstraction	62	64	51	24	**201**
Greenhouse Gas Effect	0	0	77	124	**201**
Total Respondents	**238**	**252**	**247**	**268**	**1005**

The results in table 13 were taken through the independency and homogeneity tests using a one sided Chi-square distribution with 12 degrees of freedom as follows:

$$\chi^2_{(0.05,\,12)} = \Sigma \frac{(O - E)^2}{E}$$

Where: O = Survey outcome, and
E = Expected outcome

Expected outcome was calculated by multiplying the Row Totals by the Column Totals and dividing the results by the Grand Totals.

5.5 Test for Independence

Under this test, the researcher sought to establish if the variables being rated are independent of one another. In this regard, the researcher tested the hypothesis for five independent variables with the alternative hypothesis that is not independent thus:

Null Hypothesis; H_0 = The five variables are independent from one another
Alternative hypothesis; H_1 = The five variables are not independent from one another
The chi-square calculated value was 6.81 whereas the chi-square value from the chi-square distribution table was 21.026. Since the calculated chi-square was low than the value on the distribution table at 0.05 we fail to reject the Null hypothesis. The five variables are therefore independent thus the results obtained from the survey can be used to determine the types of environmental degradations around Lake Naivasha.

5.6 Test for homogeneity

In order to test for homogeneity, the researcher divided the respondents into farming, fisheries and hospitality. This involved testing the hypothesis of the population proportion with each row of the same. In other words, we test the hypothesis that the proportion of farming, fisheries and hospitality sectors rated the same. Here the researcher was basically interested in determining whether the three categories of respondents are homogeneous with respect to the activities that cause most of the degradation at the Lake Naivasha ecosystem.

Table 14: Categorised Results for the Causes of Environmental Degradation

Variable	Farming	Fisheries	Hospitality	Total Respondents
Nutrient Discharge	97	48	56	**201**
Cutting Trees	97	48	56	**201**
Overgrazing	97	48	56	**201**
Water Abstraction	97	48	56	**201**
Greenhouse Gas Effect	97	48	56	**201**
Total Respondents	**485**	**240**	**280**	**1005**

Source: Author, 2013)

Based on the respondents as shown on table 14, we proceeded to test the hypothesis that the opinions concerning the causes of environmental degradation at the Lake Naivasha ecosystem are the same within the stakeholders thus:

Null Hypothesis; H_0 = For each opinion the proportions of farming, fisheries and hospitality are the same

H_1 = For at least one opinion the proportions of farming, fisheries and hospitality are not the same.

The chi-square calculated value was 1.13 whereas the chi-square value from the chi-square distribution table was 12.592. Since the calculated chi-square was low than the value on the distribution table at 0.05 we fail to reject the Null hypothesis. For each opinion the proportion of farming, fisheries and hospitality are therefore the same thus the results obtained from the survey can be used to determine the types of environmental degradations around Lake Naivasha.

6.0 CONCLUSION AND RECOMMENDED ACTIONS

6.1 Conclusion

Environmental degradation is major problem in the Lake Naivasha ecosystem and several initiative have been put in place to mitigate on the impact this has to business performance initiatives sustainability. Governments and citizens are also likely to demand the social and environmental benefits of sustainable business practices in line to the open economy that has been occasioned by the impact of globalisation. Companies therefore need to define sustainability widely by looking at a range of relevant environmental and social goals. The specific form that business sustainability policies are likely to take will be shaped by both economic and regulatory factors, as well as environmental and social factors as has been seen in the study. This study has tackled the relationship between environmental initiatives and business performance. Our findings reveal that some dimensions of environmental initiatives have positive and significant effect on business performance objectives. Thus this paper supports the existence of a positive relationship between environmental initiatives and business performance in line with Christmann (2000), the study has also revealed the complexity of the relationship between environmental initiatives and business performance sustainability. Hart & Ahuja (1996) suggest that this relationship should be approached as a bundle of relationships between different patterns or strategies of environmental management and different types of performance indicators. The disaggregated relationship between environmental initiatives and business performance sustainability should form the next line of research.

A few companies in the Lake Naivasha ecosystem have a long history of addressing sustainability issues but business in general is still at the initial stages. Most businesses are still scrambling to address the issues thus experiencing the pains of learning to master in this new area. This calls for the re-thinking of business models that can deliver on the environmental and business sustainability requirements. The study noted that there are four areas that are currently not receiving enough attention within the business. These are: leadership, supply chains, reporting and metrics, and the transformation of values into processes. Weaknesses in one or another of these areas will condemn too many companies to poor performance in this area which present more than a social or environmental problem. Further, it is important for business enterprises to not only determine which effects

are derived from environmental initiatives but also to determine when such effects are produced. Although the financial benefits of environmental initiatives remain unclear, understanding of the economic advantages can be very helpful to continued financial performance. As the social and environmental forces driving sustainability reshape the global economy, an inability to understand and perform in this area is likely to be fatal for a business. It should be understand that neither business, government nor any other stakeholder can meet these challenges on its own. This calls for a redefining of business' relationships with the world around it, as well as the legal and regulatory framework in which it operates. Companies should therefore be part of the sustainability debate for their own sake as well as that of society as a whole.

Business people should realise that the image of an immoral private sector motivated by greed may not take them far. Although most business people think that their economic activity serves the public good, this study has shown that corporate values are at the core of what firms should do. The innovation that business performance sustainability demands is to integrate the social and environmental values into the structure, processes and incentives that mould behaviour inside companies. Social and environmental initiatives should become a central part of the strategy for corporate prosperity rather than something firms do in addition to making profit.

To address the problem of conflicts brought about by the exploitation of environmental resources as noted around the Lake Naivasha ecosystem, feasible policy objectives need to be clearly established in order to allow for feasible policy instruments to be designed to advance them. Effective group rights will lead to efficient resource allocation if only there are effective mechanisms for internal governance. The effectiveness of a formal structure of internal governance will depend upon the incentives of the individuals whose roles are to enforce rules and other individuals who are expected to comply with the rules (Swallow & Bromley, 1995).

Political structures and the institutions that provide support to businesses are continually changing. For example, what might have been feasible in the previous political dispensation in Kenya may not be feasible with the new provisions of the New Constitution promulgated in August 2010. With the new political dispensation, common property regimes, polities, and ecologies are bound to evolve, co-evolve through their repeated interactions, and respond to exogenous political, economic and ecological shocks. These processes are serving to undermine the efficacy of status quo institutional arrangement. It is in this context that business managers need to search for ways to facilitate institutional change that will make regimes more resilient and better able to allocate resources to the mutual benefit of those who share their access. In this regard priority needs to be given to group rights and the internal institution-building capacity of local groups and communities.

6.2 Policy Recommendations on Environmental Resource Management for Sustainable Business Performance

Environmental resources management goes beyond just implementing ad hoc adaptive responses to unexpected ecological or economic crises, replacing trial and error learning with a directed process of active policy selection. Policy selection should be driven by societal objectives that ultimately reflect the values, preferences and behaviours of individuals and organisations within that society.

The human crafted rules and norms that infuse social order (institutions) shape human incentives and behaviour. A variety of institutions can, therefore, crafted to achieve any particular objectives envisioned under environmental resource management. Since the array of options may vary greatly in costs, it is necessary to monitor policy experiments that strategically test the cost-effectiveness of policy bundles than can help achieve diverse societal objectives. In this regard, it is recommended that evaluative criteria defined as acceptable or unacceptable by a specific society is determined. Although an evaluation varies from application to application, it is important that in developing objectives for each capital asset assumption regarding sustainable development is explicit. In addition it is important that decisions be transparent and be assessed in light of the actors involved, their property rights and constitutional-level processes that shape resources access and utilisation. Since wealth generation is an important for business enterprises, evaluative the selected evaluation criteria should consider three components: resources capture, business sustainability and reduction of environmental degradation including improvement in social capital. Further many regions will have specific objectives regarding the retention of economic benefits within their own region which brings about a high multiplier effect. In addition it will be important in most of the systems to consider the nonmarket value of one or more ecosystem services so that economic wellbeing as whole is considered, rather than the narrow subset of financial impacts.

Finally, some evaluative criteria will relate specifically to economic equity. This is often based on the principle of 'user pay' or to be explicit protection of vulnerable segments of society. User pay is an economic term used to imply that the person who utilises a specific environmental resource is made to pay for it either through tax or other levies that may be imposed from time to time. Other broader evaluative criteria appropriate for some situations include: institutional adaptability; conformance with general social norms and values; and various governance criteria such as bureaucratic accountability or transparency. The adaptability evaluative criteria in environmental resource management requires that management focus on maintaining long-run system stability while the flow of ecosystem services cycle is within normal bounds in order to allow resource users to recognise

resources abundance patterns and maintain sufficient flexibility to adjust to those cycles.
Note that different actors have different bundles of property rights thus incur different transaction costs. The lower the transaction costs, the more adaptable actors will be and, therefore, the more willing and able to experiment and innovate in ecosystem-based environmental resource policy experiments. The foregoing suggests that monitoring constitutional-level institutions such as property rights may provide a reasonable proxy for adaptability of governance systems that will enable exhaustive mitigation of the environmental degradation concerns. Investment in institutions can be made at the operational, collective choices and constitutional level by: increasing the level of information gathering, monitoring and/or enforcement activity for existing rules; changing the status quo rules governing ecosystem resource, or changing the ecosystem governance rule-making process itself. These investments collectively will comprise the primary transaction costs of the ecosystem management.
Investment in monitoring and enforcing existing rules are important for successful resource management, but may not be sufficient for long-term sustainability alone. Most public agencies closely track expenses devoted to monitoring, compliance and enforcement. When publicly available, this data provides the basis for indicators of investment in operational-level institutions. In addition resource users may contribute significant in-kind and financial resources to self-monitoring if they are involved in the development of the system. In self governing, however, indicators of these investments may be more difficult to develop because much of the monitoring activity may be 'by product' of routine enterprise activities. This is the case with the LNGG which monitors the activities of her members in the Lake Naivasha ecosystem.
Changing the rules governing behaviours or outcomes that are required, prohibited or permitted by law implies that indicators focus on the costs of activities such as the development of management plans, publication of rule changes and costs associated with legislative change. This may be simple more expensive than enforcing monitoring and enforcement. At the collective choice level, Sunstein (1996) notes that it is also possible for government, NGOs or other 'norm entrepreneurs' to effectively invest in norm-seeding activities that seek to change the informal rules-in-use. This should be encouraged so that the impact of environmental degradation in business sustainability can be reduced. If sustainability outcomes consistently fail to meet broad societal expectation, there may be increasing call for political changes about the rule-setting process itself. Constitutional level rules about the articulation of stakeholder interests are those that refer to selecting and representing stakeholders for the governance process. Aggregation rules deal with the transformation of diverse stakeholder interest into actions, often specifying the timing or frequency of meetings and technical rules about voting procedures needed to resolve conflicts. Constitutional change is more expensive again relative to lower level changes that simply devote more resources to enforcement or shift management orientation. At this level, appropriate indicators of investment relate to resources dedicated to litigation, political lobbying and core investment in strategic decision-making processes by public, private and civil society organisations. Data is likely to be much more difficult to come by at this level and in-kind contributions to the process very important.
The world summit on sustainable development held in Johannesburg in September 2002 advocated the need to develop more sustainable life styles and patterns of consumption. The study notes that the dominant approach to managing environmental issues in large companies is the construction of Environmental Management Systems (EMS), often certified to ISO 14001 which is associated with a circle of continuous improvement. For many companies the construction of EMS has brought about tangible benefits in terms of cost reduction, improvements in working practices and enhancement to reputation and image. It has further been noted that management of environmental concerns through EMS has potential to be a source of competitive advantage because it provides three major benefits as perceived by the customers. These are: product related; image and reputation; and assurance of compliance with regulations. It is therefore recommended that business organisations influence their members to embrace the environmental management system for improved environmental management.
Product related benefits are price reduction, reduction of defective products, by reducing use of hazardous materials and environmental unsafe processes and increased use of recycled and/or recycling of materials. The image related benefits are improved reputation with regulators/government; effective communication of environmental friendliness to the consumer base may improve the perceived quality of a company's products and in turn its operations. A certified EMS of a large and important supplier may have a beneficial impact on the firm's relationship with its shareholders and other investors. Similarly, it is noted that ISO 14000 certification can become the basis of deciding lending and liability status of a given organisation. It is therefore recommended that organisations that have put in place environmental initiatives communicate this important step to their clients so that the perception with a view to change the perceptions held.
In order to meet the sustainability requirements, an EMS implementation needs to be more comprehensive and demanding. This requires that environmental issues be included: across the entire life cycle of the product or service; institutionalisation of establishing and diffusing continual innovation across product life cycle; and internalisation of internal and external stakeholders' concerns at each stage of product life cycle. In designing EMS for sustainable consumption of resources three aspects that must be taken into account are; identification of

environmental aspects; attributing significance to the identified environmental aspects; and expressing the intent of an organisation towards the environment by delineating clearly areas directly affecting the natural capital. This forms the pillars of environmental policy thus: pollution prevention; continual improvement; commitment to legal compliance; dematerialisation across the product life cycle; continual innovation for dematerialisation; and commitment to compliance with stakeholders' expectations, not just regulators. Further it is important to note that the EMS should be subjected to audit to determine the extent to which an organisation has management system characteristics that allows appropriate measurement and monitoring of balance between socio-economic and self-interest and the sustainable consumption. The Management system audit for sustainable business performance should cover the following areas: critical environmental management system elements; essential quality management system elements; organisational adaptability which depends on the ability to take preventive actions capable of anticipating or enabling a future outcome and corrective action.

The above model can therefore be used by the various businesses to assess their business operations sustainability through the development of an index that can be monitored on a year basis to determine how the business is doing.

6.3 Recommendation for Further Research

This study provides baseline information of the relationships between environmental initiatives and business performance sustainability at the Lake Naivasha ecosystem in Kenya. There is need to conduct further environmental and business sustainability studies in other wet land areas within Kenya such as Lake Baringo, Lake Nakuru, Lake Bogoria and Lake Victoria. This is informed by the fact that different communities have different requirements. Future research should in particular focus on: determinants of implementing a business sustainability model; determinants of implementing an environmental management system; the influence of top management on the effectiveness of an environmental management system; the role to be played by senior management in the implementation of a business sustainability programme; measuring business sustainability development; and developing a business sustainability assessment model.

With the advent of the global warming, Kenya's wetlands are at a risk of disappearing despite the fact that some of the areas have been gazetted as riparian land. With the current rate of population increase there is need to establish appropriate strategies for the maintenance of the current wetlands for future generations. In view of the numerous social-economic and environmental benefits associated with wetlands, the search for the best management models for their conservation is fully justified and should be supported. There is therefore a need for more studies in this area in order to reduce the anticipated future human suffering if nothing is done about the world's wetlands.

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