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NEW GOALS FOR SUSTAINABLE DEVELOPMENT AT THE LAKE NAIVASHA ECOSYSTEM, KENYA: A CASE FOR REGULATIONS VERSUS STAKEHOLDER COLLABORATION

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Abstract

Lake Naivasha is a fresh water lake situated in the Kenya portion of the Great Rift Valley about 80 km North West of Nairobi within Nakuru County. The Lake is home to both an internationally renowned environmental treasure as well as a vibrant agriculture industry that exports high value fresh vegetables and cut-flowers. The ecosystem is currently under intense scrutiny over concerns about how its environmental integrity can be sustained while still supporting a valuable and growing economy that supports over 500,000 people. The area is basically an agricultural economy that is completely dependent on its water resources for economic production, social, economic and investment/financial activities. In this regard, regulatory and reputational risks associated with a deteriorating bio-physical environment are significant. The purpose of this study is to highlight the risks for each of the individual stakeholders in the ecosystem in order to for them to recognise the need for a common path to achieving improved wetland resource management in the basin together with the future economic and environmental sustainability. The study was undertaken to establish what the business community considered to be the greatest influence over their sustainability strategy in the next five years. Respondents were asked to rate on a likert scale what among the government and policy makers, competitors, customers outside the country, regulators, employees, shareholders, the media (concerns over bad press), business associations/codes of best practice, community leaders in the area of operations, local customers and NGOs that they thought would influence their business/organisation's sustainability. Discriminant analysis was used and the results showed that each of the actors have an influence in the business sustainability. The results articulate the

need for trade associations to embrace business sustainability practices in their sectoral codes of conduct. The study strongly recommends the development of a Sustainability Assessment Model signature for the ecosystem to be used by business associations for the annual review of the members' sustainability performance.
Keywords: Sustainability, Development, Stakeholders, Collaboration, Goals

INTRODUCTION

Lake Naivasha is a fresh water lake situated in the Kenya portion of the Great Rift Valley about 80 km North West of Nairobi within Nakuru County. The lake has achieved global significance as a Ramsar and UNESCO HELP (Hydrology Environment Life and Policy) status. It was also declared an Eco-hydrology Demonstration site in 2005. As a result, it is now both a national and international conservation area. The Lake Naivasha catchment covers an area of approximately 3.400 km^2 and ranges in altitude from 1,900m to about 3,900m above sea level. The economic activities around Lake Naivasha include small-scale and large-scale agricultural farmers, horticulture and their employees, ranching, tourism, fishing, local government and basin inhabitants. Some of the basin inhabitants are dependent on the broader Kenyan economy and trade while others are basically dependent on the geothermal power production either as employees or entrepreneurs. Over 50 square kilometres of land around the lake is under intensive commercial horticulture and flower farming. The agricultural industry exports high value fresh vegetables and cut-flowers to European and English markets. These activities provide livelihoods for over 500,000 people living within the basin. It is estimated that the population in the Lake Naivasha basin will be close to one million by 2025 (Ayenew *et al*., 2007).

The data for the study area was collected through a variety of instruments such as questionnaire administered to individual respondents, checklists and focus groups. Purposive random sampling was used to determine the sample size from the population of interest (flower farms, fishermen and hoteliers). Descriptive survey research design was used in order to pick behaviours which affect business sustainability.

LITERATURE REVIEW

Most of the identified sustainability threats emanate from poor land-use practices within the watershed, unregulated and excessive water abstraction for domestic, agricultural/horticultural and geothermal generation use, weak policy enforcement, population pressure on natural resources, water pollution due to waste disposals and climate change due to the green house

gas effects. These have resulted in degradation of ecosystem services, economic losses, worsening poverty and reduction of biodiversity (UN-water International Conference, 2011).

The risks and opportunities to be gained through concerted efforts towards sustainability are numerous. A reduction in water abstraction for commercial farmers, for example, affects employment, export earnings, livelihoods and social tensions. The manifestations of the risks are uncertain but the implications are potentially significant (WWF, 2012). Due to the population pressure and economic growth in the country as a whole, the already significant development pressures on the increasing urban-agricultural abstraction coupled with the increasing temperature-climate variability will increase over time. In an ecologically sustainable environment, Lake Naivasha provides an opportunity to support social and economic development in Kenya given that vegetables contribute approximately Kshs. 6.65 billion (US$ 95 million) while cut flowers contribute Kshs. 28 billion (US$ 400 million) to the economy. These opportunities for social and economic development may be squandered if the risks and opportunities are not identified in order to direct resources their mitigation.

In order to identify the risks and opportunities, there is a need to have a closer look at the following initiatives: improve institutional arrangements to support a clear definition and management of the availability of water inclusive of the rules for its use in different parts of the catchment; fostering the innovative partnerships between government, private sector and civil society organisations to address problems in and around the Lake; and development of Lake Naivasha-specific wetland management standards through trade associations. The said standards will thereafter need to be accredited by a recognised body before they are adopted by all enterprises that operate in the ecosystem. In a study conducted to assess Community Based Natural Resource Management (CBNRM), Usman et al., (2011) notes that the development of a wetlands standard reflects more of rhetoric than success in the case of Lake Naivasha catchment. This is because the many assumption of CBNRM as conceptualised in theory is being violated with the consequence of environmental degradation (Usman et al., 2011).

A case study on payment for environmental services where land owners are rewarded by service beneficiaries is yet to be fully assessed. The study was initiated at the Lake Naivasha basin to demonstrate how economic incentives for both ecosystem service buyers and sellers can be used to achieve significant land and water management improvement. The project is still at a relatively early stage of implementation and it is still too early to be able to quantify the gains in water quality/quantity or livelihood improvement achieved as a result of the changes. The overall approach is, however, praised as a model that can be used to serve elsewhere in Africa and other developing country contexts where conservation of soil, water and biodiversity

must be seen to be delivering tangible livelihood benefits (UN-Water International Conference, 2011). In the project, Lake Naivasha Water Resources Users Association (LANAWRUA) agreed to compensate the small-scale landowners. In the project, Lake Naivasha Growers Group (LNGG) who are currently the major contributors to the LANAWRUA represents the ecosystem service beneficiaries (notably the major floricultural/horticultural industry based around the Lake) while the small-scale landowners/farmers are represented by the Upper Turasha-Kinja and Wanjohi Water Resource Users Association (WRUAs). The small-scale growers are said to forgo some potential income to manage their land to provide good quality water to the downstream users.

The Ramsar Technical Report No. 3 "Valuing Wetlands" provides "*guidance for valuing the benefits derived from wetlands ecosystem services"* (De Groot et al., 2006). There are several methods that can be used for this purpose depending on the wetlands service and the type of value associated with it (Freeman, 2003) although the economic value that may be arrived at represents a fraction of the total wetlands value (Turner et al., 1994). Among the methods that can be used to value the benefits of a specific wetland include: Contingent valuation method (e.g. Farber, 1988, Bateman & Longford, 1997); Hedonic pricing (e.g. Lupi et al., 1991, Doss & Taff, 1996); Travel cost method (e.g. Ramdial, 1975, Cooper & Loomis, 1993); Production function approach (e.g. Acharya & Barbier, 2000, Bell, 1997), Net factor income approach (e.g. Amacher et al., 1989, Schuijt, 2004); Total revenue estimation (e.g. Costanza et al., 1989, Raphael & Jaworski, 1979); Opportunity cost (e.g. Leitch & Hovde, 1996, Sathirathai & Barbier, 2001); and Replacement cost (e.g. Breaux et al., 1995 Emerton & Kekulandala, 2002) among others.

Baxter et al., (2003) developed a Sustainability Assessment Model (SAM) which identifies performance indicators with both negative and positive impacts that arise from a project. The pattern established through the life cycle of a project is referred to as Sustainability Assessment Model *signature* (SAM*s*). The performance indicators are grouped into four as follows:

Economic impact: Tax paid (both local and foreign); dividends, social investments and all other expenditures incurred. The sum of these impacts represents the total income generated within a given financial year.

Resource impact: This will include value of resource produced, value of water used, value of energy used, value of raw materials used, value of intellectual capital used and estimated value of physical infrastructure developed. The resource impact will captures the intrinsic of inherent value of the resources used in the course of the financial year.

Environmental Impact: This includes emissions to the environment, nuisance (noise, odour & visual), footprint and waste disposal costs. These represent the damage costs for the pollution externalities.

Social impact: These are grouped into three categories: (i) Financial value of employment created (both direct & indirect) minus the negative health and safety impacts of job creation; (ii) Tackling poverty and social exclusion, reduction of unfit housing stock, reduction of crime & fear of crime. This category establishes the link between the taxes generated and the social benefits arising from the use of those taxes; and (iii) Social impact of products which represents the external benefits arising from the use of the product.

All the above indicators are monetised to allow for comparison on a like-for-like basis after which they are combined into a single measure, the Sustainability Assessment Model *indicator* (SAM*i*) which reflects the overall contribution to the wetland sustainability. The total value of each of the four indicators is then converted into a percentage of the overall return from the project. The percentages are then summed to arrive at the SAM*i* thus:

Economic Impact + Resource impact + Environmental Impact + Social Impact = SAMi

When adopted by individual groups of trade associations it will form part of the Sustainability Assessment Model *signature* (SAM*s*) for the respective association which is then subject to disclosure in the annual reviews. The benefits valuations obtained can then be categorised into economic, resource usage, environmental and social indicators in order to come up with the sustainability Assessment Model *indicator* (SAM*i*) to be adopted by all enterprises that operate at the ecosystem. The indicators are generally classified into two: internal (economic) and external (resource usage, environmental and social). The economic indicators are split into capital expenditure, operations expenditure, taxes, dividends, social investment and profit. They represent the total income generated by an enterprise within a financial year.

Some of the associations that have been formed at the Lake Naivasha basin to promote the members' interests include; Lake Naivasha Growers Group (LNGG), Lake Naivasha Riperian Owners Association (LNROA), Central Rift Tourism Circuit Association (CERITOCA), the Fishermen's Association, Imarisha Naivasha Trust among others.

METHODOLOGY

The study adopted a descriptive research design. For primary data collection, a questionnaire was administered to 200 respondents who were purposively chosen to represent senior management, middle level management and other employees in the sampled businesses as follows: flower farms (ninety six respondents), fisheries (forty eight respondents) and the hotel

industry (fifty six respondents). The respondents were asked to state if they agree or disagree that the identified eleven items will have the greatest influence on the company's sustainability strategy over the next five years. The responses were rated on a three-point likert scale where, 3 = Critically important, 2 = Important and 1 = Moderately important.

ANALYSIS AND FINDINGS

The canonical discriminant function coefficients for each of the sectors sampled as follows:

Table 1: Farming Community Response

	Variable	Critically Important	Important	Moderately Important
1	Government and Policy Makers	-1.673	-.789	-.957
2	Customers outside the Country	.997	.635	-.490
3	Regulators	.471	.859	
4	Employees	.124	-1.192	-.081
5	Shareholders	.377	.148	1.580
6	Media (e.g. concerns over bad press)	1.661	1.908	
7	Business Associations (codes of best practice)	3.325	3.078	
8	Local customers	-2.564	-2.781	.550

Table 2: Canonical Discriminant Function Coefficients

	Farming	Hospitality	Fishing
	1	1	1
q7i==Critically Important	-1.673	3.093	1.007
q7i==Important	-.789	2.348	.678
q7i==Moderately Important	-.957	1.200	-.985
q7ii==Critically Important	.997	-.177	1.395
q7ii==Important	.635	.006	1.684
q7ii==Moderately Important	-.490	.249	1.837
q7iii==Critically Important	.471	.209	-.606
q7iii==Important	.859	-.902	-1.528
q7iv==Critically Important	.124	-.590	-1.232
q7iv==Important	-1.192	.568	-.739
q7iv==Moderately Important	-.081	-.245	-1.869
q7v==Critically Important	.377	-1.130	-1.598
q7v==Important	.148	-.259	-.472

q7v==Moderately Important	1.580	-.685	-.451
q7vi==Critically Important	1.661	-1.117	-1.540
q7vi==Important	1.908	-1.152	-1.355
q7vii==Critically Important	3.325	1.144	2.189
q7vii==Important	3.078	.074	1.561
q7viii==Critically Important	-2.564	.579	.471
q7viii==Important	-2.781	1.820	.631
q7viii==Moderately Important	.550	-.625	.034
(Constant)	-3.538	-.856	.675

Table 2…

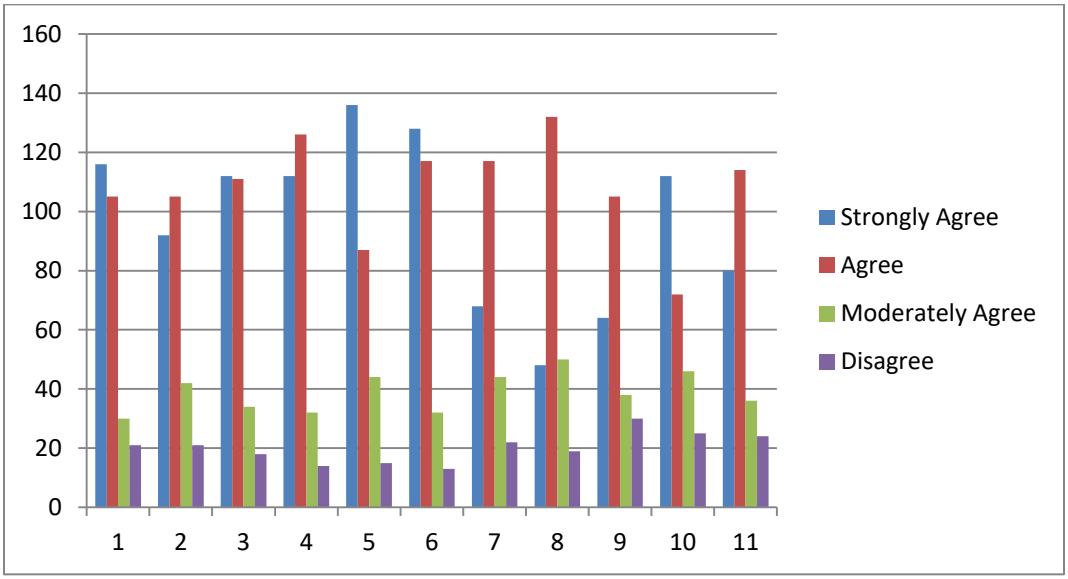

Figure 1: Rating for each of the identified criteria

Key to the horizontal axis:

1. Government and policy makers
2. Competitors
3. Customers outside the country
4. Regulators
5. Employees
6. Shareholders
7. Media
8. Business association/codes of practice
9. Community leaders in our areas
10. Our local customers
11. NGOs

The findings indicate that there is a need for a universally acceptable sustainability model to be used in assessing the position of each organisation/firm on a year-in-year basis. The ratings of each of the factors therefore depends on the influence that each has on the management thinking who will in turn influence the thinking of other employees in a given enterprise. Further Figure 1.2 below shows the percentage score for each of the criteria indentified for assessment. The total percentage influence on sustainability in the next five years for the regulators combined with government and policy makers amounts to only 19%. Over 80% of the sustainability issues will be influenced by stakeholders in the Lake Naivasha wetlands. This implies that the role that will be played by the business association in shaping the trend in the next five years is quite high thus the need to be involved in the sustainability management of the wetland.

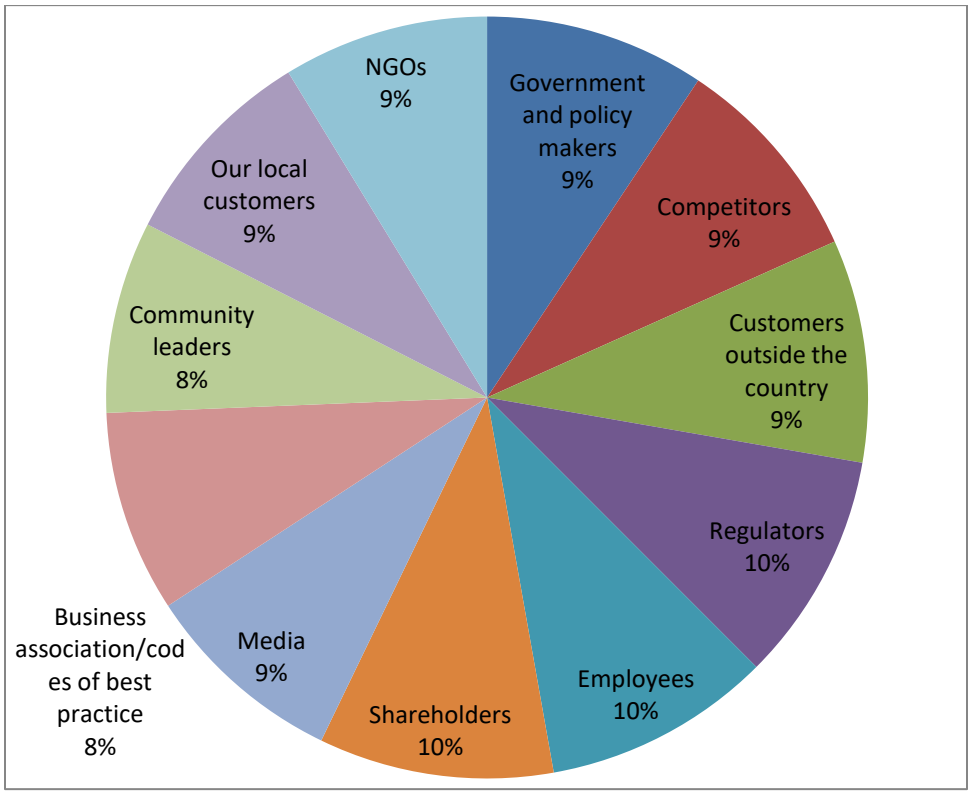

Figure 2: Percentage of the ratings for each of the criteria

CONCLUSIONS AND RECOMMENDATIONS

Lake Naivasha provides goods and services which bring about a range of economic benefits that contribute to economic activity thus enhancement of human welfare. These Lake benefits can be grouped into direct, indirect, option and existence. Direct benefits comprises of raw materials and physical products which are used directly for production, consumption and sale

including those providing energy, shelter, foods, agricultural production, water supply, transport and recreation. Indirect benefits comprises of the ecological functions which maintain and protect natural and human systems through services such as maintenance of water quality, flow and storage, flood control and storm protection, nutrient retention and micro-climate stabilisation, and the production and consumption activities they support. Option benefits represents the premium placed on maintaining a pool of the Lake Naivasha species and genetic resources for future possible uses such as leisure, commercial, industrial, agricultural and pharmaceutical applications and water-based developments, some of which may be unknown currently. Lastly, existence benefits represents the intrinsic value of the Lake species and areas regardless of their possible current or future uses such as cultural, aesthetic, heritage and bequest significance.

In this regard, the starting point will be to undertake the Lake Naivasha wetland benefits valuation.

Resource usage indicator will attempt to capture the intrinsic and inherent value of the resources used in a given financial year. They include natural consumable resources as well as intellectual capital and infrastructure. Environmental indicators on the other hand are split into four areas namely; pollution impacts (such as greenhouse gas effects and combusting fossil fuels), nuisance impacts (such as noise, odour and visual impact), footprint and biodiversity impacts around the firm and waste impacts. To assess their impact reference will need to be made to the National Environmental Management Authority guidelines. Lastly, social indicators can be captured from three categories of impact namely; positive social value arising from the direct and indirect jobs generated subtracted from the negative health and safety impacts of jobs, taxes generated and social benefits arising from their use, and external benefits arising from use of the productive or service. The social benefits arising from tax use will need to be estimated from the published data to get a series of factors to be multiplied by the amount spent on health, safety housing and other social services.

Once all the indicators have been established, the data can be combined to produce a pattern of positive and negative impacts which arise from the business activities in a given financial year. This elegant presentation of the internal and external impacts of an enterprise's activity is then combined into an overall measure to provide an indication of how the firm is contributing to the sustainability of the ecosystem. In cases where the indicator is negative the firm in question is prevailed upon to reduce the negative impacts. Further indicator should be seen to be improving in order to show continuous sustainability contribution of the enterprise in question.

The Sustainability Assessment Model (SAM) is a versatile and relatively easy tool to use given the fact that it makes visible the significant factors which contribute to sustainable development. Once the factors become visible, there is increased awareness of sustainability issues which influences behaviours forcing questions to be asked before decisions are made. In the case of Lake Naivasha ecosystem the SAM can be used to; assist in determining the direction of both short term and long term company strategies as well as assessing the performance trends of industry sectors.

LIMITATIONS OF THE STUDY

Studies like this may at times require face to face interactions with the respondents in order to understand their thinking in regard with the answers given. However, due to the financial limitations this was not the case. Further the outcomes may need to be communicated and discussed with the stakeholders in order to understand why some of them may not be happy with collaboration in the cause of shared natural resources exploitation this was not done due to time constraints. Lastly, there may be a need to engage the actors at the ecosystem to understand what parts of the regulations that need to be looked at with possible to synchronization for better utilization of the shared natural resources in order to avoid the tragedy of the commons. Due to funding problems this would not be done.

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