A SURVEY OF THE ENVIRONMENTAL CONSERVATION COSTS BY LOCAL AUTHORITIES IN KENYA.

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DECLARATION

This research project is my own original work and has not been presented previous in part or in its entirety at any other university towards the award of a degree.

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DEDICATION

I would like to dedicate this work to my wife, parents and my children for their encouragement, understanding and moral support while carrying out the study.

ABSTRACT

The project investigated the environmental conservation costs of the local authorities in Kenya by analyzing the data collected from 90 of these local authorities.

The population of the study is the 175 local authorities in Kenya. A sample of 90 local authorities has been used.

Both statistical package for social sciences (SPSS) version 17 and Excel have been used to determine the level of environmental conservation costs in the studied local authorities.

The results indicated that there was a wide use of environmental conservation costs among the local authorities.

The study provides preliminary evidence on environmental conservation costs used by local authorities in Kenya.

Further research is suggested to explore the possible motivating factors among different local authorities' degree of application level of environmental costs in different activities.

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

BU – Business Unit

CC-Capital component

CILOR-Contribution in lieu of rates

EIAS –Environmental impact assessment

EPA – Environmental Protection Agency

ESMF-Environmental and social management framework

FASB –Financial Accounting Standard Board

GAAP – Generally Accepted Accounting Principles

GDP – Gross Domestic Product

ICLEI – International Council for Environmental Initiative

ISEA –Institute of social and ethical accountability

ISO – International organization for standardization

JICA-Japanese International Corporation

LA –Local Authority

LAIFOMS-Local authority integrated financial operations management system

LATF-Local authority transfer fund

LCDs- Less developed countries

MLG-Ministry of local government

NI-National income

RMLF- Road maintenance levy fund

SEC – Security Exchange Commission

SETAC –The society of environmental toxicology and chemistry

SNA-System of national accounting

SPM-Suspended particulate matter

UK – United Kingdom

UNDP- United Nations development programme

US – United States

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CHAPTER ONE

1.1 INTRODUCTION

1.1.2 Environmental conservation cost: -this refers to the investment and costs measured in monetary values, allocated for prevention, reduction, and or avoidance of environmental impact, removal of such impact, restoration following the occurrences of a disaster and other activities. These are costs borne by companies and organizations for environmental conservation i.e. private costs. The costs do not include costs borne for health damage or environmental pollution suffered by third parties or society as a whole resulting from the business activities of companies and other organizations i.e. social costs. It means the burden placed upon society as a result of the environmental impact of a specific company or other organizations, or of an unspecified entity. Social cost is also referred to as "external cost" or "external discovery" such as damage suffered by a third party or damage caused to forests or agriculture due to environmental impact resulting from the business activities of a company or other organization will not result in a direct economic burden for that company provided that there is no proof of causal relationship but the society as a whole may be considered to have sustained a loss Medley (1997).

Environmental conservation cost can be categorized into one, business area costs which are costs for activities to reduce environmental impact which occur within the business area due to key business operations. The business area is the region where the organization can directly manage environmental impacts. Business area cost is associated with environmental conservation is divided into pollution prevention cost, global environmental cost and resource recycling cost. Secondly, administration cost which is the cost for management activities conducted by companies and other organizations for environmental conservation activities. The cost includes the cost for efforts that directly contribute to reducing the environmental impact generated through business activities, and the cost for efforts for communication with society by companies and other organizations, like the cost for environmental training for employees, cost for

environmental improvement activities such as nature conservation, greening, and beautification. Thirdly, environmental remediation costs. These are costs allocated for recovery of the environmental degradation due to business activities like the cost to restore natural environment back to its original state, provision or insurance fees to cover degradation to the environment. Fourth, social activity cost which is a cost related to environmental conservation conducted for the good of the broad range of society Gulch (2000). This is considered a cost for environmental conservation efforts consisting of social activities with no direct relationship to the business activities of the company or other organizations like cost for environmental activities like planting of greenery, beautification and landscape preservation. Fifth is the R&D cost which constitutes spending for research and development activities allocated to environmental conservation. Lastly are the upstream/ down stream costs. Upstream cost is a cost for efforts to reduce the environmental impact that is created prior to the input of goods and services into business areas, as well as the cost related to such efforts i.e. provision of materials for goods and services. Downstream cost is a cost for efforts to reduce the environmental impact that is created after goods and services have been output from business areas, as well as the cost related to such efforts i.e. use and consumption of goods and services Medley (1997).

1.1.3 Objectives of environmental accounting

Accounting for environmental costs and performance can support a company's / organization's development and operation of an overall environmental management system.

Understanding the environmental costs and performance of processes and products can promote more accurate costing and pricing of products and can aid organizations in the design of more environmentally preferable processes, products , and services for the future.

Better management of environmental costs can result in improved environmental performance and significant benefits to human health as well as business success.

The disclosure of environmental accounting regarding environmental conservation activities of companies and other organizations, including public interest organizations and local public entities, provides a means for stakeholders to understand, evaluate, and give their support to such efforts.

Environmental accounting continues to take root as part of the social system. Taking into account, developments in environmental accounting at companies and other organizations, it has the objective of supporting the introduction and implementation of environmental accounting at companies and other organizations. Environmental accounting is also intended to insure that the information disclosed takes into consideration the needs of the various stakeholders.

Another objective is to improve the effectiveness of environmental accounting methodology, so that by employing given guidelines in organizing environmental accounting data, companies and other organizations can monitor their data not only for publication, but also further their objective of internal environmental management (Bailey, 1991).

1.1.4 Necessity of Environmental Accounting

The quantitative management of environmental conservation activities is an effective way of achieving and maintaining sound business management. In other words, in carrying out environmental conservation activities, a company or other organizations can accurately identify and measure investments and costs related to environmental conservation activities, and can prepare and analyze this data. By having better insight into the potential benefits of these investments and costs, the company can not only improve the efficiency of its activities, but also utilize environmental accounting as a discipline which plays a very important role in supporting rational decision-making. In addition, companies and other organizations are required to have accountability to stakeholders, such as consumers, business partners, investors, employees, local residents, and administration, when utilizing environmental resources, i.e. public goods, for their business activities. Disclosure of environmental accounting information is a key

process in performing accountability. Consequently, environmental accounting helps companies and other organizations boost their public trust and confidence and are associated with receiving a fair assessment (Lehman, 2000).

1.1.5 Functions and Roles of Environmental Accounting

The functions of environmental accounting are divided into internal and external functions. As one step of an organization's environmental information system, internal function makes it possible to manage environmental conservation cost and analyze the cost of environmental conservation activities versus the benefit obtained, and promotes effective and efficient environmental conservation activities through suitable decision-making. It is desirable for environmental accounting to function as a business management tool for use by managers and related business units. On the other hand, by disclosing the quantitatively measured results of its environmental conservation activities, external functions allow an organization to influence the decision-making of stakeholders, such as consumers, business partners, investors, local residents, and administration. It is hoped that the publication of environmental accounting results will function both as a means for organizations to fulfill their responsibility for accountability to stakeholders and, simultaneously, as a means for appropriate evaluation of environmental conservation activities (Lehman, 2000).

1.1.6 Local authorities in Kenya are the bodies controlling local governance in Kenya. Local Authorities in Kenya are governed by the local government Act cap 265 laws of Kenya. Kenya has 175 local authorities which are categorized into city councils, town councils, municipal councils and county councils. The Act spells out wide ranging powers and functions for local authorities, where most of these functions undertaken by the local authorities relate to provision of public services, promotion of good governance and simulation of good economic growth. The functions and responsibilities cover basic services such as markets, garbage collection, street lighting maintenance; development planning, roads, sewerage, community welfare, slaughterhouses and burial of destitute

people. There are also provisions of health to the community through health centers as well as dispensaries. Besides health facilities the council provides housing, schools and recreational facilities and maintenance of parks (Local government Act caps 265 laws of Kenya).

Local authorities get their funding from the local authorities transfer fund (LATF) which is a block grant that transfers 5% of the national income to the local authorities. It distribution is ksh 1.5 million to each of the 175 local authorities in Kenya (per annum)

This is 60% in proportion to the total population of each local authority, 40% in proportion to the urban population of each local authority. The second source of funds is road maintenance levy fund (RMLF) which is collected from fuel levy on petroleum products and transit toll collections. The third source of funds is the contribution in lieu of rates (CILOR) which a local tax levied on property like land by the local authority as authorized by the central government .MLG Circular (2009).

1.2 Statement of the problem

Mazhindu (2009) in his study on local government processes and the environment in Africa stated that by and large, the conventional planning approaches have either ignored or underestimated the growing environmental concerns. The search for planning responses to the devastating environmental concerns has culminated in the assembly of an 'environmental tool box' containing an assortment of instruments notably, pollution control and licensing, Environmental Impact Assessments (EIAs), natural resource management plans and environmental auditing. Most of these instruments are quasi-planning in nature normally deployed to complement the conventional land–use planning tools but largely outside the traditional planning practice. This points out that, in the mainstream planning activities, the emerging environmental management specialisations have increasingly drifted apart - theoretically, legally, administratively and in their specific responses to environmental problems. The irony of this compartmentalization is that urban planning largely grew out of the pragmatic concerns for the health of citizens and their social well-being in the wake of the industrializing

cities of the nineteenth century. The growing magnitude of the negative environmental concerns impacting sustainable urban development must be redressed by 'operationalising' the symbiotic relationships between urban development and environmental management through the application of the relevant planning instruments. In the study by Kapa (2005) on Lesotho's local government system, he stated that there was need for control of natural resources like sand and stones as well as environmental protection like pollution land/site allocation, water supply and market provision.

Indecon (2005) in the review of local government financing in Ireland, stated that environmental protection expenditure was 695.2 million which was 19.2% of the total expenditure for 2004 and that water supply and sewerage consumed 450.6 million which was 12.5% of the total expenditure giving evidence that governments are responding to environmental challenges.

Local studies on environment accounting have been done. UNDP (2000) on its study on millennium development goals in Kenya stated that the current needs assessment recommended that it would take ksh 97,126,500 to develop and implement a strategy for integrating principles and practices of environmental accounting within and /or along side the system of national accounting (SNA) - even if on a pilot basis. Ministry of youth affairs (2010) on environmental and social management framework (ESMF) stated that one of the key environmental and social issues in Kenya is health and environment and further explains that most of the urban areas in Kenya are faced by domestic waste and sewage management problems with only 32 out of the 175 local authorities having any form of sewage collection and disposal infrastructure. Nema (2005) in its strategic plan for 2005-2010 stated that there was lack of sewerage system and facilities for 143 out of 175 local authorities which led to increased cases of environmental health problems due to pollution of the ecosystem by heavy metals and chemicals such as nitrates. Waema and Mitullah (2007) in their study on e-governance in local authorities in Kenya stated that the LAIFOMS is limited to financial management and has only three main

components, revenues, budgeting and financial management and expenditure, a study that fails to mention environmental accounting issues.

According to Kibeti (2004), Environmental costs are obscured in conventional accounts and yet they are real costs that should be accommodated by all firms and industries. Management of the environmental costs will result in improved environment, production and generally wealth of the urban population in the study area. This study would also argue for a clearer policy of the management of extractive industries and any other industry that largely tends to exploit natural resources. This will also contribute to the sustainability of the growth and development of not only the urban regions but also the rural. Being a pioneering study on one of the industries in an urban centre, other studies covering the various industries and regions will be encouraged. It is the ultimate purpose of this study to have other studies expanded to include all firms and sectors in the economy. To arrive at aggregates for the whole economy it is important to begin with the microeconomic production units.

In his studies Hassan (1996) stated that in the coming decades, the continued urban population growth and especially the continued growth of the urban poor was expected to immensely challenge global sustainability. As at 2001, there were 43 cities in Africa with populations of more than one million and it is expected to increase to almost 70 by 2015 (UNPD, 2001). Nakuru would be among these cities. More problems of overcrowding, informal settlements, inadequate housing, poor infrastructure etc. are bound to increase. Infrastructural development has been slow in keeping pace with burgeoning needs of the urban population. Since most urban environmental problems result from poor management, poor planning and absence of coherent urban policies (Hassan, 1996); it is important that these dimensions be addressed in all sectors of the urban domain.

Another study by Hassan (2003) stated that the conventional national accounting systems, excludes: domestic production; products directly extracted from communal

resources for household consumption and not traded in the market, and; benefits from ecological services, cultural, aesthetic, etc. Though GDP included income from extracted resources corresponding value of these assets lost to the economy was omitted. Depletion of natural and human capital was excluded from total national wealth of a nation and hence the measures of economic performance were wrong and misleading.

Daly (1996) explained clearly that sustainable development sought to meet the needs of the present without compromising the needs of future generations. In other words, the present generation must leave the air, water and natural resources as pure and unpolluted as when it found it. Strong sustainability clarifies that in the case of renewable resources annual off-take must be kept equal to the annual growth increment while in the case of non-renewals depletion should be at a rate equal to the development of renewal substitutes. That meant that stock of natural capital should not be reduced below a level that generated sustained yield unless good substitutes were then available.

Hassan (2003) stated that sustainable development therefore, had to be financed in such a manner as to compensate for future depletion of exhaustible resources. He gave the example where policies had ensured sustainability from mining in South Africa, where the capital component (CC) was fully reinvested in alternative forms of capital Hassan (2002). According to Dasgupta and Maler, the correct index of checking if development is sustainable is wealth. When accounting prices that reflect trade-offs among present and future well-beings and among contemporaries are used to determine well-being, wealth becomes a good index for showing whether development is sustainable or not. Poverty causes a society to elk out living through adverse exploitation of resources and this is the state of the populations in the Less Developed Countries (LDCs) (Dasgupta & Maler, 1995).

Accounting for externalities has been adopted in the microeconomic level within the firm in hydroelectricity (EPA, 1996), health sector (EPA, 2000), chemical and oil companies (EPA, 1997a) and electroplating operations (EPA, 1997b) among others. The

studies sampled, applied various environmental accounting techniques to evaluate environmental costs of economic activities in an industry. The results showed existence of positive environmental costs in all cases with an implication that most economics activities have environmental costs which are yet to be accounted for.

Nema (2005), in its report stated that there were challenges that led to unsuitable management practices of ecosystems and their inherent biodiversity. Increased slum settlement in urban areas due to rapid rural-urban migration resulting in environmental problems of overcrowding, poor garbage disposal and environmental diseases like cholera, dysentery and typhoid.

Kisare (1999) in his studies on local government planning and management stated that there were increased environmental pollution and degradations resulting from uncontrolled industrial smoke-emissions, discharge of untreated industrial effluent into rivers, dumping of toxic waste and deforestation of peri-urban woodlands.

In the annual report by the ministry of petroleum, the Egyptian general petroleum corporation(2000) stated that natural resource damages is a new category of environmental liability which had been established in the United States according to a number of regulatory such as the clean water Act and the oil pollution Act. Such resources include flora, fauna, land, air, and water resources. The liability can arise from accidental release as well as lawful release to air, water, and soil. As a result there was a wide range of environmental expenditures such as abatement costs, elimination costs and handling of waste costs just to mention but a few, as well as environmental capital expenditures as a result of buying a new and/ or new cleaner technology. Goals such as environmental costs optimization, better environmental performance, identifying the true (full) costs and identifying the social costs all require knowing the different current and potential costs. However the study further stated that knowing the environmental costs depended upon the organizational purpose for using such data like cost allocation, capital budgeting, product design and all that managerial decisions .the report ends by

stating that the domain and scope of applying the costs if sometimes to be vague whether the costs are environmental or not.

SETAC (1993) on its report on a multi-disciplinary approach to solving problems of the impact of chemicals and technology in the environment stated that some companies were paying a significant portion of their total environmental costs to clean up pollution caused decades before like remediation costs related to superfund only being incurred by then but pertained of decades before that time. Due to the fact that the corporate environmental expenditures being often substantial, including them in the product costs affected the profitability of the products, facilities and divisions. Many companies according to the report include current operating costs pertaining to past environmental liabilities in their current product costs with the justification ,other expenses that created future benefits were charged to product costs or corporate overhead, including product development,reseach and development, and advertising expenses. Thus, current products benefited from those prior expenditures and the product costs must bear the costs related to prior production, just as it reaps the benefits. Therefore, from the above studies it is apparent that organizations are involved in environmental conservation costs and local authorities in Kenya are such kind of organizations that have both direct and indirect interactions with the immediate environment, thus, local authorities must incur environmental conservation costs. The studies point out that there is need to find out the various environmental conservation costs local authorities in Kenya go through.

1.3 The objective of the study:

The study seeks to determine environmental costs by local authorities in Kenya.

1.4 Significance of the study

The study is important to the following groups:

The local authorities in Kenya: the local authorities can be able to establish the benefits they get from environment conservation as well as the costs of undertaking environmental activities.

The stakeholders of local authorities like consumers of their services, business partners, investors, employees of particular local authorities and the residents around the local authorities who depend on the local authorities on their welfare.

Future researchers, local government of Kenya as well as other scholars. The study acts as an exploratory on environmental accounting forming a basis for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical framework

2.1.2 Introduction

The chapter presents both theoretical (untested) as well as empirical (tested) literature relevant to the subject of study.

2.1.3 Accounting Theory

The accounting theory has evolved through a long passage of time during which substantial changes in human behavior and market structures have taken place. The theory outlines how accountants have identified certain broad assumptions on which

financial results of a business are prepared .These assumptions are called accounting concepts which define the rules under which financial statements of an entity should be prepared. The theory brings out boundary rules like entity, periodicity and going concern concepts to determine what should and should not be reported. Once the boundary is set, it should then determine how the accounting data should be recorded i.e. money measurement, historical cost, realization accruals, matching, duality and materiality.

The theory limits the room for individual maneuvers, a number of ethical rules like prudence, consistence and objectivity have evolved, which suggest that there is a moral dimension in financial reporting.

2.1.4 Green budgeting theory (in Environmental accounting in local government)

It is by initiative of the local Agenda 21 (LA21), after the Rio summit (1992) and the Johannesburg summit (2002) that schemes of environmental accounting at sub-national levels of government started to be developed: a bottom-up approach., source of a large diversity of initiatives, in contrast to the top-down approach followed by nationals statistics offices coordinated, in addition, by supranational organizations such as the United Nations and Eurostat.

Amidst the consequent fragmentation of local experiences, the only exception is the EcoBudget scheme, promoted by the International Council for Environmental Initiative (ICLEI), which has been implemented in more or less the same form by a few local governments in several countries. Its basic idea is to implement a budgeting system for natural resources that conforms to the community financial budgeting: the current institutions and procedures must provide the model for the budgeting of natural resources. It is based on environmental indicators and as such it does not aim to provide a monetary evaluation of the environment, or to maintain long term, detailed and systematic accounts to be used in policy design and programming. Rather, its purpose is to help monitoring the effectiveness of local governments in achieving the set targets in matter of environmental policy, and communicating objectives, achievements or failures between policy makers and citizens.

In principle, the objective could be more ambitious: inserting environmental issues on the political agenda not in an ad hoc manner but rather as systematic reporting to the city/local council. The environmental master budget should confront the highest council decision-making committee with environmental and sustainable development issues. Local authorities should be able to predict, plan, control, monitor and report the consumption of natural resources, as part of their environmental management activities as called by the Aalborg Charter (1994), the Lisbon Action Plan (1996) and the Hanover Conference (2000). However, for these reasons, the potential of environmental accounting as an aid to economic programming and decision making, in general and at the local level in particular, is still largely underutilized.

One of the features of environmental budgeting, as has been implemented, is flexibility in the choice of indicators - a choice that reflects, case by case, the interests and criticalities of specific local jurisdictions. It is in urban and suburban contexts, particularly, that the requirement of flexibility in resorting to the appropriate indicators in stronger .on the one hand, composing the menu of indicators in response to specific geographical and social context may appear sensible and pragmatic choice. On the other hand, it is difficult to set up a real, consistent accounting system over time when local governments' priorities and programs change, because the indicators will also change as a consequence.

2.1.5 Environmental accounting used to estimate optimal extraction levels for quarries: A case of Nakuru municipality.

The common aggregate measures of economic performance include Gross Domestic Product (GDP), National Income (NI) and level of employment. However, these indicators ignore natural resources and environmental factors. Though resources and the environment as a whole is not included in the National accounts, changes in the two

items contribute to production and income; and must therefore be accounted for. The welfare of the nation's population present and more especially in the future will be greatly determined by the stock of natural resources available and the quality of environment. Currently, the production processes generally degrades the environments and depletes natural resources. This implies that the system of national accounting used, seriously under-estimates changes in the stock of natural resources and the environment of a nation Kibet (2004).

2.1.6 The Green Towns Environmental Project

The project was carried out with its objective to initiate a process of environmental awareness among local authority managers, decision makers and the public so as to come out with an environmental development plan of a given town. The project also does the planning on community participation basis. Towns like Malindi and Eldoret are examples of places where the projects have been applied successfully (Kisare 1999).

2.1.7 Current environmental issues on air pollution

According to JICA (2002) report on Kenya's profile on the environment, air pollution is not monitored at specific sites, and there are no data on the calculation of annual pollutant emissions. However, from various studies carried out in some parts of the country, air pollution has serious impacts on the environment and health of Kenyan populace. According to these studies, the main air pollutants in major cities such as Nairobi , Mombasa , Nakuru, Eldoret, Thika and other small ones like Webuye, Kikuyu and Limuru just to mention but a few are the suspended particulate matter (SPM), Lead oxide of sulphur , carbon monoxide, hydrogen and oxides of nitrogen.

There are no set standards for most of these pollutants. But studies show that levels of some of these pollutants in some towns far exceed the WHO or other international standards.

2.1.8 The Contingency theory

This approach advocates that there is no one 'best' design for a management accounting information system, but that "it all depends" upon the situational factors (Drury 2004, page 696). Headquarters and business units respond upon the business environment and settle their Management Accounting System. Headquarters delegate responsibilities to the BU-managers. Based upon these responsibilities, and the corporate characteristics, the BU-managers set their demand for information from their BU-controllers, and adjust their demand for information to their own business unit characteristics. This demand for information is sent to the BU-controller. As the literature on role theory indicates , "role" is a useful tool for examination of the position of the controller as it links three central concepts: role expectations (what the BU-manager and BU-controller believe he should do); role behavior (what he actually does) and how is position is linked to others, thus shaping his "role set" (Gross et al. 1958). Shaping his role set, is answering the question: why do BU-controllers behave in a certain way? Role theorists may say they share expectations for their own behavior and that of others (Biddle 1972 page 115). Thus BU-controllers "expect" that BU-managers want to have a bonus and they "expect" that the corporate controllers want to receive the proper information of business unit performance. There could be a gap or difference between the demand for information by the BU-manager and the supply of information by the BU-controller. This gap can be explained by the differences between the sender and the receiver, by role theory, the interpersonal relationships, and the differences between BU-manager's – and BU-controller's personality and expectations (Kahn et al. 1964). The contingency factors which influence the demand- side are related to: corporate management, environment, business, corporate controller characteristics, and manager's expectations and expertise.

2.1.9 Institutional theory

According to Dillard et al.(2004,p.508), "an institution is an established order comprising rule-bounded and standardized social practices, and institutionalization is the process whereby the practices expected in various social settings are developed and learned." Further, institutional theory is chiefly concerned with an organization's interaction with the institutional environment, the impacts of external expectations on the organization, and the combination of these expectations as reflected in the organizational practices (Martinez, 1999). Hence, under this theory, organizations will change their structures or operations to comply with external expectations about what structures are seen as appropriate (Deegan, 2002). In order to achieve legitimacy, organizations do not necessarily consider only what one organization is actually doing, but also the need to accommodate what potentially influential publics are doing. Institutional theory has been widely applied in accounting research to study the practice of accounting in organizations. The institutional framework has provided useful insights into the practice of accounting in organizations. The institutional theory based accounting research comprehensively represents accounting as the object of institutional practices and attempts to provide a better understanding of institutions, accounting practices and change processes. Institutional theory has wide applicability, which can be used to analyze all types of organizations because all organizations are institutionalized organizations.

2.1.10 Stakeholder theory

The stakeholder approach to analysis is well established in management accounting literature (Roberts, 1992). Its essence is the definition of all those groups or parties who are influenced by and /or who influence the organization or accounting entity .From this point on stakeholder theory struggles to maintain anything other than an organization-centred legitimacy because while the groups may be defined with a fair degree of objectivity, who (other than the organization) is left to define the priorities among the stakeholders and the information that should be disclosed to each one? Stakeholder's

theory, therefore, is concerned typically with how the organization manages its stakeholders. Thus, information disclosed to the stakeholders may be assumed more properly by the organization to be part of legitimacy. Stakeholder's theory is relatively silent on how the organization does –if it all –monitor and respond to the needs of the stakeholders. It will do so, generally speaking, when it is in the organization's traditional interests to do so.

2.2 Empirical studies

In recent years a number of empirical studies have been published which use not only more detailed data about solid waste services but also progressively more sophisticated statistical techniques.

Reeves and Barrow (2000) worked with a sample of 48 municipalities in Ireland and used information covering the years 1993, 1994 and 1995. Taking as their explained variable the total cost of waste services they considered a series of explanatory variables related to output and other service characteristics such as the number of collection units (approximation to output), as well as variables regarding service frequency, the type of collection, the importance of costs derived from selective waste, residential density, and whether or not delivery was public or private. On the basis of their empirical analysis Reeves and Barrow (2000) argue that private delivery was associated with cost savings in each of the years studied, and also that these savings were very high.

Callan and Thomas (2001) considered the possible multi-product nature of solid waste services, distinguishing between their two main components: general waste for disposal and selective waste for recycling. The empirical analysis was based on a sample of 110 municipalities in Massachusetts (USA), using information for the year 1997. Callan and Thomas estimated a two-equation model in which the explained variable was service cost (of disposal, on the one hand, and recycling on the other), while the explanatory variables were the amount of waste generated, the population density, the frequency of collection, the form of service delivery (public monopoly or contracting out), and the existence of a municipal dump, among others. In the case of waste for disposal the

empirical analysis revealed economies of density but no economies of scale, whereas for recyclable waste there were economies of scale but no economies of density. The authors also found economies of scope for both disposal and recycling services. A greater collection frequency was associated with higher costs in both cases, while the existence of a municipal dump reduced costs. Finally, the form of delivery had no effect on cost

(Callan & Thomas, 2001).

Dijkgraaf and Gradus (2003) studied solid waste service costs in a sample of 85 municipalities in the Netherlands for the period 1996-97. Taking total service cost as their

explained variable the authors assumed coverage of 100% by means of taxes and estimated costs as the product of service taxes and the number of households. The variables used to explain total costs were related to service output, for example, the number of collection points, the density of collection points and the type of collection. They also considered the frequency of service and variables that reflect recycling characteristics such as the percentage of glass, paper and organic matter. Finally, a distinction was made between public and private service delivery. This study also made use of the Chow test, which measures the structural stability of cost equations. Dijkgraaf and Gradus (2003) compared the structural stability of the cost equation for both the size of municipality and the form of delivery. As regards costs according to the model of delivery the authors found that contracting out was associated with lower costs, although there were no significant differences between public and private delivery in this respect.

The studies by Bel (2006) and Bel and Costas (2006) constitute the first econometric Analyses in Spain of the municipal costs of solid waste services. The research used a sample of 186 municipalities in Catalonia and the information gathered was for the year 2000. In order to explain the total cost of solid waste services, these works consider variables related to the volume of product (amount of waste generated), the price of inputs (wage costs), certain characteristics of the product (frequency of the service,

availability of dumping sites, form of production, i.e. public or private), and certain uncontrollable characteristics that affect the service, such as population density and the strength of the tourist factor. In general, these explanatory factors are in line with those used in the abovementioned studies, although the specification of a tourism variable, based on the degree of such activity, is a novelty in the literature. The empirical analysis found significant economies of scale in the less-populated municipalities. However, the strength of these economies of scale was limited and, indeed, both their intensity and significance disappeared as population increased. In fact, the test of structural change indicated the advisability of studying larger municipalities separately from smaller ones. As regards the association between form of production and service costs there were no significant differences between public and private delivery.

Finally, Dijkgraaf and Gradus (2007) analyzed the factors which determined the total costs of waste services in 453 municipalities in the Netherlands for the year 2002. This study used the same control variables as those employed by Dijkgraaf and Gradus (2003) to explain total costs of service delivery at the municipal level: number of collection points, density of collection points, type of collection, frequency of service, characteristics of recycling, and form of production. Additionally, they included a series of concentration indicators at the provincial level to analyze the extent to which the strength of competition affects the impact of contracting out on costs, taking into account that in the Netherlands contracting out may involve both public and private companies. The concentration indicators used were the Hirschman-Herfindahl index, the C3-ratio (the market share of the three largest companies) and the presence of competitors (private or public) in municipalities within the same geographical area. Although the results for the other explanatory variables were very similar to those reported by Dijkgraaf and Gradus (2003) the authors found evidence to suggest that cost savings with contracting out depended on the degree of concentration at the provincial level: the greater the concentration the lower the cost savings associated with contracting out. In addition, they found that the presence of public (but not private) companies as

competitors in neighboring municipalities seemed to have a positive effect on the cost savings achieved with contracting out.

2.3 Conclusion of the Literature Review

An environmental conservation cost is a complex activity that cannot fully be explained by a single theoretical perspective or from a single level resolution. Conceptual theories of environmental conservation costs should therefore, be fully embraced in order to enhance solid understanding of environmental conservation costs by organizations. Organizations have used environmental conservation costs and should continue to positively use it as means to attain their overall environmental management systems.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the research design and methodology followed in conducting this study. It describes the entire process that the researcher followed to obtain the sample from the population as well as the data collection methods, and data analysis.

3.2 Research Design

The design was a survey which involved gathering, processing and interpreting data collected from the 90 Local authorities in Kenya. The design was valuable for detailed analysis. Young (1960) and Kothari (1990) concur that the study provides valuable insights to a phenomena that may be vaguely known and less understood. Kalunda (2007) used the same design in his successful studies on corporate reporting.

3.3 Population of study

The population of study was made up of the 175 local authorities in Kenya.

3.4 Sample of the study

The sample of the study was made up of 90 Local Authorities selected randomly. This was to avoid biasness.

3.5 Data collection instruments

The study used both primary and secondary data. Primary data was collected by way of questionnaires while the secondary data was obtained from the local authority records.

3.6 Data analysis

Secondary data was analyzed using the statistical package for social sciences (SPSS) version 17 and Excel. The data compared the costs allocated to various activities using the available funds with the costs allocated to the activities by each LA .Primary data from the questionnaires was analyzed to explain actual costs spent on each activity by individual LAs. The results are through the use of descriptive statistics like frequency distributions, bar graphs and pie charts showing how the LAs spent their revenues on environmental conservations.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter set to give a detailed analysis of data collected. Data was collected using questionnaires send to the local authorities. The collected data was analyzed in order to achieve the objective of the study.

4.2 General information about the respondents.

Table 4.2.1 presents the number of local authorities whose respondents used environmental conservation costs in various activities. It can be seen that 41 (45.6%) of the 90 local authorities showed that they use environmental conservation costs in their respective expenditures.

Table 4.2.1 Local Authorities that used environmental conservation costs.

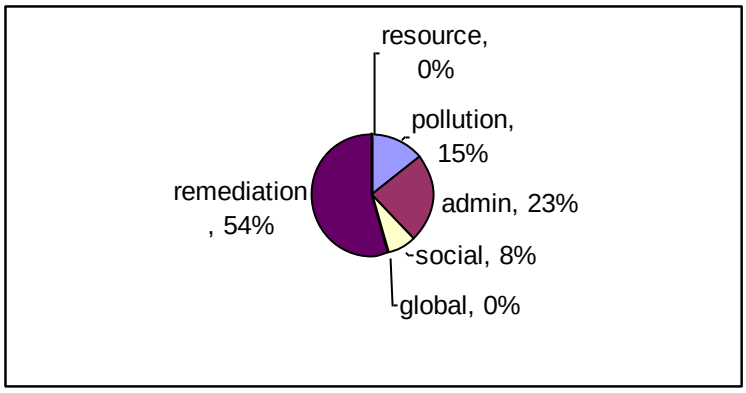
Local authority	conservation activities cost in kshs.					
Nairobi cc	pollution	administration	social	resource	remediation	global
	19241864934	6866786150	485705358	5681633746	1339919045	10842150
Kisumu cc	1793603	7866035	7024504	2793603	943391	1793603
Kapsabet mc	5005020	0	0	0	0	0
Mumias mc	5000000	8000000	2753809	0	18690961	0
Mavoko mc	6510943	8000000	4694983	0	25681578	16691403
Mombasa mc	408793995	143208291	80544336	0	306327098	69332927
Gucha cc	15309000	6519994	16929000	0	0	7202991
Kilifi cc	8628120	2470000	3496033	0	7523809	8628120
Embu mc	7093936	18217090	0	0	3976095	426779
Yala tc	0	4190671	0	0	2232368	0
Wareng cc	574584	17133157	8115366	0	20868173	0

Narok cc	205363304	41800684	46000	13210244	13591208	0
Kitui cc	0	16082768	7477759	0	3120188	0
Ijara cc	0	5442246	0	0	8163370	0
Isiolo cc	882000	9679604	3221977	0	13282479	23689800
Bondo cc	1292832	4447933	974058	0	9249762	936000
Kabarnet mc	1417548	11893484	1396438	0	5021498	7210000
Kehancha mc	0	6005139	6650163	0	10884960	0
Oyugis tc	0	6131075	851215	0	0	1037414
Makueni cc	2885564	14830181	7500965	0	93508165	0
Olkejuado cc	0	36316801	34248112	0	27505520	6300000
Suba cc	4980851	4510975	0	0	0	9199000
Turkana cc	0	11907274	12368378	0	4628892	0
Taveta tc	1161688	5352722	2361461	0	2100931	1995896
Wajir cc	0	5994023	406822	0	1065944	19083600
Thika cc	8587398	30266652	2256901	0	21478003	0
Chogoria tc	0	4045789	0	0	100000	2042850
Homabay mc	5848618	6453786	3877406	0	7221600	4516274
Kangundo tc	15219685	9651756	0	0	6777728	5968000
Kakamega cc	1074585	9675807	9980278	0	8611554	21016260
Barigo cc	4051368	13444806	1069135	1107287	1118454	25399800

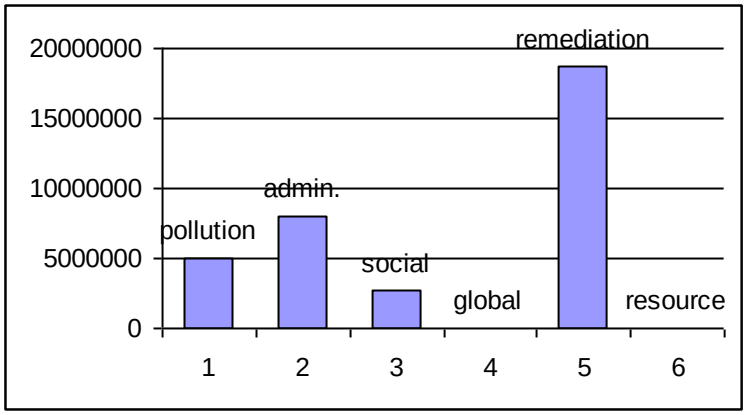
Lamu cc	0	6868245	2277081	0	0	7307209
Mt Elgon cc	675130	6726494	957415	0	3021118	9038929
Mtitu Andei tc	0	6232179	0	0	5141168	1941200
Nyadarua cc	5431440	21090404	16872740	0	20491948	26236560
Eldoret mc	102860536	80235102	16253439	0	59345738	14381100
Portvictoria tc	0	2254516	0	0	2481119	2068680
Kwale tc	0	7875820	1425065	0	2643159	0
Kilifi tc	3684057	5485109	4470626	0	2856791	0
Mariakani tc	3877395	4913308	879323	0	3441217	3617000
Kwale cc	6012871	22588386	12898395	0	7278402	23616000

Source: LAs annual budget report for 2008/2009

4.2.2 Presentation of various environmental conservation costs of the different LAs studied.

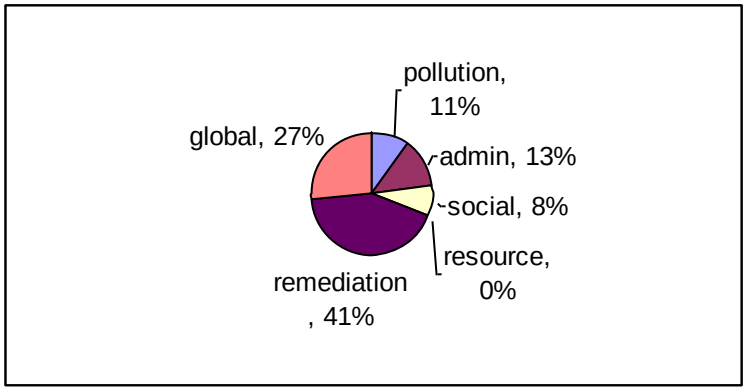


Mumias mc pie chart

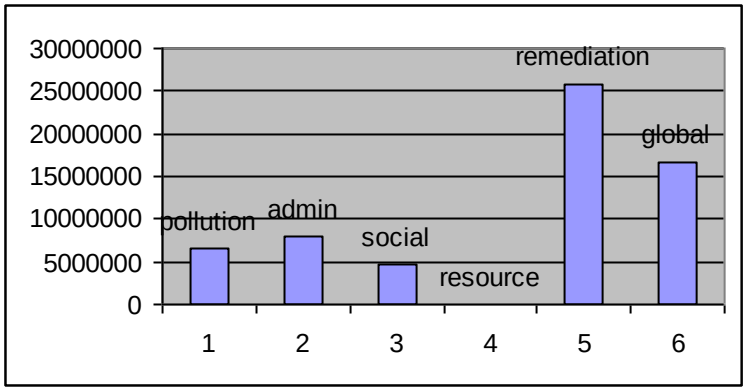


Mumias mc bar chart

From both the pie chart and bar graph Mumias municipal council spent most of its conservation costs on remediation conservation costs (23%) and the least on social conservation costs (8%).

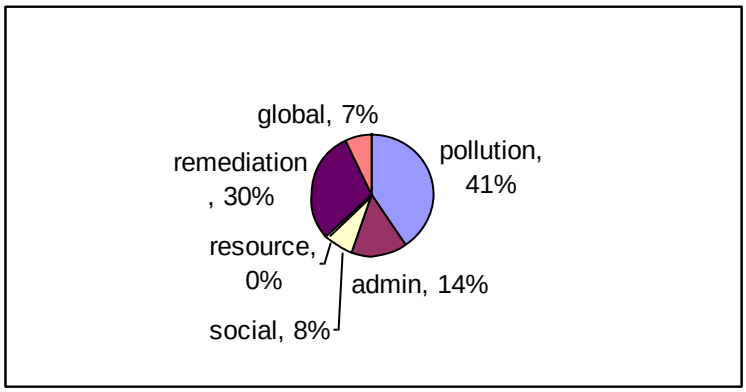


Mavoko mc pie chart

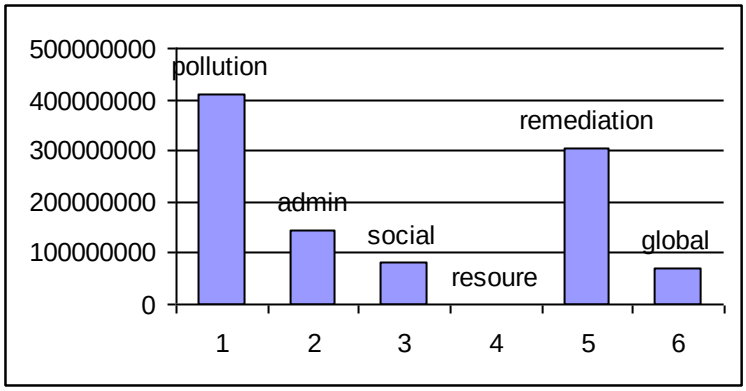


Mavoko mc bar chart

According to the pie chart and the bar graph Mavoko municipal council spent its highest conservation costs on environmental remediation activity (41%), global environmental conservation activity (27%) and the least was spent on social environmental conservation (8%).

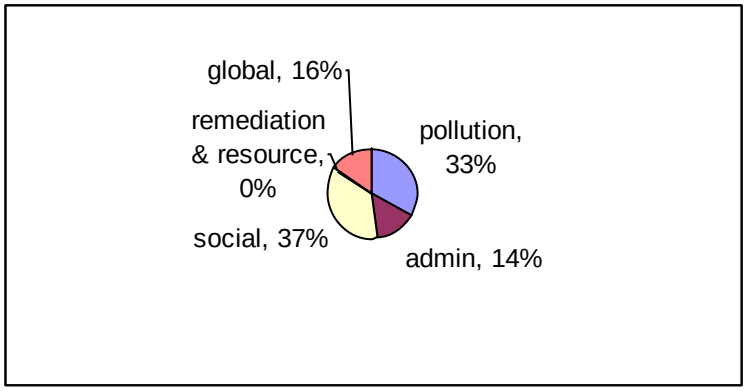


Mombasa mc pie chart

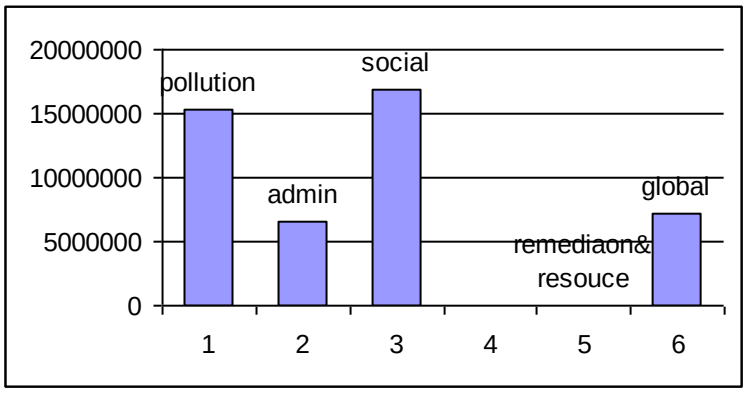


Mombasa mc bar chart

Both the pie chart and the bar graph indicates that Mombasa Municipal council spent its highest conservation costs on environmental pollution activity (41%), remediation activity (30%), administrative activity (14%) and least on global environmental conservation activity (7%).

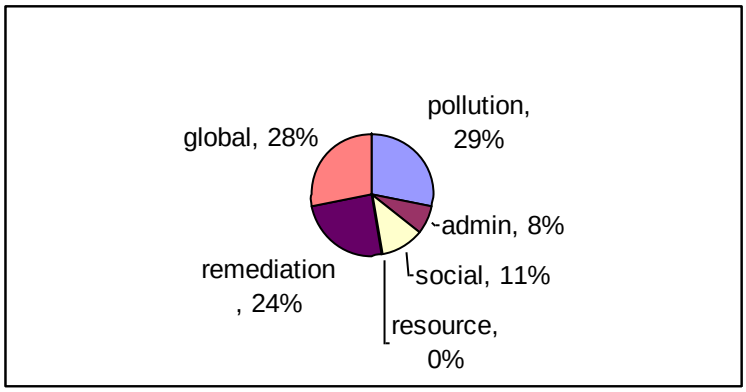


Gucha cc pie chart

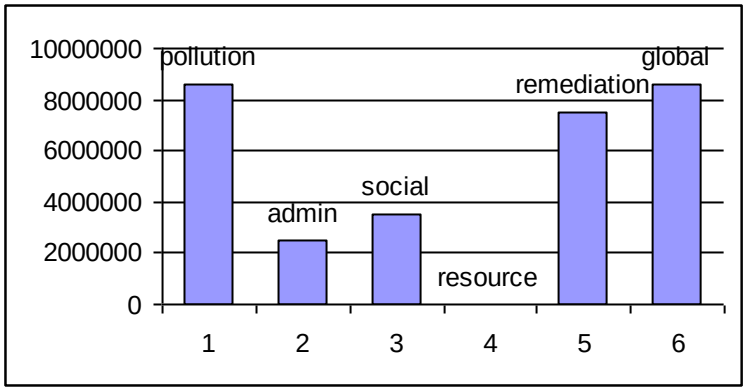


Gucha cc bar chart

Gucha county council spent the highest conservation costs on social activity (37%), pollution activity (33%) and global environmental activity (16%) respectively with the least spending on administrative activity (14%).

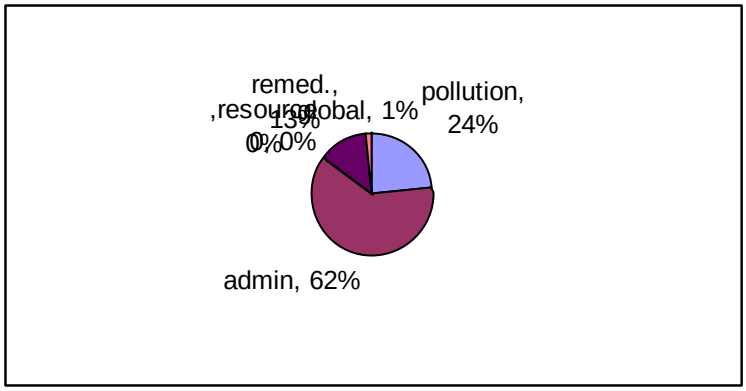


Kilifi cc pie chart

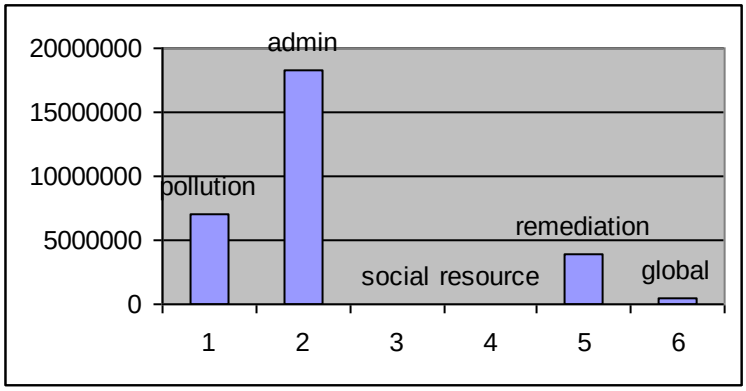


Kilifi cc bar chart

Kilifi county council according to the pie chart and the bar chart spent most conservation costs on pollution activity (29%), global activity (28%), remediation activity (24%), and social activity (11%) respectively with the least spending on administrative activity (8%).

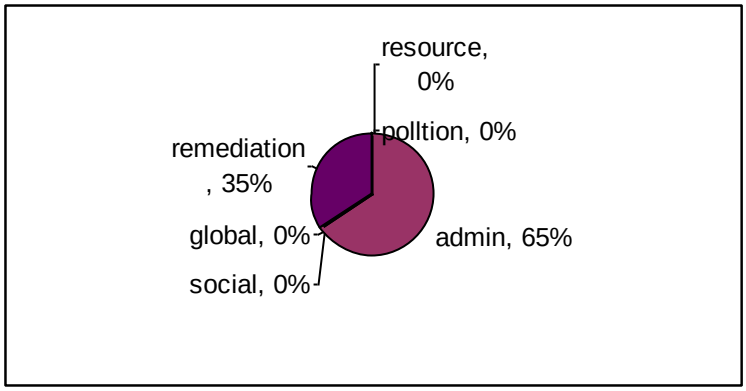


Embu mc pie chart

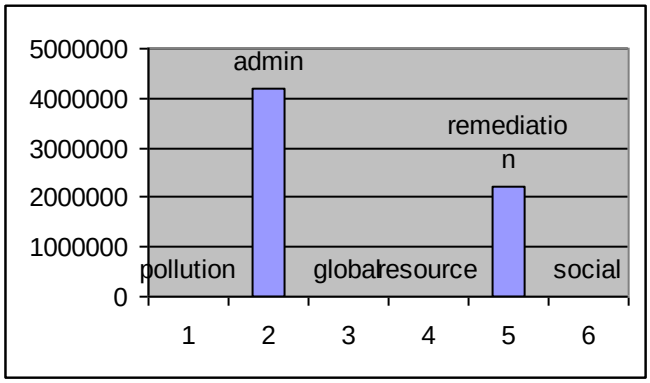


Embu mc bar chart

According to the pie chart and the bar graph, Embu municipal council used its most conservation costs on administrative activity (62%), pollution activity (24%), and remediation activity (13%) respectively but spent the least conservation costs on global environmental activity costs (1%).

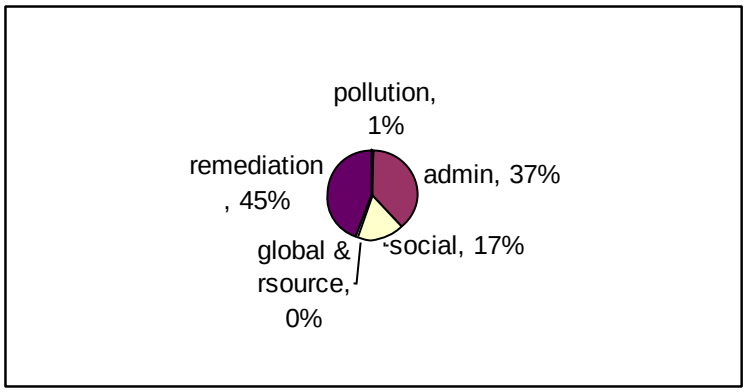


Yala tc pie chart

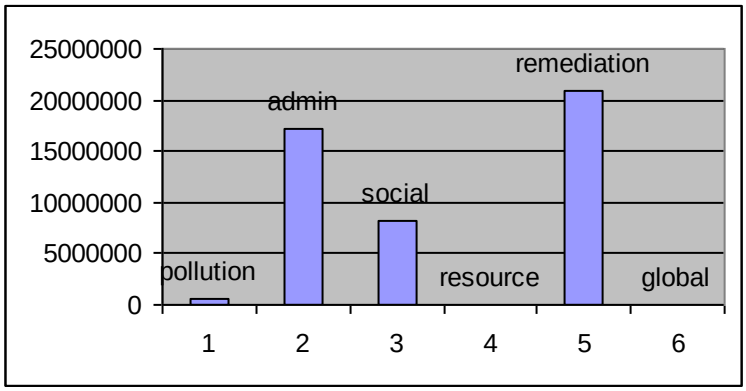


Yala tc bar chart

The town council spent most of its conservation costs on both administration (65%) and remediation (35%) activities.

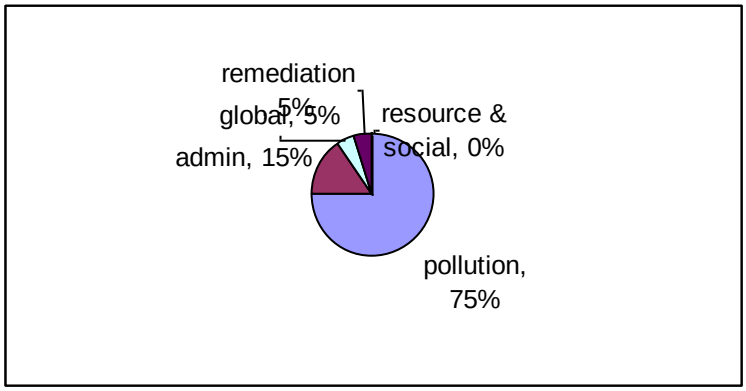


Wareng cc pie chart

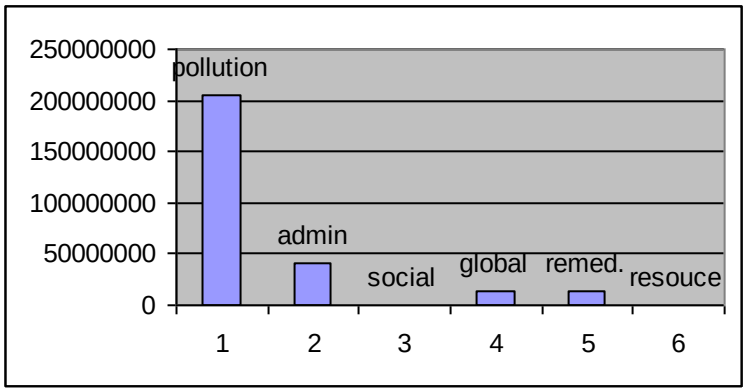


Wareng cc bar chart

Wareng county council used the highest conservation costs on remediation activity (45%), administrative activity (37%), and social activity (17%) but spent the lowest on pollution activity (1%).

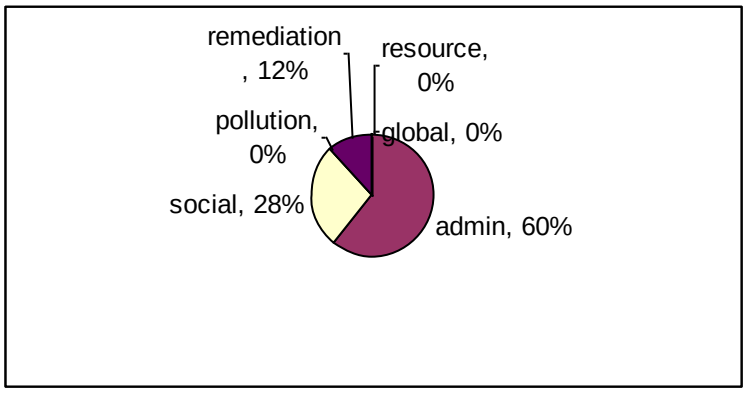


Narok cc pie chart

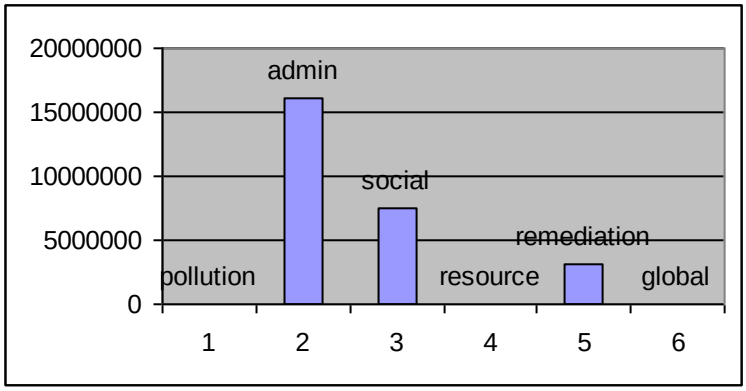


Narok cc bar chart

The county council spent its highest conservation costs on pollution activity (75%), administrative activity (15%) and its lowest on both global (5%) and remediation activities (5%).

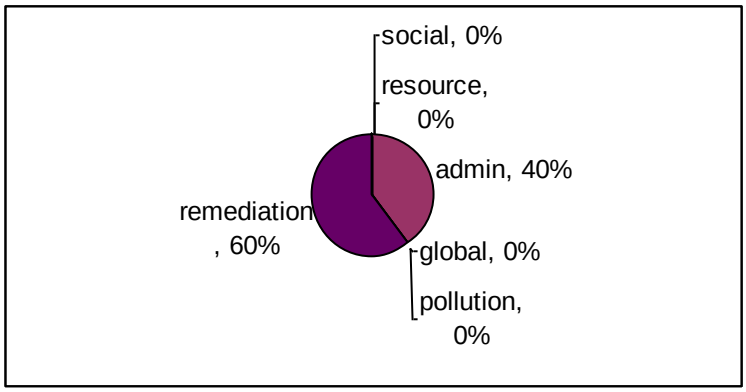


Kitui cc pie chart

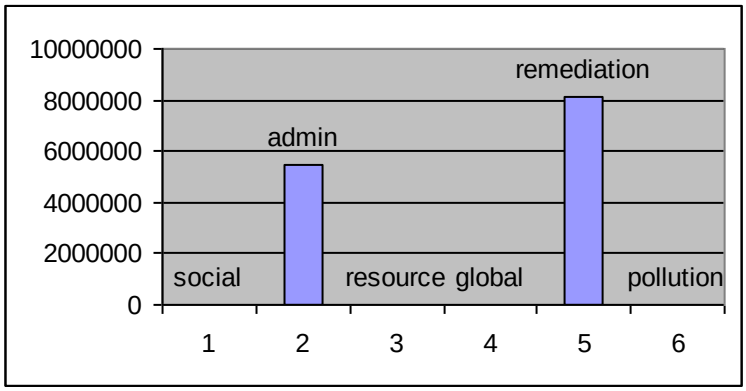


Kitui cc bar chart

The county council used the most conservation costs on administrative activity (60%), social activity (28%) and the lowest on remediation activity (12%).

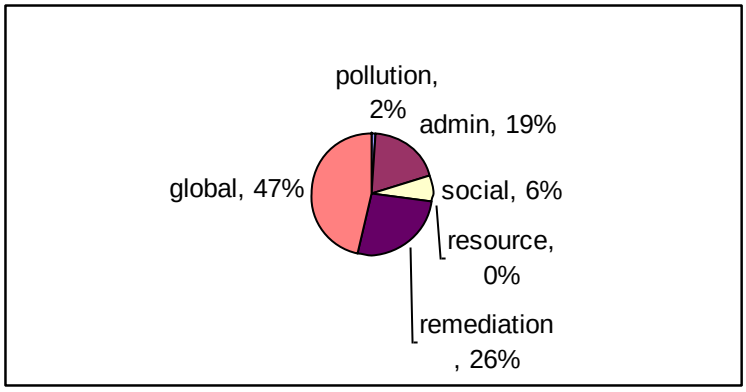


Ijara cc pie chart

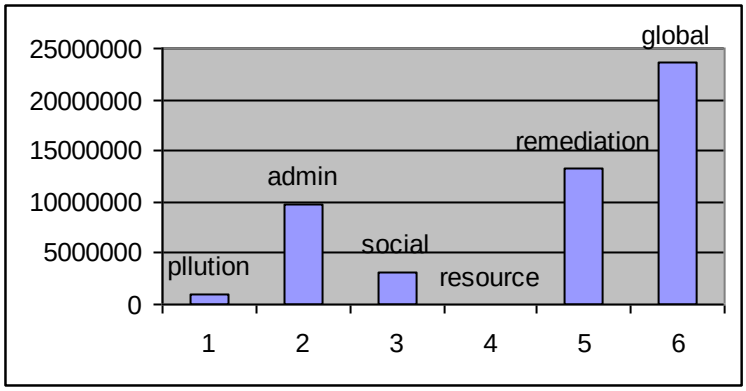


Ijara cc bar chart

The county council spent its conservation costs only remediation (60%) and administrative (40%) activities only.

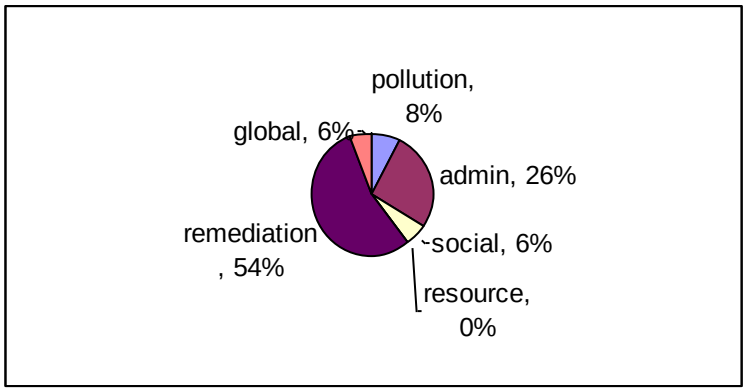


Isiolo cc pie chart

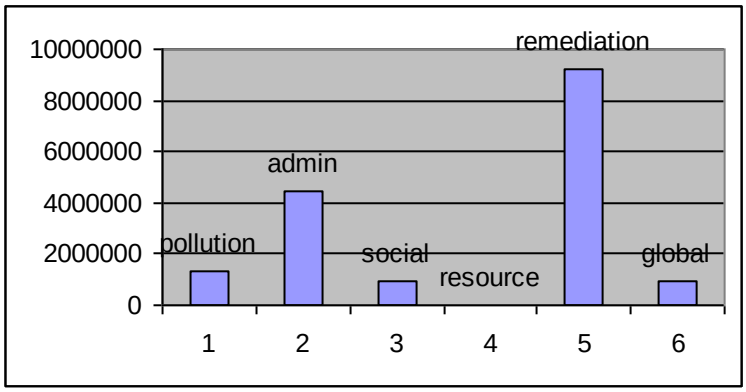


Isolo cc bar chart

Isiolo county council used the most conservation costs on global activity (47%), remediation activity (26%) as well as in administrative activity (19%) but used its lowest on pollution activity (2%) according to the charts.

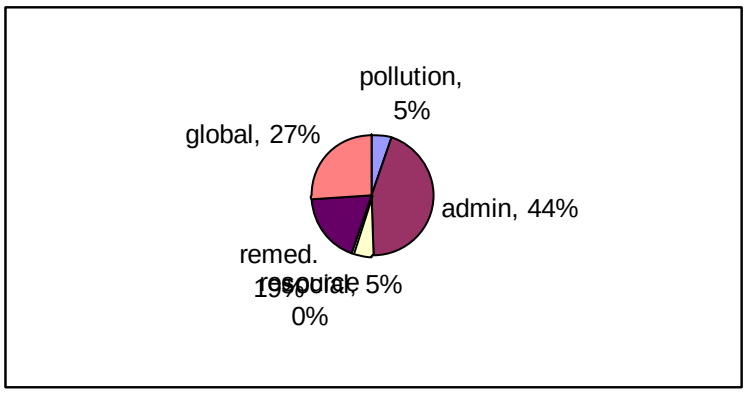


Bondo cc pie chart

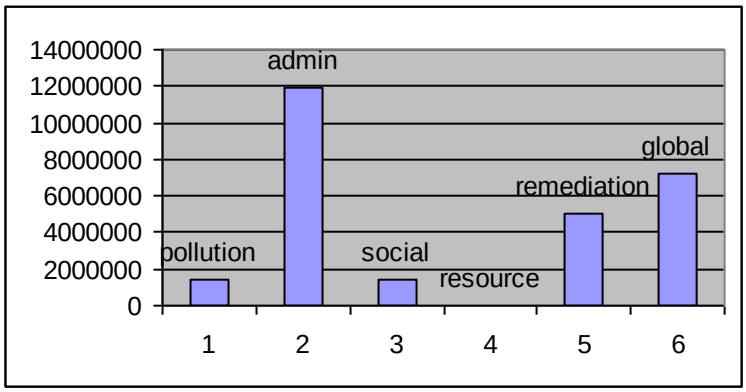


Bondo cc bar chart

The county council according to both charts spent most on remediation activity (54%), administrative activity (26%), and pollution (8%) with the least spending on both social (6%) and global activities (6%).

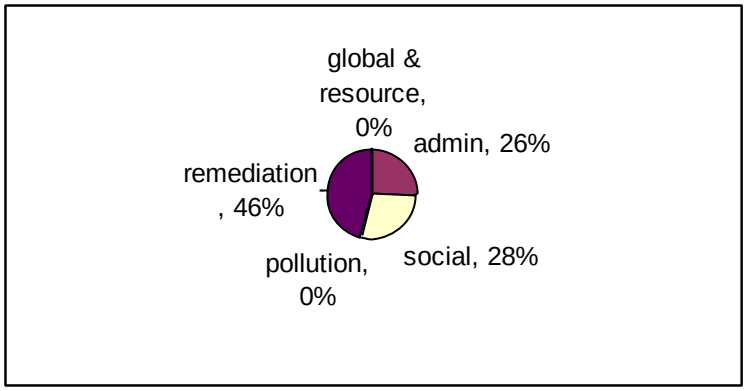


Kabarenet mc pie chart

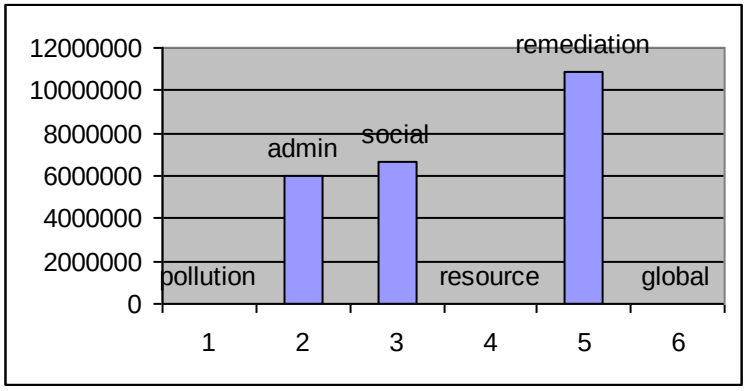


Kabarnet mc bar chart

Most conservation costs were on administrative activity (44%), global activity (27%), remediation (19%) and the lowest on both pollution (5%) and social (5%) activities as from the pie and bar graph.

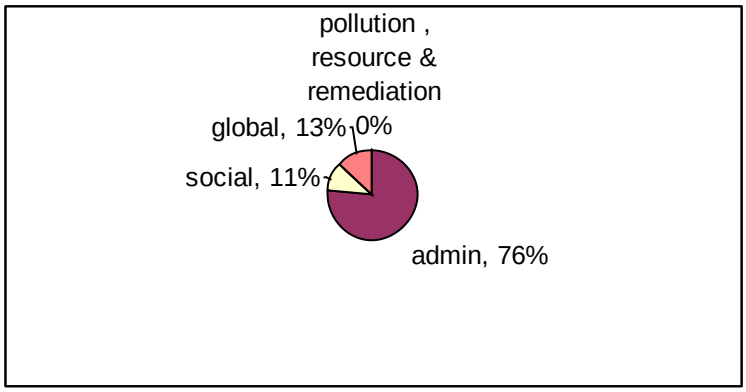


Kehancha mc pie chart

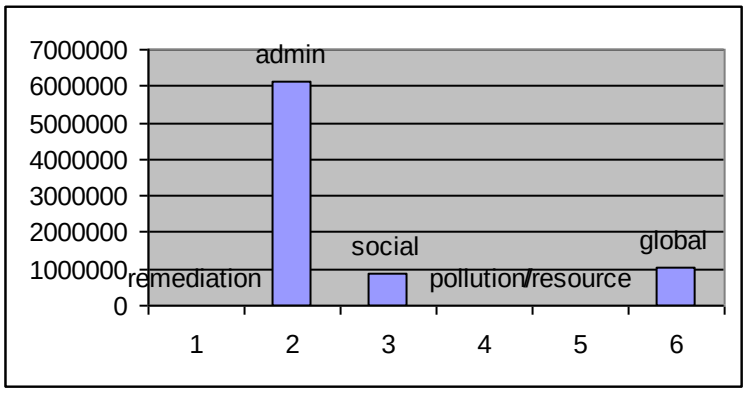


Kehancha mc bar chart

Conservation costs were used on remediation (46%), social (28%) and administrative activities (26%) respectively according to the pie chart and bar graph.

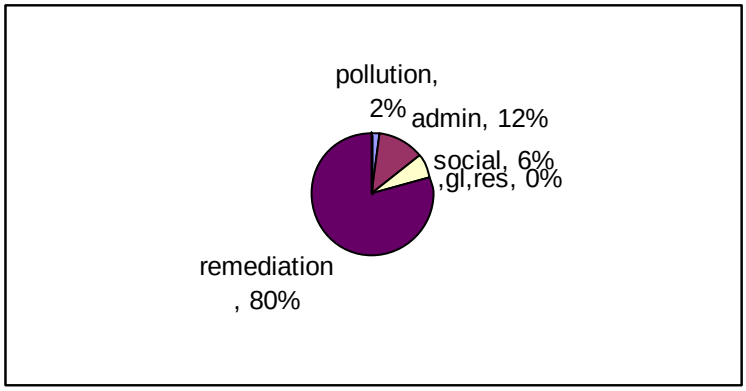


Oyugis tc pie chart

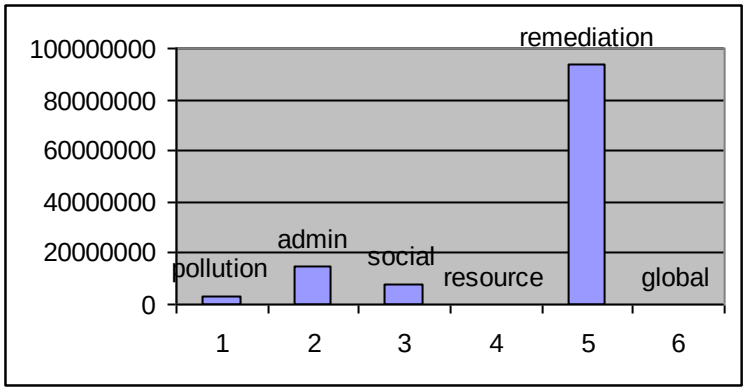


Oyugis tc bar chart

Oyugis town council spent its most conservation costs on administrative activity (76%), global activity (13%) and the lowest on social activity (11%) according to the pie chart and the bar graph.

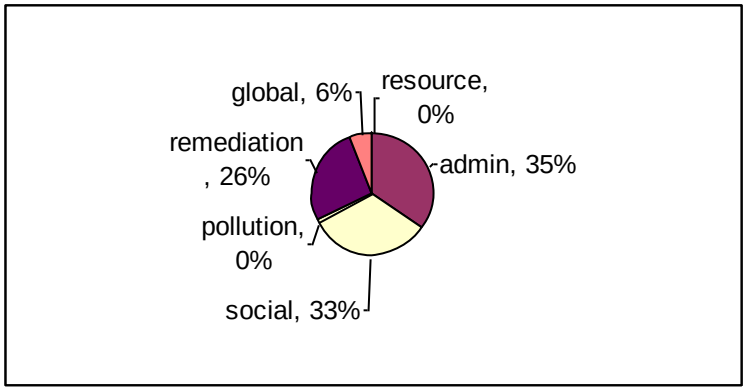


Makueni cc pie chart

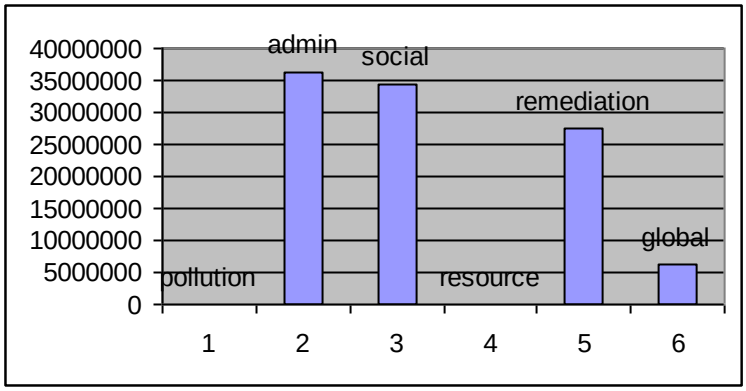


Makueni cc bar chart

The county council spent its most conservation costs on remediation activity (80%), administrative activity (12%) and social activity (6%) with the lowest on pollution activity (2%) as read from the charts.

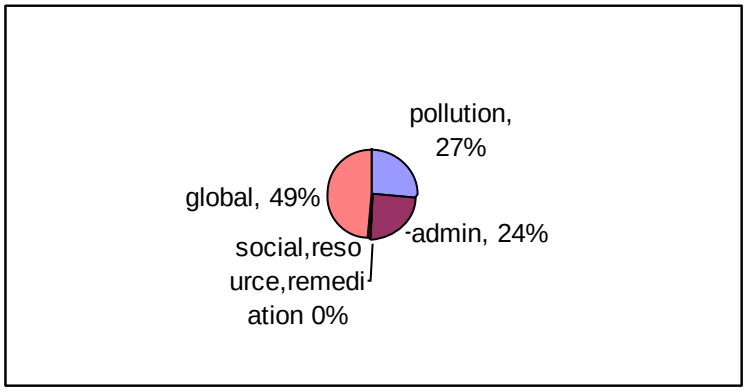


Olkejuado cc pie chart

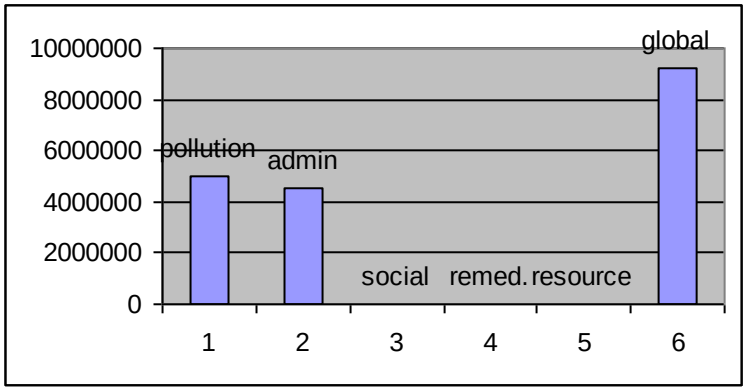


Olekejuado cc bar chart

The county council spent highest on administrative activity (35%), social activity (33%), remediation activity (26%) respectively but least on global activity (6%).

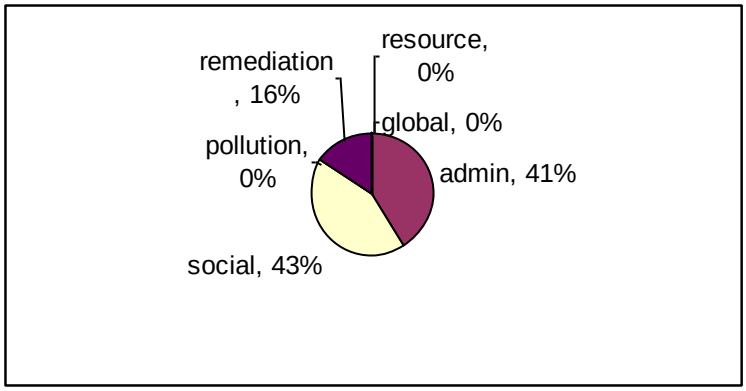


Suba cc pie chart

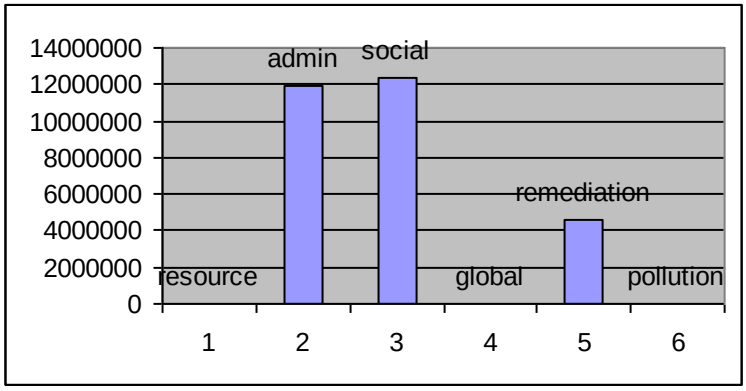


Suba cc bar chart

Suba county council spent its most conservation costs on global activity (49%), pollution (27%) and lowest on administrative activity (24%) as from the charts.

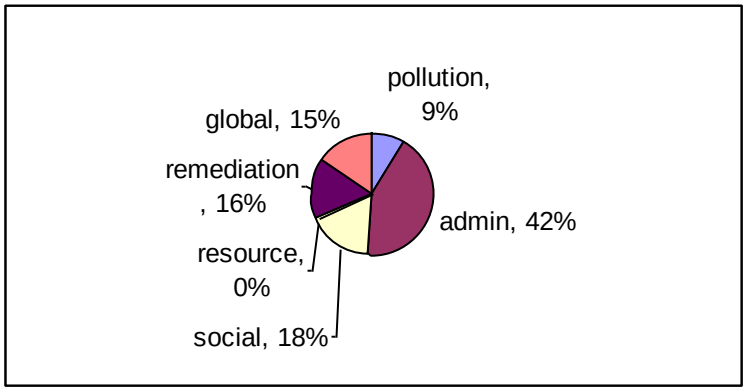


Turkana cc pie chart

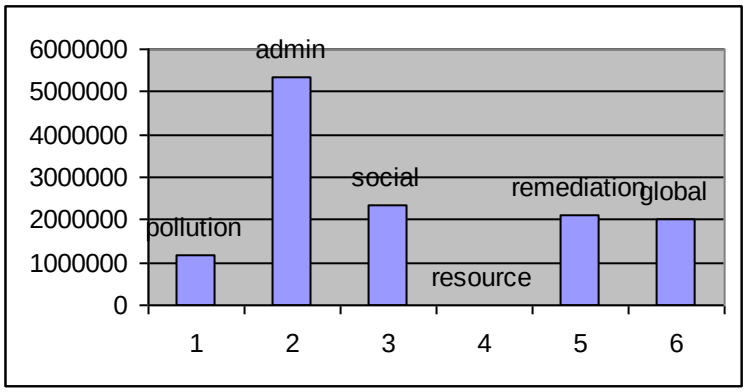


Turkana cc bar chart

The county council used its highest conservation costs on both social (43%) and administrative (41%) activities with the least spending on remediation activity (16%) according to the charts.

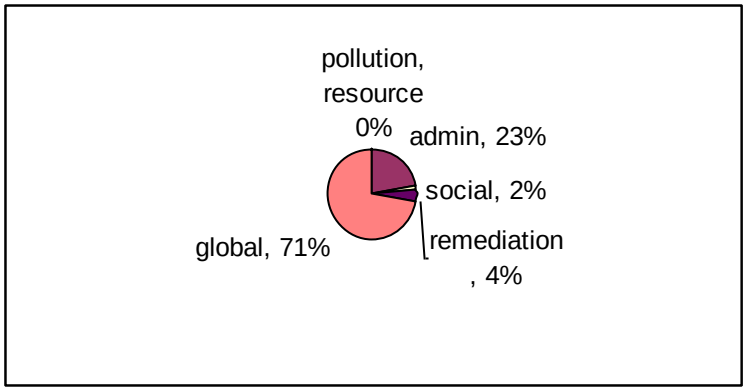


Taveta tc pie chart

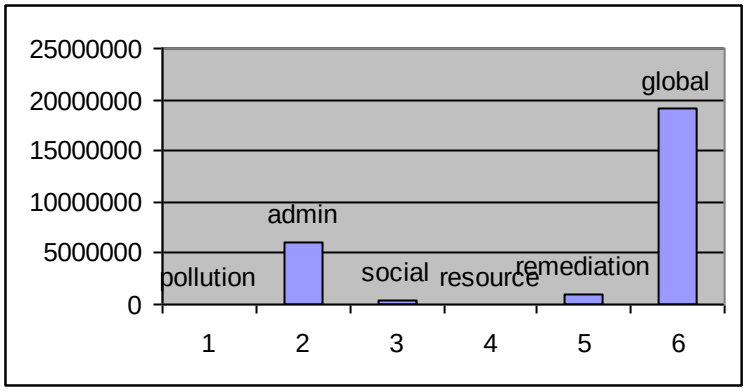


Taveta tc bar chart

The town council used its most conservation costs on administration (42%), social (18%), remediation activities (16%) and global (15%) but least on pollution activity (9%).

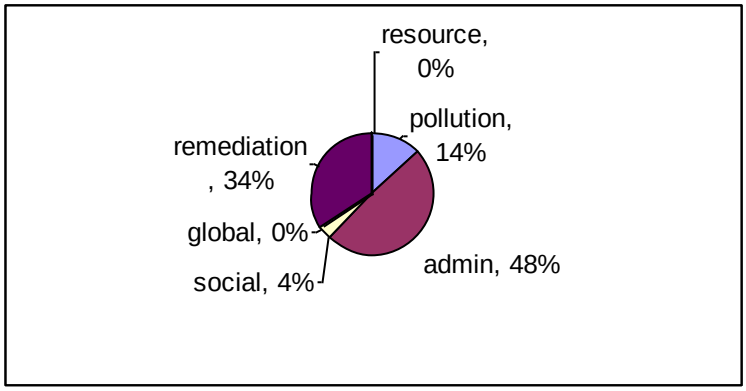


Wajir cc pie chart

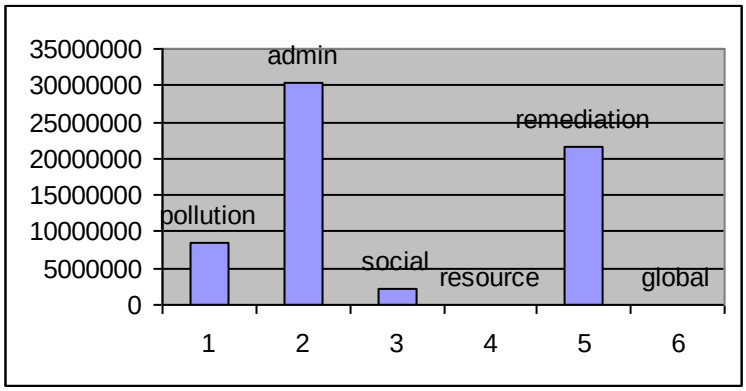


Wajir cc bar chart

The county council used most of its conservation costs on global activity (71%) followed by administrative activity (23%) with the least spent on social activity (2%) from the charts.

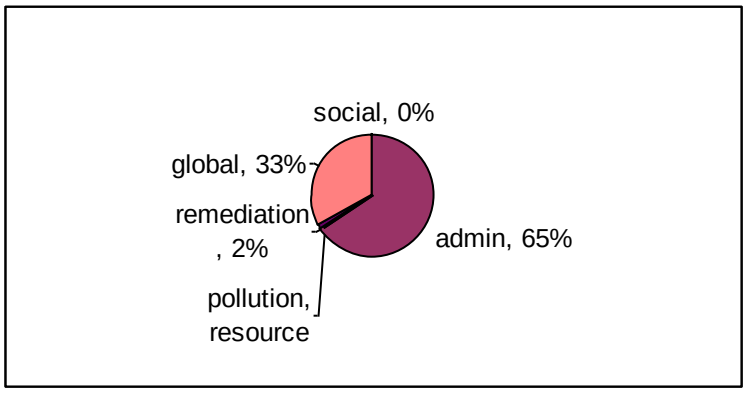


Thika cc pie chart

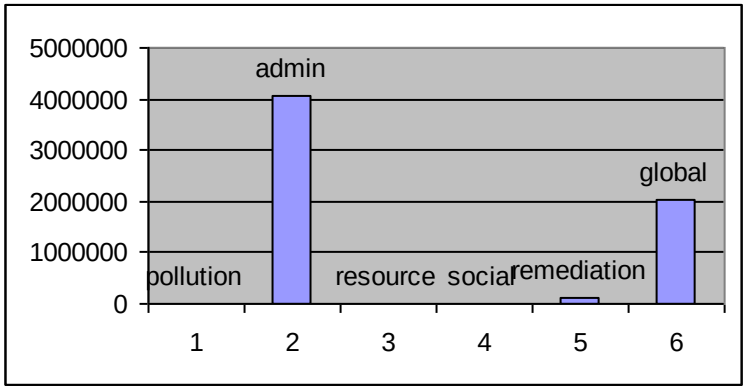


Thika cc bar chart

The county council used the highest conservation costs on administrative activity (48%), remediation (34%), followed by pollution activity (14%) and lowest spent on social activity (4%) according to bar chart and the pie chart.

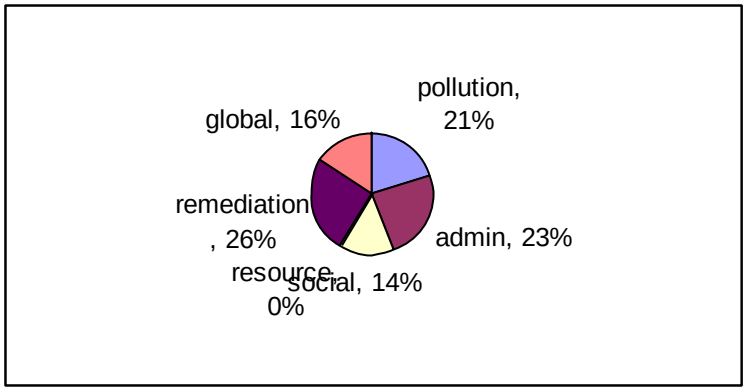


Chogoria tc pie chart

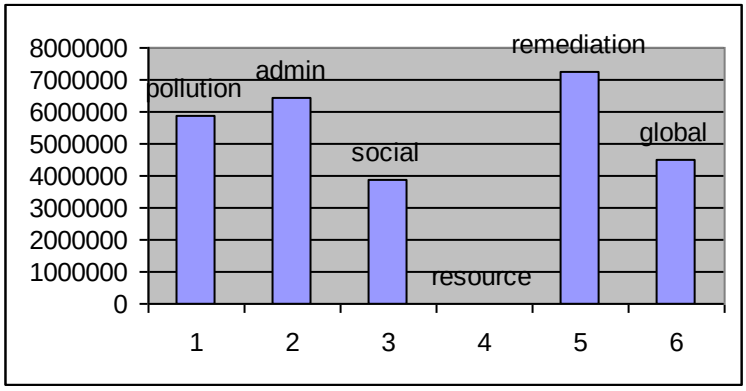


Chogoria tc bar chart

The spending was highest in administrative activity (65%) followed by global activity (33%) and lowest in remediation activity (2%) as read from the charts.

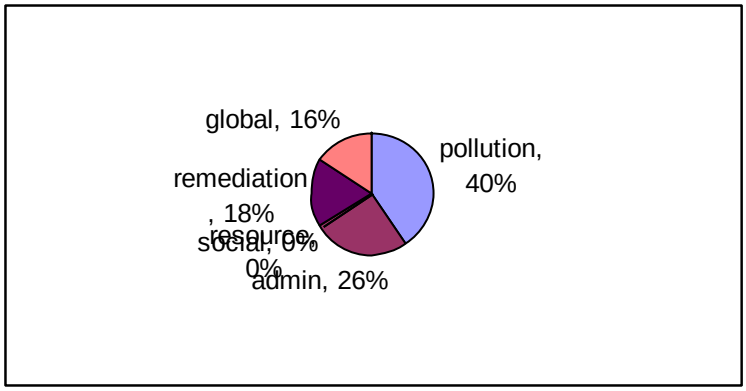


Homa bay mc pie chart

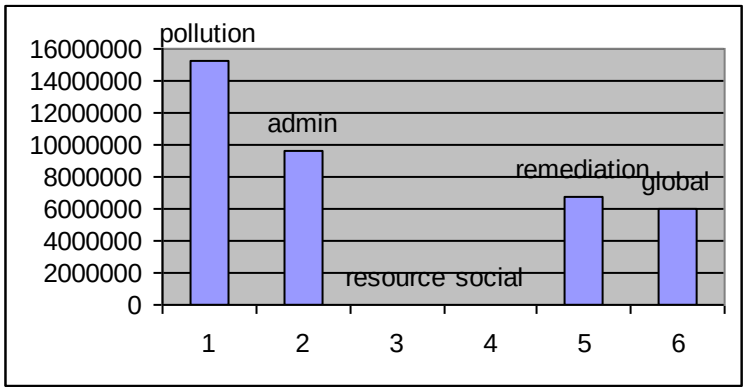


Homa bay mc bar chart

The municipal council spent most of its conservation costs on remediation (26%), administrative (23%), pollution (21%) and global activities (16%) with the lowest spending on social activity (14%) according to the charts.

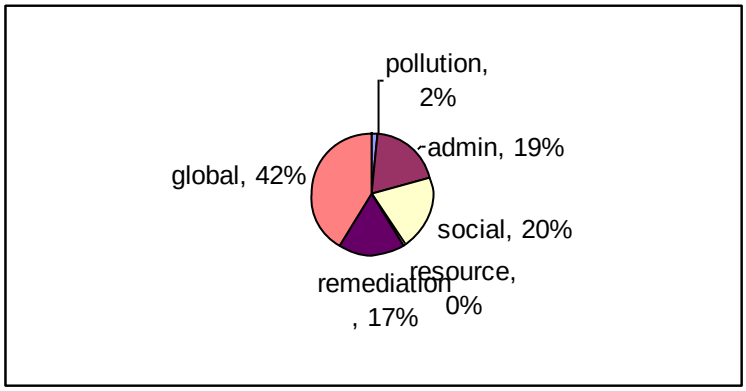


Kangundo tc pie chart

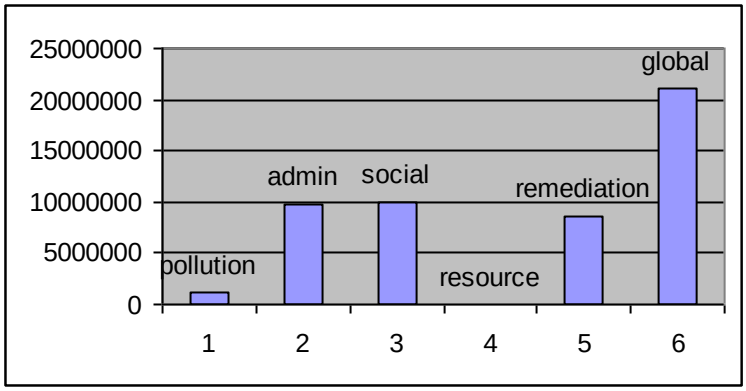


Kangundo tc bar chart

Most conservation costs were spent on pollution activity (40%), administrative activity (26%), and remediation activity (18%) with the least on global activity (16%) as from the charts.

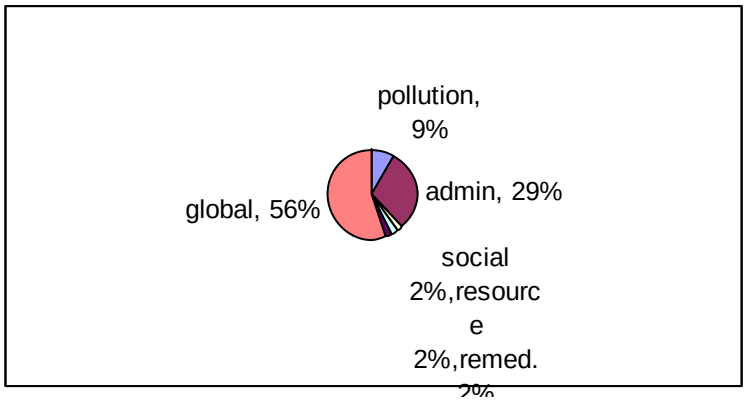


Kakamega cc pie chart

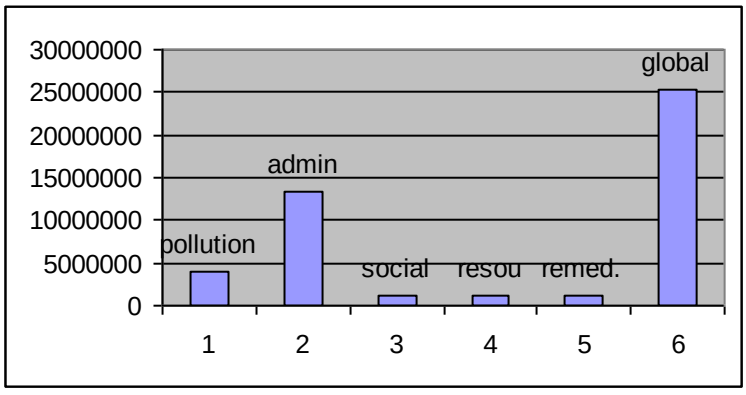


Kakamega cc bar chart

Highest conservation costs were on global activity (42%), administrative activity (20%), social activity (19%), remediation activity (17%) respectively and least on pollution activity (2%) according to charts.

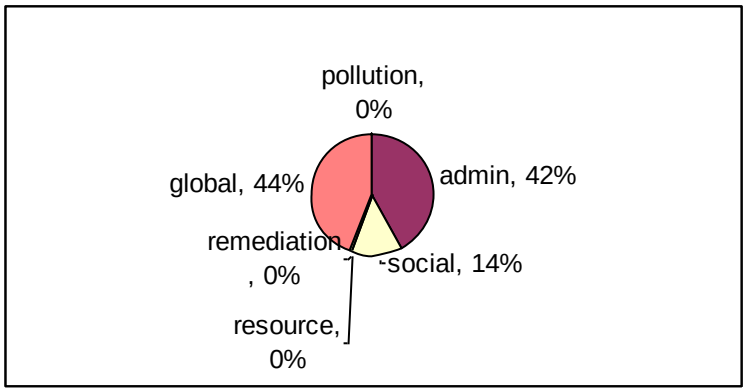


Baringo cc pie chart

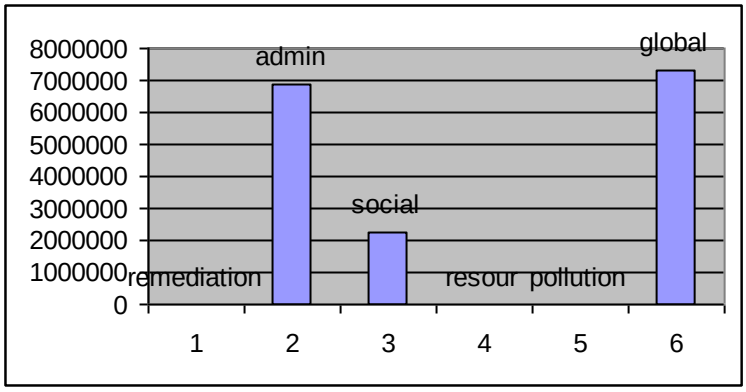


Baringo cc bar chart

Highest conservation costs were spent on global activity (56%) followed by administrative (29%) and pollution activities (9%) respectively and the least spending on social (2%), resource (2%) and remediation (2%) activities according to the pie chart and bar graph.

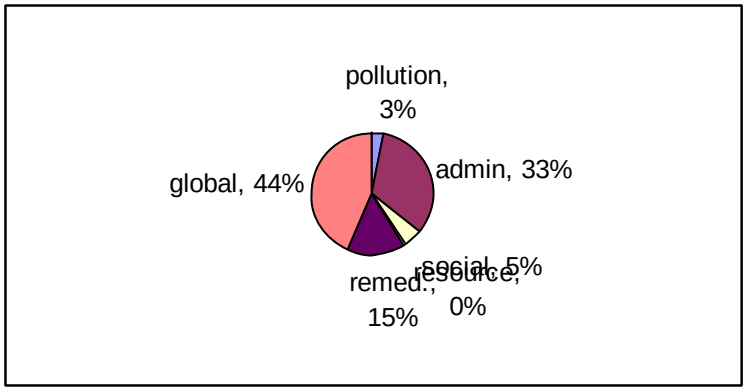


Lamu cc pie chart

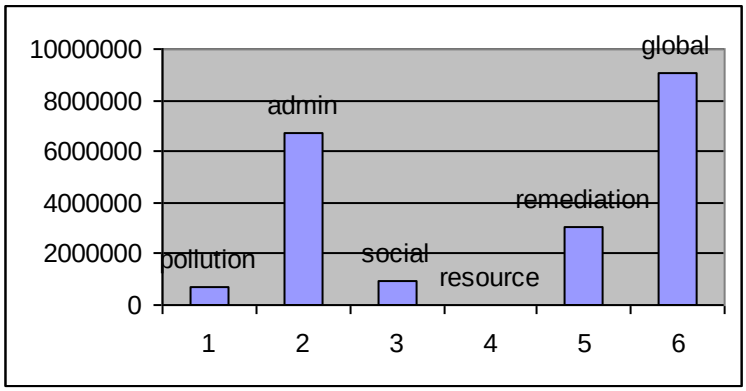


Lamu cc bar chart

Highest conservation costs were on both global (44%) and administrative (42%) activities and least on social activity (14%) as from the charts.

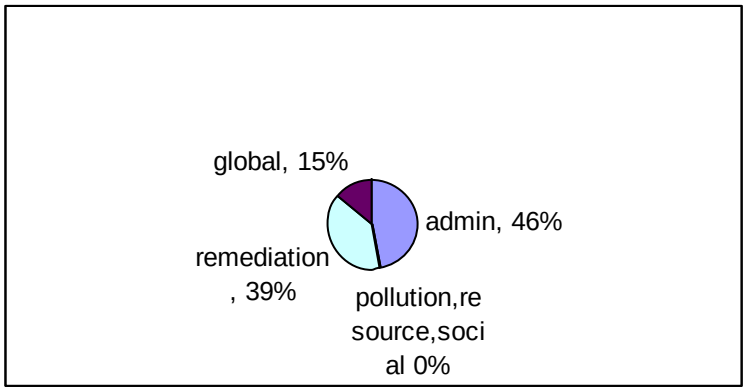


Mt Elgon cc pie chart

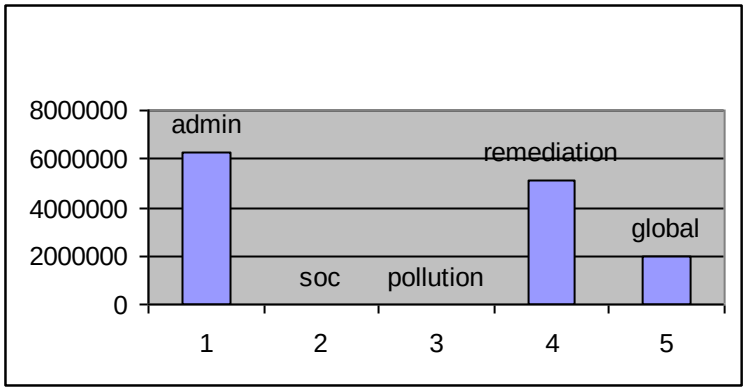


Mt Elgon cc bar chart

Most conservation costs were on global activities (44%), administrative (33%), and remediation (15%) activities respectively and least on both social (5%) and pollution (3%) as the indication on the charts.

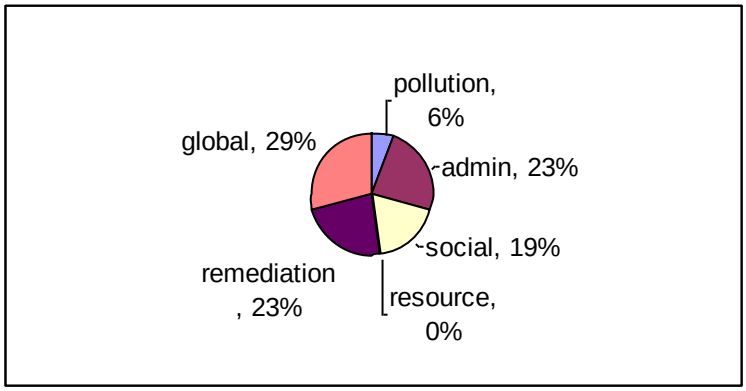


Mtitu Andei tc pie chart

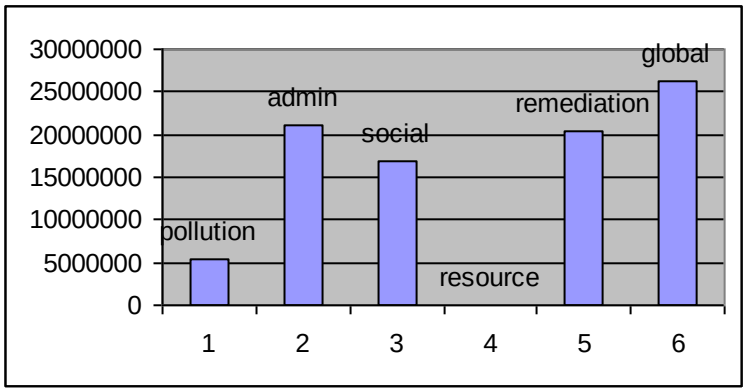


Mtitu Andei tc bar chart

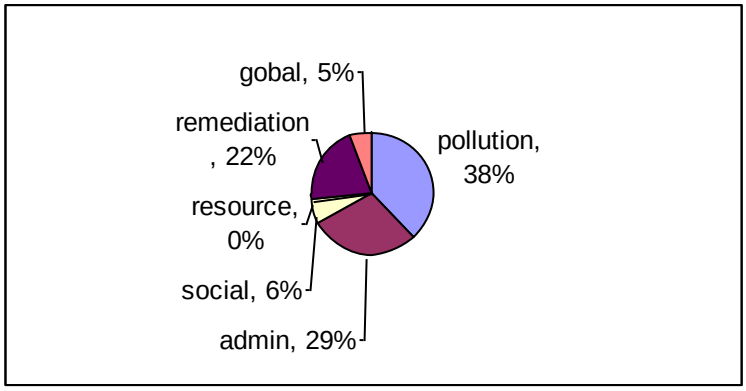
Most spent conservation costs were on administrative (46%) and remediation (39%) activities and lowest on global activity (15%).



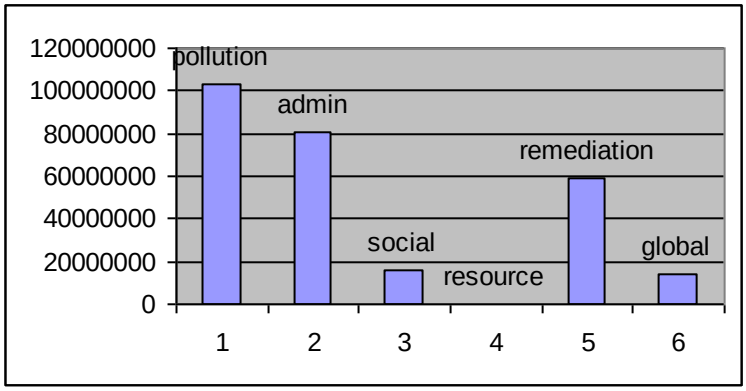
Nyandarua cc pie chart



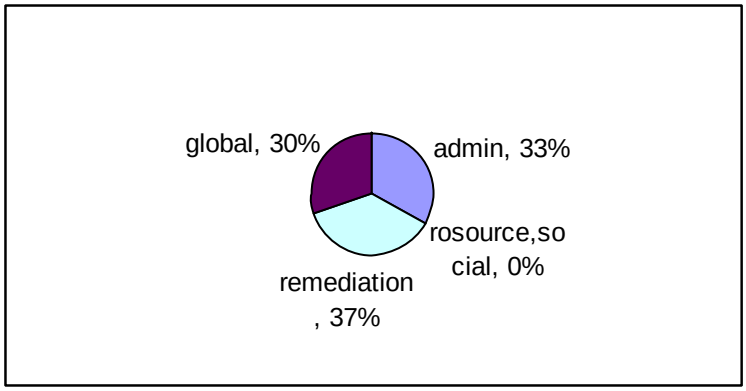
Nyandarua cc bar chart
Conservation costs were highest on global (29%), administrative (23%), remediation (23%) and social (23%) activities respectively and least on pollution activity (6%) according to the charts.



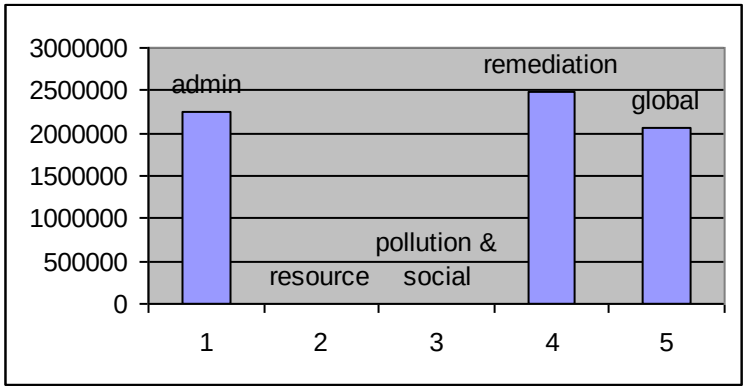
Eldoret mc pie chart



Eldoret mc bar chart
Pollution activity (38%), administrative activity (29%) and remediation (22%) were the highest conservation costs spenders while social (6%) and global activities (5%) used the least according to the charts.

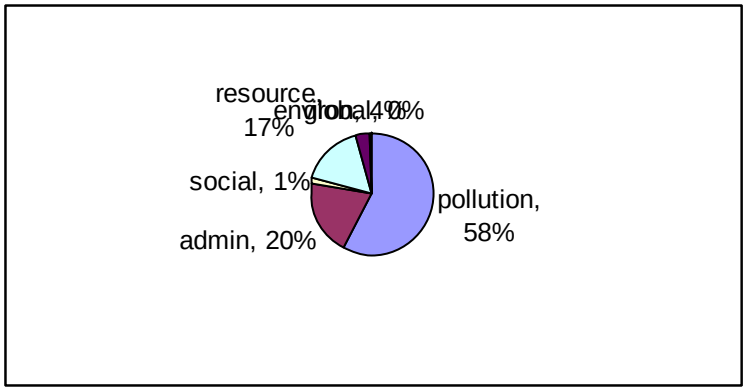


Port Victoria tc pie chart

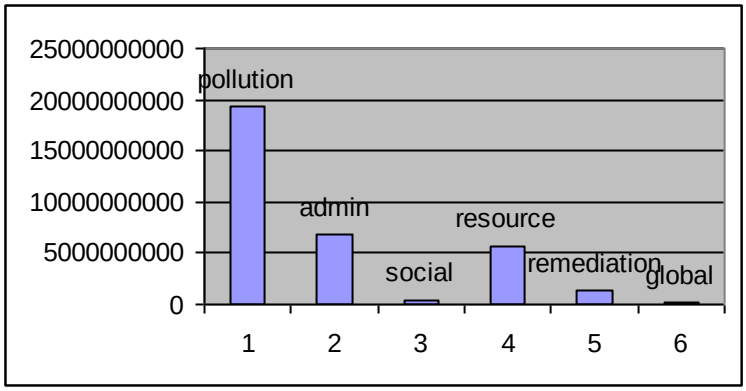


Port Victoria tc bar chart

Remediation activity (37%) and administrative activity(33%) were the highest conservation costs while global activity (30%) took the least according to pie chart and the bar graph.

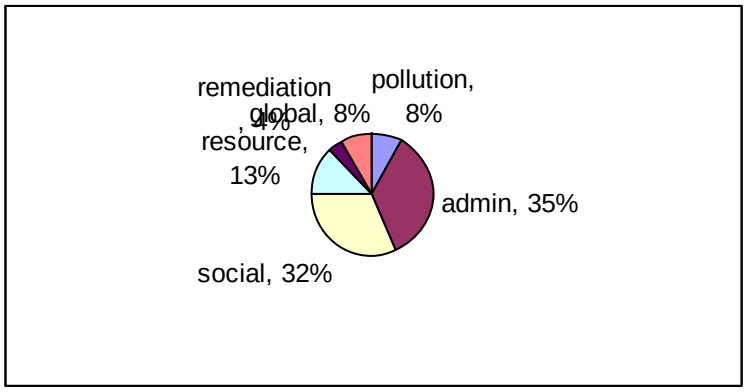


Nairobi cc pie chart

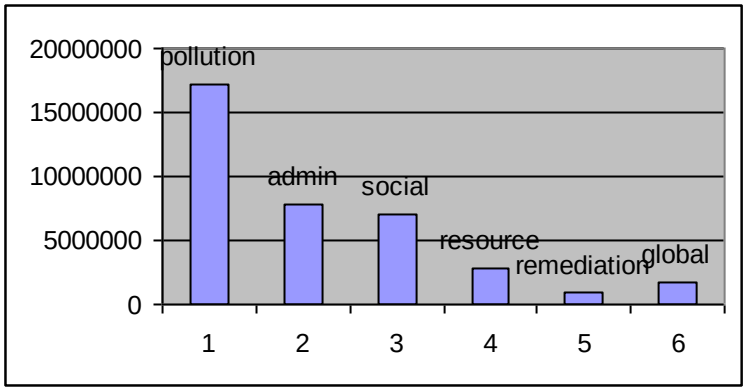


Nairobi cc bar chart

Pollution activity (58%), administrative activity (20%) and resource activity (17%) were the highest conservation costs followed by global activity (4%) while social (1%) activities were the least.

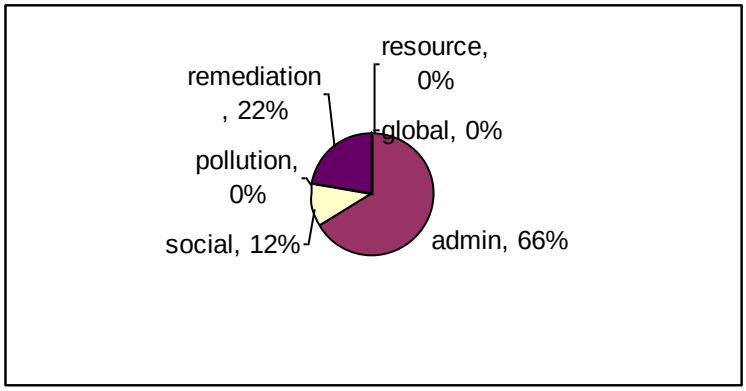


Kisumu cc pie chart

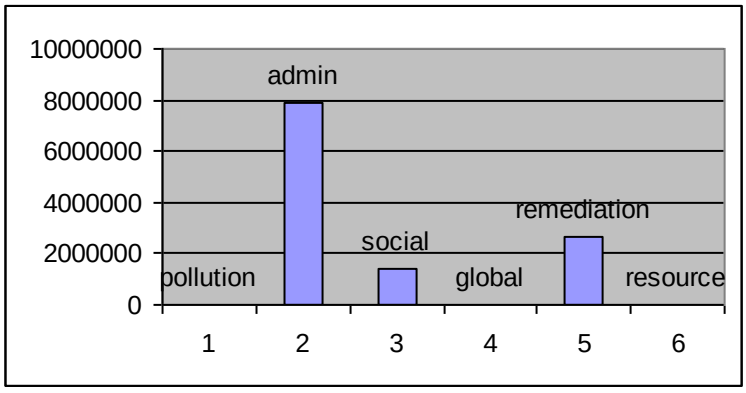


Kisumu cc bar chart

administrative activity (35%), and social activity (32%) were the highest respectively followed by resource (13%) while global (8%) and pollution (8%)activities were the least.

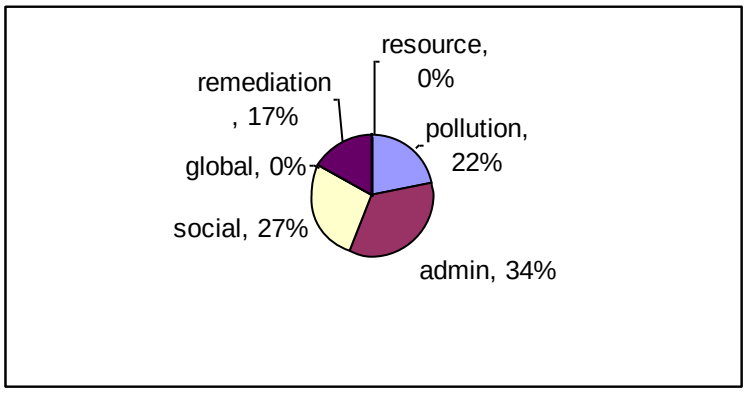


Kwale tc pie chart

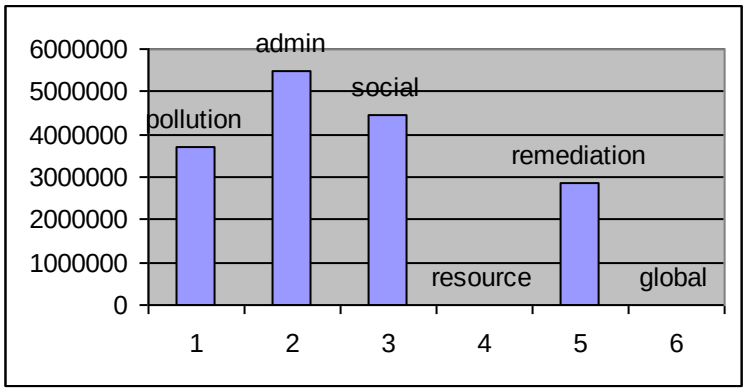


Kwale tc bar chart

Conservation costs were used highest on administrative activity (66%), remediation activity (22%) respectively and the least used in social activity (12%).

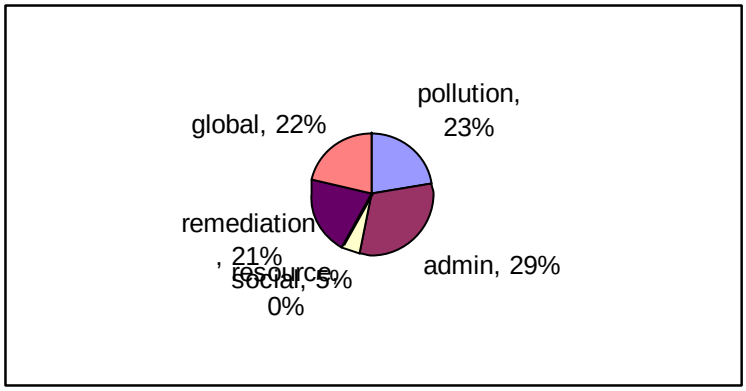


Kilifi tc pie chart

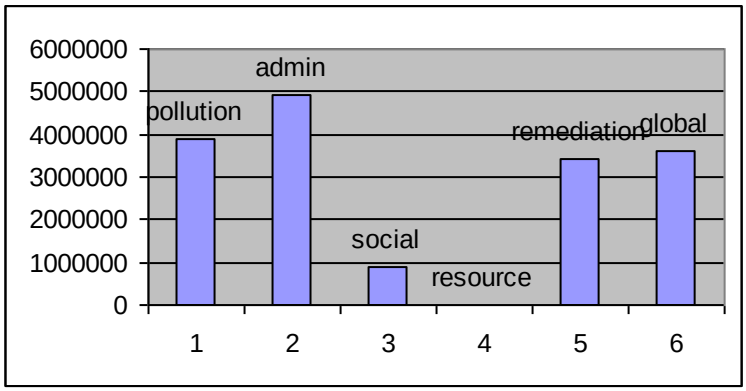


Kilifi tc bar chart

The highest costs were used on administrative activity (34%), social activity (27%), pollution activity (22%) respectively with the least costs spent on remediation activity (17%).

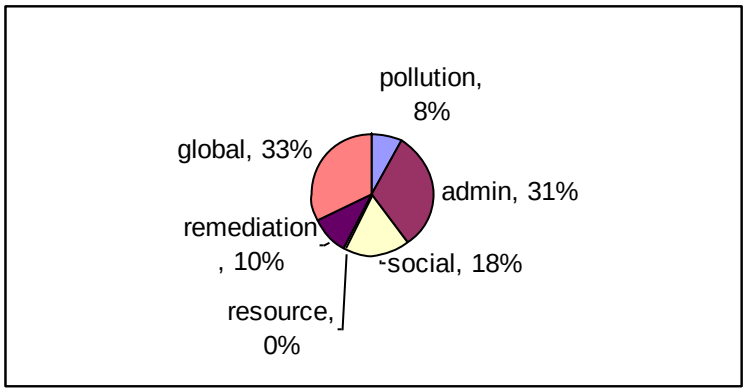


Mariakani tc pie chart

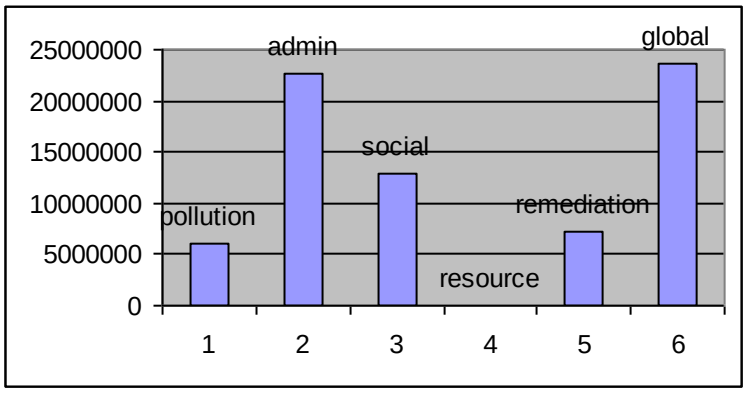


Mariakani tc bar chart

Conservation costs were highest on administrative activity (29%), pollution activity (23%), global activity (22%), and remediation activity (21%) respectively and were least on social activity (5%).



Kwale cc pie chart



Kwale cc bar chart

The county council spent the highest costs on global activity, administrative activity, and social activity respectively and used least costs on remediation and pollution activities.

4.2.3 Descriptive Analysis

Table 4.2.3 descriptive analysis

	pollution	admin	social	resource	remed	global	SUM	ST
nairobi cc	1.92E+10	6.87E+09	4.86E+08	5.68E+09	1.34E+09	1.08E+08	33724330733	72
kisumu cc	1793603	7866035	7024504	2793603	943391	1793603	22214739	29
kapsabetmc	5005020	0	0	0	0	0	5005020	20
mumias mc	5000000	8000000	2753809	0	18690961	0	34444770	70
mavokomc	6510943	8000000	4694983	0	25681578	16691403	61578907	93
mombasamc	4.09E+08	1.43E+08	80544336	0	3.06E+08	69332927	1008206647	1
gucha cc	15309000	6519994	16929000	0	0	7202991	45960985	7
kilifi cc	8628120	2470000	3496033	0	7523809	8628120	30746082	
embu mc	7093936	18217090	0	0	3976095	426779	29713900	70
yala tc	0	4190671	0	0	2232368	0	6423039	17
wareng cc	574584	17133157	8115366	0	20868173	0	46691280	92
narok cc	2.05E+08	41800684	46000	13210244	13591208	0	274011440	79
kitui cc	0	16082768	7477759	0	3120188	0	26680715	64
ijara cc	0	5442246	0	0	8163370	0	13605616	36
isiolo cc	882000	9679604	3221977	0	13282479	23689800	50755860	90
bondo cc	1292832	4447933	974058	0	9249762	936000	16900585	34
kabarnet mc	1417548	11893484	1396438	0	5021498	7210000	26938968	45
kehanchamc	0	6005139	6650163	0	10884960	0	23540262	46
oyugis tc	0	6131075	851215	0	0	1037414	8019704	23
makueni cc	2885564	14830181	7500965	0	93508165	0	118724875	36
olkejuado cc	0	36316801	34248112	0	27505520	6300000	104370433	17
suba cc	4980851	4510975	0	0	0	9199000	18690826	37
turkana cc	0	11907274	12368378	0	4628892	0	28904544	59
taveta tc	1161688	5352722	2361461	0	2100931	1995896	12972698	17
wajir cc	0	5994023	406822	0	1065944	19083600	26550389	75
thika cc	8587398	30266652	2256901	0	21478003	0	62588954	
chogoria tc	0	4045789	0	0	100000	2042850	6188639	16
homabay mc	5848618	6453786	3877406	0	7221600	4516274	27917684	25
kangundotc	15219685	9651756	0	0	6777728	5968000	37617169	58
kakamega cc	1074585	9675807	9980278	0	8611554	21016260	50358484	75
barigo cc	4051368	13444806	1069135	1107287	1118454	25399800	46190850	99
lamu cc	0	6868245	2277081	0	0	7307209	16452535	34
mt elgon cc	675130	6726494	957415	0	3021118	9038929	20419086	3
mtituandei tc	0	6232179	0	0	5141168	1941200	13314547	28
nyadarua cc	5431440	21090404	16872740	0	20491948	26236560	90123092	10
eldoret mc	1.03E+08	80235102	16253439	0	59345738	14381100	273075915	41
portvictoria tc	0	2254516	0	0	2481119	2068680	6804315	12

Source: MLG circular no. 4/2009

From the above table of descriptive statistics, it can be inferred that:

The first five highest spenders on conservation costs were Nairobi cc, Kisumu mc, Narok cc, Eldoret mc and Mombasa mc respectively as depicted by their means and standard deviatiations being the highest in that order. The lowest spenders in terms of conservation costs were Chogoria tc, Port Victoria tc, Oyugis tc, Kwale tc, and Ijara cc respectively as reflected by both low means and standard deviations.

4.3 Expenditure per local authorities studied

The bar graph below shows the total expenditure per local authority in terms of environmental conservation cost

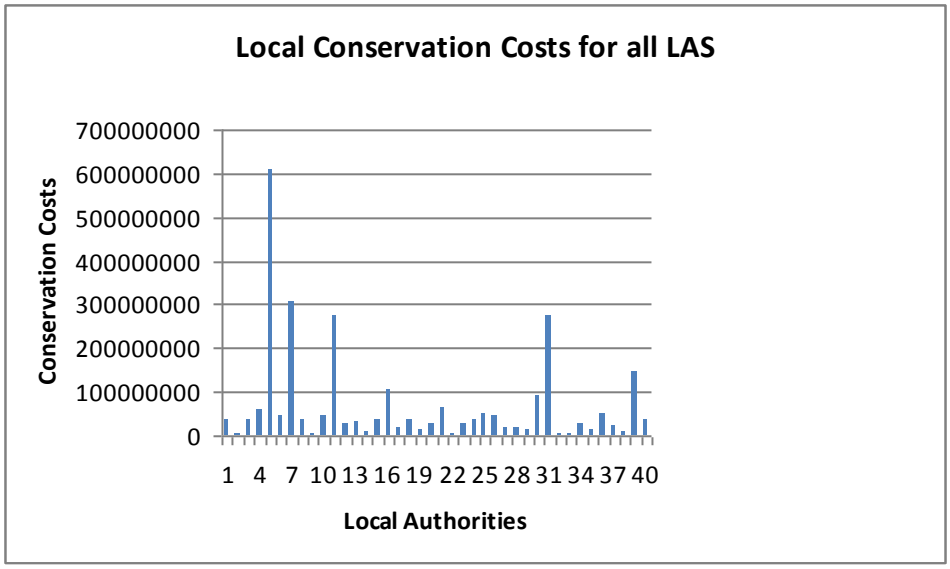


Fig1: Bar graph of Conservation costs for all LAS.

Source: MLG.circular no. 4/2009

From the graph, it can be inferred that:

Five local authorities had used environmental conservation costs more effectively than the others as evidenced by both their highest means as well as their standandard deviations.these local authorities were nairobi city council,kisumu municipal, Narok county council, Eldoret municipal council,and Mombasa in that order respectively.

Five other local authorities on ther hand used the least environmental conservation costs in a less effective way as the scored lowest in terms of the mean and the standarnd

deviations. These LAs were Chogoria town council,Port Victoria town council, Oyugis town council, Kwale town council and Ijara county council in the order respectively.

4.4 Percentage expenditure per activity per LA.

Table 4.4.1 showing % expenditure per activity per LA.

LA	Pollution %	Admin %	Social %	Global %	Remediation %	Resource %
Kilifi cc	29	8	11	28	24	0
mavoko	11	13	8	27	41	0
kehancha	0	26	28	0	46	0
oyugis	0	76	11	13	0	0
Taveta cc	9	42	18	15	16	0
Makueni cc	2	12	6	0	80	0
olkeyuado	0	35	33	6	26	0
suba	27	24	0	49	0	0
Turkana cc	0	41	43	0	16	0
wajir	0	23	2	71	4	0
thika	14	48	4	0	34	0
Chogoria tc	0	65	0	0	2	0
homabay	21	23	14	16	26	0
kangundo	40	26	0	16	18	0
kakamega	2	19	20	42	17	0
Lamu cc	0	42	14	44	0	0
Mt Elgon cc	3	33	5	44	15	0
baringo	9	29	2	2	2	2

Mtitu Andei	0	46	0	15	39	0
nyandarua	6	23	19	29	23	0
Eldoret	38	29	6	5	22	0
Port victoria	0	33	0	30	33	0
Nairobi cc	58	20	1	4	17	0
Kisumu mc	8	35	32	8	0	13
Kwale tc	0	66	12	0	0	0
Kilifi tc	22	34	27	0	17	0
Mariakani	23	29	5	22	21	0
Kwale cc	8	31	18	33	10	0
Bondo cc	8	26	6	6	54	0
Kitui cc	0	60	28	0	12	0
Narok cc	75	15	0	5	5	0
wareng	1	37	17	0	47	0
Isiolo cc	0	19	6	47	26	0
Kabarnet mc	5	44	0	27	19	5
Mombasa mc	41	14	8	7	30	0
Mumias mv	15	23	8	0	54	0
Embu mc	24	62	0	1	13	0
Yala	0	65	0	0	35	0
Gucha	33	14	37	16	0	0
Ijara	0	40	0	0	60	0

Source: MLG. Circular 4/2009

From the table the activity that is highly carried out by most LAs is administrative with the lowest expenditure of 8% and the highest level of expenditure at 66%.

Resource circulation activity is poorly carried out with the highest % of expenditure being 13% and the lowest at 0%.

CHAPTER FIVE

SUMMARY, DISCUSSIONS, RECOMMENDATIONS, LIMITATIONS AND DIRECTION FOR FURTHER RESEARCH.

5.1 Introduction

This study set to achieve the objective of determining environmental conservation costs by local authorities in Kenya.

The chapter gives a summary of the findings, discussions, recommendations, limitations and direction for further research.

5.2 Summaries of findings.

5.2.1 Sources of revenues to the local authorities

From the analysis local authorities are allocated each a flat rate figure of sh1.5 million and the other allocations to the local authorities are given by the ministry depending on individual local authorities' population. Apart from these allocations other sources of revenue are RMLF and CILOR besides donations from donors that are used to assist the local authorities finance their operations.

5.2.3 Rationale for the distribution of the revenues into various activities in all local authorities.

The analysis clearly shows that the administrative activity is carried out by almost all the local authorities that were studied. Other local authorities' activities like pollution prevention activity, global conservation activity, resource circulation activity, social activity and remediation activity are performed according to individual local authority' choices and priority depending on local needs

5.3 Discussions

5.3.1 Operations of local authorities in Kenya

From the analysis local authorities operate the same way under the same administrative structure which is mainly financed by the same sources of revenue. All the 175 local authorities are supervised by ministry of local government where they file their annual financial reports with the same ministry.

5.3.2 Environmental conservation costs in LAs

The analysis clarify that the activities in which LAs carried out in their operations incur costs that are spent to maintain clean and healthy environment within these individual local authorities. The allocation of revenue to the local authorities according to their population size plays a great deal in dictating the amounts received and spent by each LA. Thus, local authorities with highest population benefiting with the highest allocations and hence are able to have many of their environmental conservation activities carried out in their operations. This is unlike the less populous LAs which receive small allocations and finally do less on their environmental conservation activities.

5.3.3 The relationship between the amounts allocated and the number of conservation activities in LAs

The analyses indicate that the numbers of environmental conservation activities have costs spent on them per LA are affected by amounts allocated on the basis of population data. Due to that biasness in allocation, some environmental conservation activities in less populous LAs go unfunded or with little funds. Out the LAs studied the top five local authorities in terms of averages and standard deviations in the way the financed their environmental conservation activities were Nairobi city council, Kisumu municipal council, Narok county council, Eldoret municipal council and Mombasa municipal council respectively. The bottom five LAs in terms of averages and standard deviations

were Chogoria town council, Port Victoria town council, Oyugis town council, Kwale town council and Ijara county council respectively.

The variation in the analysis was brought by the uneven distribution and allocation of revenues by the ministry of local government following population data as the only criteria of financing the 175 LAs.

5.4 Conclusions

All the studied local authorities were found to allocate environmental conservation costs into their activities to prevent, reduce or even to avoid environmental impact and therefore environmental costs are evident. Despite the fact that all LAs use conservation costs, the degree of application of the costs is not uniform in all the local authorities.

Therefore, the allocation of revenue by the ministry of local government to LAs should be even and necessarily based on population data. Even allocations are likely to lead to each of the LAs spending equal amounts on their various environmental conservation activity costs.

5.5 Recommendations

Environmental conservation activity costs have been evidently applied by the local authorities. However, the degree and extent of application can be enhanced if the basis of allocation is made equal and the MLG out lines guidelines that emphasis on every conservation activity to be financed with specific amounts and not to leave the decision on the activities' financing to individual LAs.

5.6 Limitations

Out of the sample of 90 LAs only 41 (45.6%) responded. Most town/ county clerks were involved in seminars outside their local authorities that led to other officers being the respondents in the individual LAs.

5.7 Direction for further research

Future research may be directed to the relationship between costs in other activities carried out by local authorities in Kenya. In addition, since local authorities may be have different financial needs more research can be done on the rationale to base the allocation of revenues on one aspect of population data which has given some LAs advantage over others in the way they have used their environmental conservation activity costs.

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APPENDICES

Questionnaire

SECTION A- GENERAL INFORMATION

This section requires you to give general information about the local authority.

1. Name of the local authority: (optional):

   …….

2. Year when the local authority was created:

   ……

3. Position of the respondent in the local authority:

   ……...

4. The type of local authority……

5. What is your subscriber base? (please tick one)

   (i) Less than 1,000,000 [ ]

   (ii) Between 1,000,000 – 2,500,000 [ ]

   (iii) Between 2,500,000 - 4,000,000 [ ]

   (iv) Between 4,000,000 – 5,500,000 [ ]

   (v) Over 5,500,000 [ ]

SECTION B-INFORMATION ON ENVIRONMENTAL ACCOUNTING ISSUES

In this section you are required to provide information to do with the local authority's environmental accounting issues

6. Does your local authority take part in environmental accounting activities? (Please tick one)

   (i) Yes [ ] (ii) No [ ] (iii) To some level (iv) Not sure [ ]

7. Indicate the approximate average yearly % of your total yearly budget/LATF that the local authority uses on environmental activities. (Please tick one)

0- 5%	[ ]
5- 10%	[ ]
10-15%	[ ]
15-20%	[ ]
20-25%	[ ]
25- 30%	[ ]
30% and over	[ ]

SECTION C-INFORMATION ON ENVIRONMENTAL ACCOUNTING ACTIVITIES

8. Please fill in estimated cost for both the materials and personnel expenses in each activity shown:

POLLUTION PREVENTION ACTIVITY COST

	Cost of materials	Personal expenses(Salaries)	Total cost
Cost for prevention of air pollution			
Cost for preventing water pollution			
Cost for preventing ground contamination			
Cost for preventing noise pollution			
Cost for preventing vibration pollution			
Cost for preventing odor pollution			
Cost for preventing ground sinkage			

Cost for preventing other types of pollution			
Total cost			

GLOBAL ENVIRONMENTAL CONSERVATION ACTIVITY COST

	Cost of materials	Personnel expenses (salaries)	Total cost
Cost for preventing global warming & energy conservation.			
Cost for preventing the ozone depletion			
Cost for other global environmental conservation activities			
Total cost			

RESOURCE CIRCULATION ACTIVITY COST

	Cost of materials/ equipment	Personnel expenses (salaries)	Total cost
Cost for the efficient utilization of resources.			
Cost for recycling industrial waste.			
Cost for recycling municipal waste.			

Cost for disposal of industrial waste.			
Cost for disposal of municipal waste.			
Cost for contributing to resource circulation.			
Total cost			

ADMINISTRATIVE ACTIVITY COST

	Cost of materials/equipment	Personnel expenses (salaries)	Total cost
Cost for the implementation and maintenance of environmental management system			
Cost for disclosure of environmental information associated with business activities and environmental advertising.			
Cost for monitoring environmental impact.			
Cost for environmental training of employees.			
Cost for environmental improvement activities such as			

nature conservation, greening, beautification and landscape preservation, at or in the vicinity of the local authority site.			
Total cost			

SOCIAL ACTIVITY COST

	Cost of materials/equipment	Personnel expenses (salaries)	Total cost
Cost for environmental improvement activities including nature conservation, planting of greenery, beautification and landscape preservation.			
Cost related to donation or financial support of environmental groups.			
Cost associated with various social activities such as the financial support of			

a local community's environmental conservation activities and the disclosure of information to the local community.			
Total cost			

ENVIRONMENTAL REMEDIATION ACTIVITY COST

	Cost of materials /equipment	Personnel expenses (salaries)	Total cost
Cost to restore the natural environment back to its original state.			
Cost to cover degradation suits connected with environmental conservation.			
Provision or insurance to cover degradation to the environment.			
Total cost			