Journal of
Environment
(JE)

Environmental Policy and Solid waste management. A case of Lodwar Municipality, Turkana County, Kenya.

CARI Journals

Journal of Environment
ISSN 2789-3863 (Online)
Vol. 3, Issue No. 1, pp 55 - 76, 2023
www.carijournals.org

Environmental Policy and Solid waste management. A case of Lodwar Municipality, Turkana County, Kenya.

Logiel Lokwawi samson[1], Dr. Wilson Muna, PhD[2]

[1]School of doctoral studies, University of Yaounde, Cameroon.

PAU Institute for Governance, Humanities and Social Sciences,

samlologiel@gmail.com

[2]Department of public policy and Administration, Kenyatta university, Kenya

muna.wilson@ku.ac.ke

Accepted: 18th Mar 2023 Received in Revised Form: 29th March 2023 Published: 6th Apr 2023

Abstract

Purpose: The formulation of Environment Policy 2018 of Turkana County is based on the requirement by the (Constitution of Kenya; 2010 and the County Governments Act, 2013) which gives powers to the county government to formulate policies and enact laws. It is this provision that Turkana County sort to formulate policy to address the management of waste in Lodwar municipality and its environment. The purpose of this article was to determine the influence of the Environmental Policy on Solid waste management in a case of Lodwar Municipality, Turkana County, Kenya. The objectives of the study were; To establish impact of private-public partnership on sustainable waste management in Lodwar Municipality, Turkana County; To assess the impact of political good will on solid waste management in Lodwar Municipality, Turkana County; To determine adoption of emission-reducing technologies on solid management in Lodwar municipality, Turkana county and to assess the level of integration of environmental policy with socio-economic policies to boost solid waste management in Lodwar Municipality, Turkana County, Kenya.

Methodology: A cross-sectional descriptive study design was adopted to target residents of Lodwar town, management and municipal workers, traders, fisherfolks, county National Environment Management Authority officers and public health department officers at the county level. Furthermore, the descriptive research design was employed and utilized structured and semi structure questionnaires. Out of the population of 110 target groups the sample size used for the study was 33 as stated by Mugenda and Mugenda 2008 that when a population is below 10000 the sample size should be 10% or 30% of the target population hence 30% was ideal for the study. The quantitative and qualitative data were analyzed using frequencies, percentages, mean scores, and content thematic respectively.

Journal of Environment
ISSN 2789-3863 (Online)
Vol. 3, Issue No. 1, pp 55 - 76, 2023
www.carijournals.org

Findings: The findings of the study indicated that, there were no monitoring framework in place to determine the effectiveness of the policy, lack of awareness of existence of the policy amongst the municipality employees, lack of political good will and lack of waste regulating system.

Unique Contribution to Theory, Policy and Practice: In this regard, the study recommends the need for municipality to establish monitoring system to measure the effectiveness of the environmental policy in addressing the solid waste management issues; there was need of the county government to provide enough resources to support the strategies lied by the policies for environmental sustainability; The community members , municipality and county government staff need to be sensitized on the existence of the environmental policy; a legal framework ought to be developed to provide the regulatory and fiscal instruments needed to achieve Turkana environment policy objectives.

Keywords: *Solid waste, municipality, environment policy, integration*

1.0 INTRODUCTION.

Environmental policy usually is a commitment of an organization, institution or government to the rule of laws or by laws governing, special agreements, regulations, and any other policy mechanisms existing which have a great concerns to the environmental issues (Knill, 2012). These environmental issues typically includes air, water and land pollution, furthermore, waste natural resources, and ecosystem management, biodiversity maintenance, wildlife and endangered species, each to some degree has impacts well beyond national boundaries, often with global consequences if systems or structures are not properly governed (Erten, 2003; Mert, 2006).

Humanity and wild lives faces unprecedented environmental challenges in terms of the climate change, insecurity and urbanization by for the case of the Africa continent with projected growth of 400% by the end of this century, it is evidenced that it may likely face a huge environmental and societal challenges as results of lack of implementation of environmental policies to salvage the environment and habitants from extinct (Gerland, 2014).

Over the next century, Africa continent will replace Asia as the driver of global population increase drastically as the impact of climate change will be severe (Claire, 2019). An effort to reduce the overall pollution burden by the waste effluent to the ecosystem, most scholars have made recommendations geared toward integration of environmental and socioeconomic policies, to strengthen cooperation with the international community with a view to harmonize environmental conditions and policies throughout the region and to stimulate greater involvement of the public and environmental discussions and decision-making (Kates, 2005: 10), this will reduce the spillover effects across firms, industries and countries as well as trade (Sauvage, 2014). The increase in urban population in various cities coupled with economic growth and improved living standards this has resulted to the generation of enormous amounts of wastes effluents

already in cities in developing countries in Africa (Lichtenberger, 2020). According to (Requate, 2005) management of growing urban towns in terms of waste management requires availability of feasible modern innovations with support from private sectors to make it attractive for private investment (Bergquist, 2013; Jaffe, 2002; Stavins, 2003). But municipal solid waste, if not managed properly, produces negative externalities, and contributes to flooding and waterlogging during extreme climatic events such as excessive rainfall (Bharadwaj, 2020).

In the context of Kenya, the formulation of Environment Policy 2018 of Turkana County is based on the requirement by the (Constitution of Kenya; 2010 and the County Governments Act, 2013) which gives powers to the county government to formulate policies and enact laws. Poor sanitation is a common environmental issue in developing countries as compared to developed countries and the issue is not different from local communities Lodwar municipality, Kenya. Despite the municipality receiving funding from private sectors, Turkana County government and international communities but still experience challenges in managing solid waste that has poised risks to lives of people in Lodwar town. It is against this background that this study sought to assess Impact of Environmental Policy on waste management in Lodwar Municipality, Turkana County, Kenya.

1.2. Objectives of the study

General objectives

To assess the impact of environmental policy on solid waste management in Lodwar Municipality, Turkana County, Kenya.

Specific objectives

To establish impact of private-public partnership on sustainable waste management in Lodwar Municipality, Turkana County; To assess the impact of political good will on solid waste management in Lodwar Municipality, Turkana County; To determine adoption of emission-reducing technologies on solid management in Lodwar municipality, Turkana county and to assess the level of integration of environmental policy with socio-economic policies to boost solid waste management in Lodwar Municipality, Turkana County, Kenya.

Research Questions

How does private-public partnership impact on sustainable waste management in Lodwar Municipality, Turkana County? To what extend does political good will impact on solid waste management in Lodwar Municipality, Turkana County? How does adoption of emission-reducing technologies impact on solid management in Lodwar municipality, Turkana County? and to what extend does the integration of environmental policy with socio-economic policies boost solid waste management in Lodwar Municipality, Turkana County?

SIGNIFICANCE

This study intends to help the Government of Kenya, the Ministry of health and sanitation of Turkana County government and national, researchers, and Lodwar Municipality management and facilitators to assess the impact of environmental policy on solid waste management in Lodwar municipality in Turkana County. With such information, the officials will be able to minimize barriers to environmental policy implementation, thus reducing water, and air pollutants caused by poor management of solid waste affecting the health of people and its environments thus creating sustainable management, protection, and conservation of the environment. Furthermore, this study is going to be of great use to students who are going to do research in relation to this study and to the people that would like to do their community development projects.

STUDY JUSTIFICATION

Chapter 5 (Land and Environment) of the Constitution of Kenya in Part 2 (Environment and Natural Resources) places an onus on the State (and by extension on the county governments) 1 regarding the sustainable exploitation, utilization, management and conservation of the environment. Chapter 11 of the Constitution further establishes devolved governments (counties) and gives them powers to formulate policies and enact laws. It is on this backdrop the environmental policy is formulated to address the drivers to poor health, loss of lives and poor management of the municipality infrastructures in particular focus on the solid management.

Statement of the Problem

There exist 80% disposal sites in both rural and urban of Turkana Central not licensed by National environmental management authority (NEMA.EIA, 2017); the Wastes bins established by Turkana County Government are not properly maintained and inadequate in terms of the existing data of Turkana central population (KNBs report of 2019); There exist very few private enterprises that have ventured into the collection and disposal of solid wastes in towns and marketplaces. (Strategic plan of Lodwar municipality,2019-2014); In fishing selling centers and marketplaces fish mongers often carelessly dispose solid wastes and undersized fish together into market areas and along the lake shore, (Busienei, 2019); home and establishes have no installed septic tanks and therefore the wastes are released into the open channels and later drains into water bodies; There is no liquid waste management treatment area in Turkana Central (Gilbert, 2007); Weak administrative structure, personnel roles are not very clear in enforcement and implementation of existing bylaws and other regulations.

2.0: LITERATURE REVIEW

Modern environmental policy formulation, designs and movements can be traced back in 1960s, when there was a lot of confusion on how management of environment in terms of systems and structure can be done, but push from the 1962 publication of Silent Spring and the creation of Earth Day in 1970. President Richard Nixon created the concept of EPA, which in this case is

Environmental Protection Agency back in 1970 which provides provision and regulation on the pollutants discharged into the air, land and water. Moreover, the formation of the EPA by the United States led to the development of the strategy of the implementation of environmental policy in developing and underdeveloped nations across the globe.

Adoption of Environmental Action Programme in 1973 by European Union adopted led to comprehensive environmental policy as function of politics in European union member nations and created a greater awareness on the part of corporations in evaluating their environmental impact and developing policies of their own. It's as results of this action most of the universities across the globe begun offering the programs on the environmental education, policy and more so having graduate corporate and governance studies on environment to target executives.

The private and public partnership on implementation of the environmental policy in the worlds has been a key booster to the reduction of adverse causes of the climate change. For the case of the world bank (World bank, 2004), which has already initiated a global review of good practices in the field of environmental management in partnership with nations. Over a period of two years, the Bank will conduct a series of in-depth studies and consultations to ascertain good practices and to identify what the Bank 's stakeholders are looking for in the way of environmental management systems at the Bank. (IEG, 2010), this global review of good practices will focus on studying the environmental management systems of other multilateral, bilateral, and private sector banks; client countries; implementing agencies; and large private-sector corporations. The review, which will be deliberative, transparent, and highly consultative, involving a diversity of shareholders; private and public partners, is intended to form the basis for a comprehensive updating and, as appropriate, consolidation of the Bank's Safeguard Policies. Findings from this analytic work suggest that a World Bank sustainability policy could strengthen the effectiveness of the Bank's environmental approach. It would have three goals: (1) mitigating negative impacts; (2) enhancing positive impacts; and (3) strengthening World Bank clients 'capacity to carry out environmentally sustainable development in the absence of World Bank support. The focus would be on strengthening client capacity to address and prioritize environmental problems in a way that accounts for the concerns of stakeholders (including the most vulnerable groups), as well as to monitor and evaluate progress in overcoming the identified problems.

Becker (1983) showed in his submission during seminar workshop, politic play a crucial role in the implementation of the environmental policy, the interplay between the political streams and problem streams need to be mainstreamed for its success. In fact, it is not even the case that such political processes lead invariably to distorted, inefficient outcomes. Becker's analysis finds that competition among interest groups for political influence can have some important efficiency-enhancing properties. Moreover, some recent work on interest group politics pushes this further; in the Becker spirit, this work finds that such processes lead to political equilibria that can be economically efficient. Aidt (1998), for example, lays out an interesting model in which

competition among interest groups leads to an efficient internalization of detrimental externalities. In Aidt's model (which we shall examine in more detail later), government pursues its own goals, seeking a mixture of political contributions and social welfare.

So long as the interest groups represent the interests of their constituencies faithfully, their contributions induce public decisionmakers both to select efficient levels of externality-generating activities and to employ efficient regulatory instruments. Such models at least remind us that the outcomes from the political interplay of diverse interest groups need not be inherently distortionary, although fully efficient outcomes are admittedly special cases. It seems to us that approaches that explicitly recognize this interaction of different interest groups are the most promising for an understanding of environmental policy. The stage upon which the environmental policy process plays itself out is typically one in which environmental advocacy groups and potentially regulated parties (which can include corporations, other levels of government, and even individuals) push their cases, and where regulators may even bring to bear basic measures of social costs and benefits.

According to World Bank (2012), about 1.3 billion tonnes of waste is generated annually by urban settlers globally and this is expected to increase to 2.2 billion tonnes by 2025. Van de Klundert & Anschütz (2001) and UNEP (2009) agrees that waste management cannot be effectively managed without due consideration for issues such as the city's overall greenhouse gases emissions, labour market, land use planning, and myriad related concerns. (Kumar, 2017), estimated that the numbers would rise to nearly 2.2 billion by 2025. Nearly 235 million people are victims of breathing illness due inhalation of air with foul smell. (Budiman, 2004), Besides reducing energy consumption by understanding of energy-saving, one of the concepts is waste utilization in form of waste to energy concept where generated energy is in the form of heat or electricity from waste, Minutillo etal, (2009). In order to increase the efficiency of cleaning processes, they are several methods based on artificial intelligence, which effectively designed and implemented. The aim of an integration of 'Smart Cities' is the goal of each developed and developing country.

Waste management cuts across all socio-economic levels: household, neighbourhood, city, region and national. While at some level the most important level of waste management system is the city scale, but this does not necessarily mean that the system must be uniform. The 'dominant' system may not work in low-income areas or on hillsides, so that uniformity means these areas tend to be marginalized and receive little or no waste collection. In contrast to this, (van de Klundert &Anschütz, 2001).

Environmental policy integration is not only politically challenging, but also conceptually elastic and vague. It allows for various interpretations, which is reflected in the different understandings offered in the existing theoretical literature on environmental and sustainable development policy. As stated by Weale and Williams (1993:46) "there is in fact no canonical statement of what precisely it might involve and those concerned to advance the idea of integrated environmental

policy have typically had a range of rather disparate problems in mind". For a long time, environmental economists dominated the Environmental policy integration literature, and it was "considered to be synonymous with the application of economic instruments to other sectors" (Hey, 2002:128; see also European Eco Forum, 2003). In addition to disparate problem views, environmental policy integration can also stand for not only a general paradigm for contemporary environmental policy integration but also a much more specific and operational focus on mechanisms for environmental policy integration. Lafferty (2002:10) argues that very few "have addressed the nature of the concept distinct from its application in everyday policy discourses" (see also Hertin and Berkhout, 2003:40). Recent research thus emphasizes the need to conceptualize EPI, since it is by no means an uncontroversial public policy objective or process.

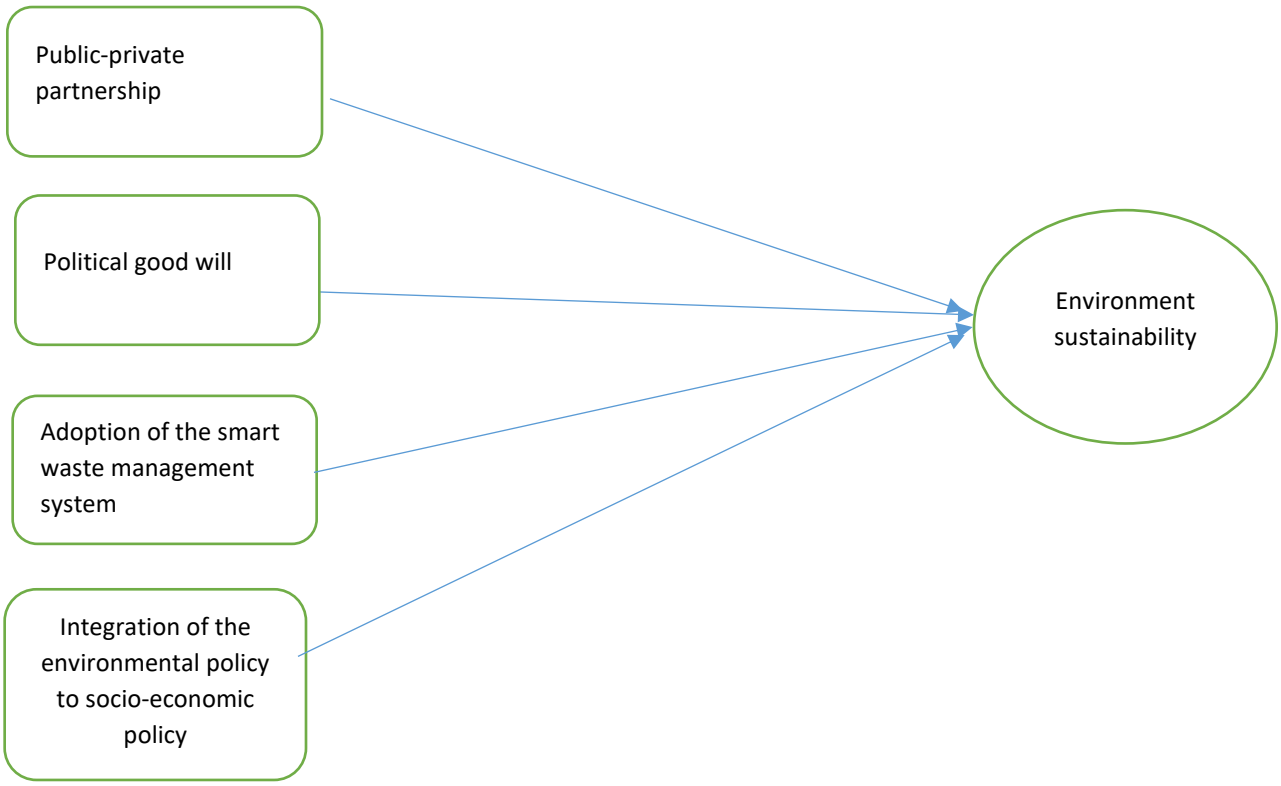
Eggenberger and Partidario (2000) view the coordination of different sector policies to achieve sustainable development as a major challenge for spatial planning. From this particular perspective on EPI they argue that "linking spatial planning with strategic environmental assessment (SEA) is being considered as a crucial condition for sound development, and an important opportunity to move 'sustainability' up the ladder of decision making" (p. 201). strategic environmental assessment is seen as an important tool for balancing economic and social considerations with environmental ones. They argue that as a 'systemic approach' it can help disaggregate key components of a planning system into parts that are individually analysed and then put together again with the objective to integrate. Although EPI at policy level is likely to pose different challenges and involve different factors than EPI at planning level, they make some observations and arguments of general relevance.

Nearly all the literature in this field emphasises the need for high-level political commitment to make EPI credible and an active aspiration, as opposed to a principle on paper (see for example Lenschow ,2002, Lafferty, 2002, OECD, 2002). This commitment should also involve clear and strong leadership on EPI issues, in order to maintain political momentum. She states that "administrations rarely engage in path-breaking change unless they encounter pressure from the outside (crisis) or "below"".

2.1. Theoretical Frameworks

This study will be guided by stakeholder theory which addresses morals and values in managing an organization. This theory was formulated by freeman in 1985 and made public by Thomas donalson in his publication in 1995 on stakeholder theory of the corporations with specific focus on the concepts, evidence, implications in the academy of management review with lee preston. Theory of Stakeholders looks on how relationships can be built in business or institutions to champions the achievement of the goals and this would help the business and institution to maximize on the profitability. Moreso, Institutional theory that views the organization as part of the larger social system in which it operates. Institutional theory by james Madison explores different means/mechanisms through which information about legitimate and socially accepted

organizational behavior can be transmitted and such behavior institutionalized in organizations. Theory framework used to help explain how political institutions shape policy outcome. It argues that the design of political institutions affects the incentives of those who participates in the political process and as results, influences the type of the policies that are produced. The two theories underpin the study by demonstrating the need to strengthening institutions systems and political backing to foster implementation of the environmental policy in Lodwar municipality to sustainability reduce adverse effects caused by the solid waste management to Lodwar and its environ.



Conceptual framework

3.0. Research methodology

3.1. Proposed Research Design.

A cross-sectional descriptive study design targeted resident of Lodwar town, management and municipal workers, traders, fisherfolks, county National Environment Management Authority officers and public health department officers at the county level.

3.2. Target Population, Sample and Sampling Procedures

The target population for the study was 110 and involved the community around Lodwar municipality with study sample selected as follows; resident of Lodwar town, management, traders, key informants (, county National Environment Management Authority officers and public health department officers), and fishermen while the sample size was 33 which was 30% of the target population according to Mugenda and Mugenda , (2008).Multilevel sampling procedures used quantitative and qualitative sample from different levels of the population in the study. The procedures utilized both probability sampling for quantitative data and non-probability sampling for qualitative data. Stratified sampling method was used to select resident of Lodwar town, traders, and fishermen/forks for semi structured questionnaires while purposive and snowball sampling technique was used to select the Key Informant for Interview guide questions.

3.3. Research Instruments

The researcher utilized structured and semi structure questionnaires. The data collected was quantitative in nature collected through one-on-one interview. Qualitative data collected from selected groups for Key informant interviews using Interview guide.

3.4. Validity and Reliability of Instruments results

Validity of this study was content evidence validity whereby the researcher designed the instrument, and the supervisor reviewed the instrument. The reliability of the results obtained from each instrument was determined using the split-half correlation coefficient.

3.5. Data Analysis Procedures

The data collected was aimed at addressing every research question in the study. The quantitative data was analyzed using frequencies, percentages, mean scores, and correlation coefficients. The multiple regression analysis was used to determine the relationship between the dependent variable and multiple (two or more) independent variables.

DATA ANALYSIS AND PRESENTATION

This section present data on the respondent profile and other data are for the objective related to the study which includes Political good will on policy implementation; Public -private partnership; and Adoption of the solid waste management system

Respondents' profile

AGE: From the findings it is evidenced that respondents of the age set between 26-35 which translate to 66.7% were largely interviewed in this survey followed by those underage group 46

and above (18.2%) and finally 18-25 (15.2%). This means that majority of the age set could easily comprehend and provide concrete data on the matter under investigation and are also at their youthful age.

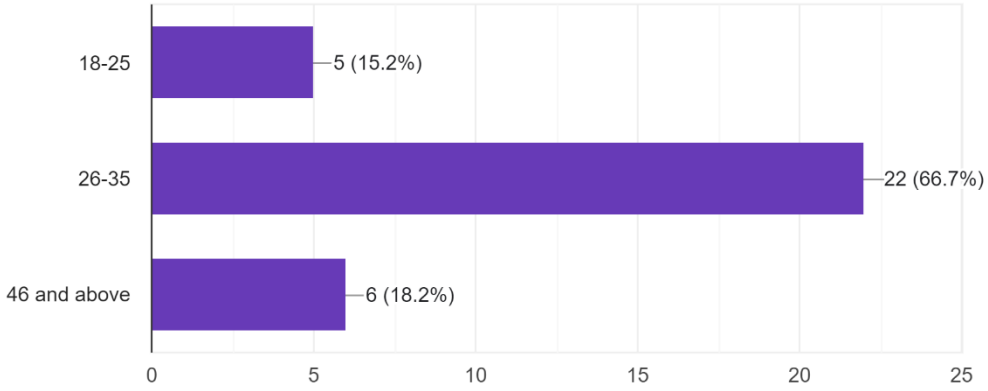


Figure: 1

Sex: According to the figure 2 below, the participation of women was low as opposed to men who were 78.8% in this study, and this clearly demonstrate that majority of the institutions have few women employed. It was also evidenced that majority of women in various institutions were not willing to be interviewed for the fear of lack of information or the institution reprimanding them.

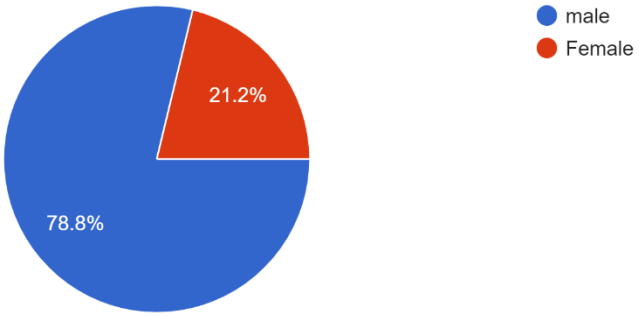


Figure 2

Employment: It was evidenced that majority of the interviewee were employed and earning their living through employment and those unemployed and not sure were few with average of 9.1 % as per the figure 3 below. The need to target this set of groups was basically to understand their knowledge and skills on issues related to policies and extend they would probably provide concrete

information on how other departments work and whether there was synergy within their programming.

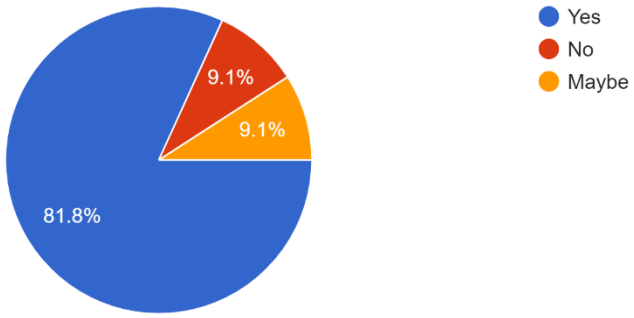


Figure 3

Institution of the interviewee: It was evidenced majority of the interview were from the county government directorate such as agriculture, county assembly, health, water and sanitation, National government i.e. Ministry of interior and co-ordination and other from NGO such as Mercy Corps, Turkana Bio aloe organization, Mary's meals, ACDIVOCA and USAIDCBCR. Their involvement in this study was key because they have programs or projects which are being implemented by NGO in partnership with the county government and to some extent, they have supported the county in the design, formulation, implementation and review of the policies and they were able to support in highlighting challenges affecting the policy implementation in Turkana County as seen below in figure 4.

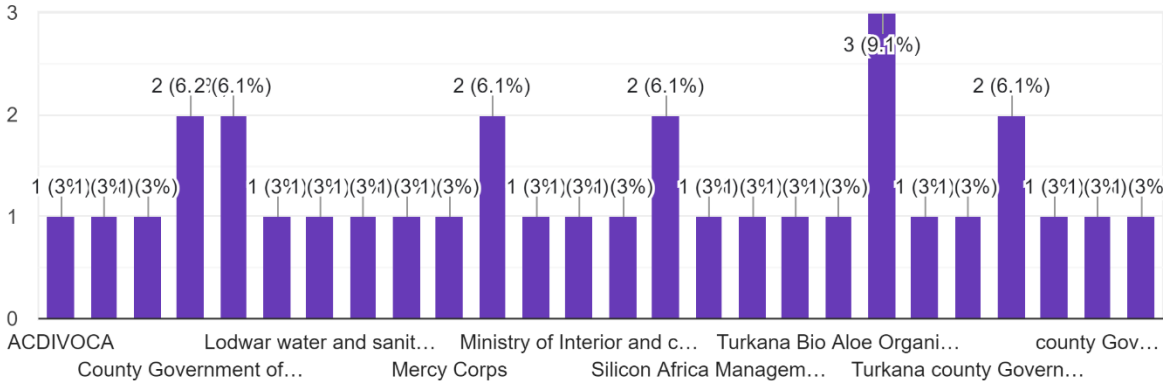


Figure 4

Period of services

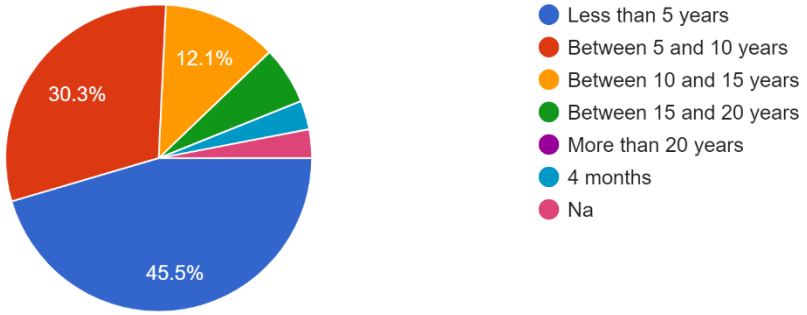


Figure 5

Respondents' years of service Data (figure 5) on the year of service in the various institution was important in order to understand their knowledge on existence of the public policy and how the effect of long years of service affects their productive .The study findings indicated that most of the interviewee had worked in those institutions for less than 5 years translating to 45.5%, 30.3 % of respondents have worked between 5 and 10 years, while 12.1 % worked between 15 to 20 years and negligible number worked for 4 months. This means that by virtue of being employed to serve in any capacity, the employee would always have knowledge of what is going on in the institutions in terms of policies design, formulation, implementation, and review. These findings implied that most of the staff had no information about most of the county policies. Most of the respondents who had worked for more than 5 years have been in the forefront in influencing the local government in designing policies which are aimed at the addressing multifaceted issues affecting the community such as malnutrition, poor hygiene, marginalization of groups , water scarcity , high drop of school going children , HIV pandemic and so forth but still the policies are in paper form. Moreover, for those who have worked in department of gender and social protection they have attributed that through partnership with the private sectors and local organization they have been able to formulate gender strategy papers which is now in place and have necessitated the design of the gender policies aimed to bridge the gender party gap that was being fueled by retrogressive Turkana culture which affects the relation between men and women at work or social space.

AREA OF INQUIRY 1: Political good will on policy implementation.

This area of inquiry was basically to understand the willingness of the political groups in the implementation of the environment policy and its influence on management of solid waste in Lodwar municipality.

Awareness of the Environment polity 2018: From the analysis in figure 6, it was evidenced that 63.3 % of the respondents knew about the existence of the policy in Lodwar municipality and some of them have interacted with the document and participated in the formulation, approval, implementation and monitoring and evaluation stages. Moreover 26.7% are not aware of the policy as some cited that they have never been told about the existence of the policy and what is aimed to address while 10% are not sure whether the policy exist as seen below.

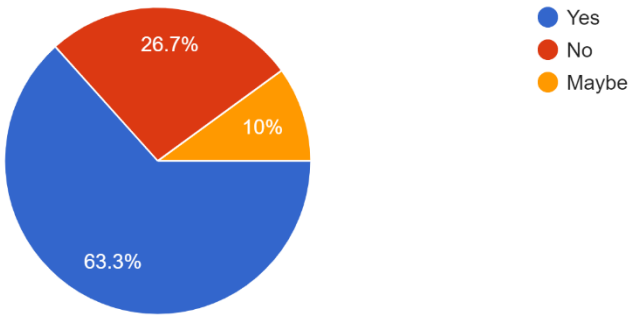


Figure 6

Committee existence: This was aimed at knowing other groups within the governing systems if they exist or not with a view to understanding their role in implementation of the environment policy. In this regard, it was evidenced that majority 36.7% of the responded mentioned that the municipality has a committee while 7% and 13% to some extend had no idea of their existence in supporting the implementation of the environment policy in addressing the cases of poor management of the solid wastes within the municipality and its environ as shown in the figure 7

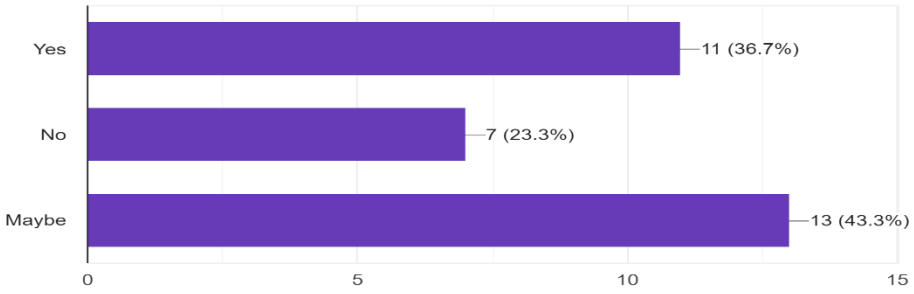


Figure 7

Committee identity: Majority of the respondents were not sure of the name of committee supporting the Lodwar municipality in achieving its goal but 6.7% mentioned that it is Lodwar

Journal of Environment
ISSN 2789-3863 (Online)
Vol. 3, Issue No. 1, pp 55 - 76, 2023
www.carijournals.org

municipality board and rest could not provide the name but believed that the Lodwar municipality has a committee as seen in figure 8

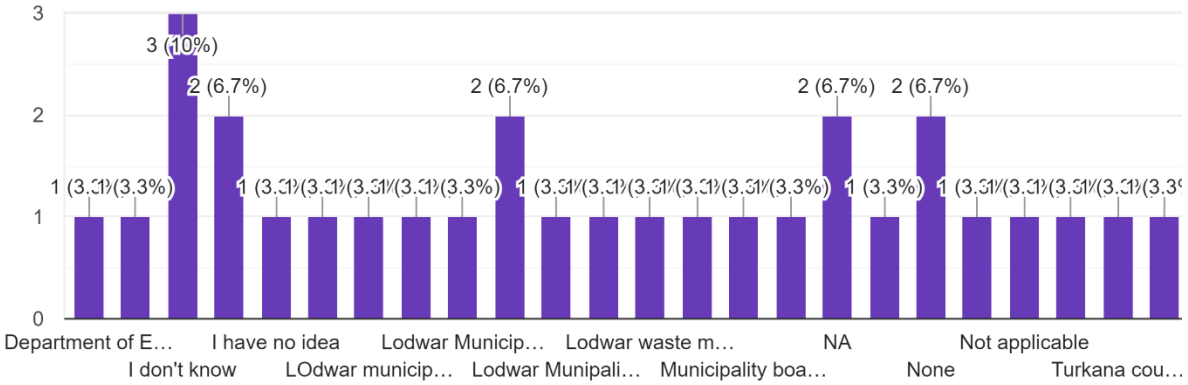


Figure 8

Frequency of the committee: The figure 9 below indicates that 8% of the respondents who knew the existence of the Lodwar municipality mentioned that they usually meet quarterly to pause and reflect in terms of challenges, successes, and areas of opportunities with particular focus on the management of the solid waste in Lodwar municipality and its environ and how they can collaborate with the private sectors for the sustainability of the municipality projects. While majority of the respondents 1% were not aware the time the committee meet to review on the Lodwar municipalities project.

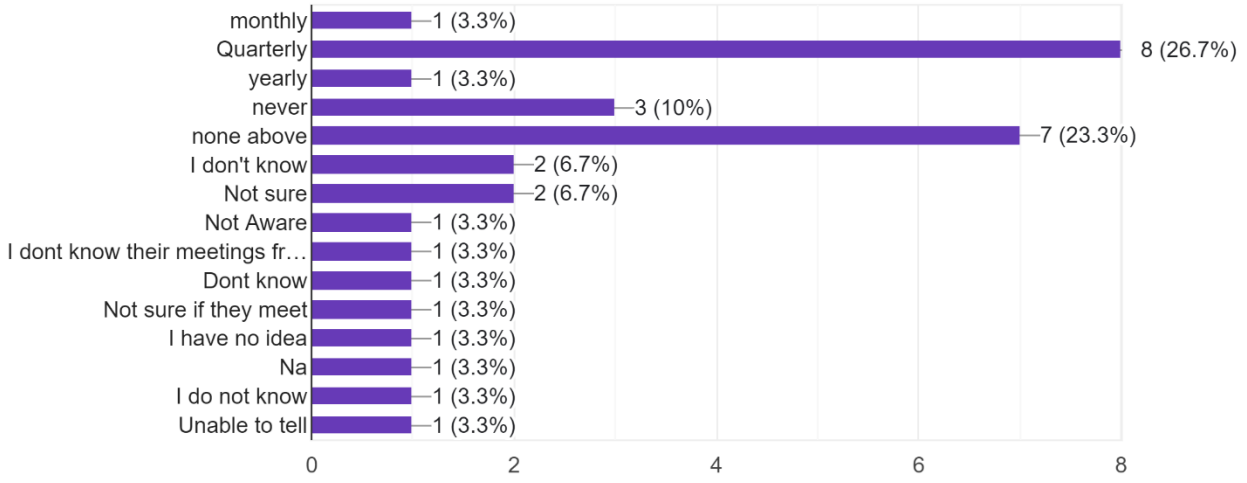


Figure 9

Political support: This section was aimed to understand whether politicians support the implementation of the environment policy in the Lodwar municipality or not. According to the research findings under figure 10 below, 26.7% of the respondents mentioned that the politicians have supported the policy while majority 46.7% maintains that politician do not support the implementation of the policy in Lodwar municipality with a view to addressing the challenges they experience in management of the solid wastes.

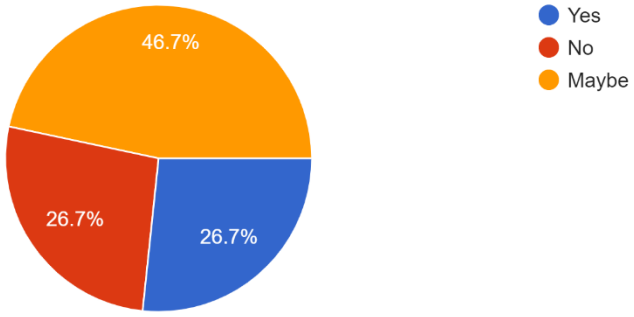


Figure 10

Political good will support: according to the figure 11 below it was evidenced that , the politicians have supported in establishment of a robust M & E system, participated in review of the policy ; have made strive to set structures in place to enhance public private partnership; advocated for the implementation of the policy through Dept of environment; Supporting public participation; They've budgeted to build a waste pit within the municipality; encouraged citizens to abide with the existing by-laws; Environmental Policy and Bill 2018 was tabled and discussed by the Local politicians (MCAs) through County Assembly and ascended by the Governor. Through Assembly, a budgetary allocation to facilitate implementation of the policy through the directorate of Environment was approved; and finally with their support a private company has been contracted to carry out waste management.

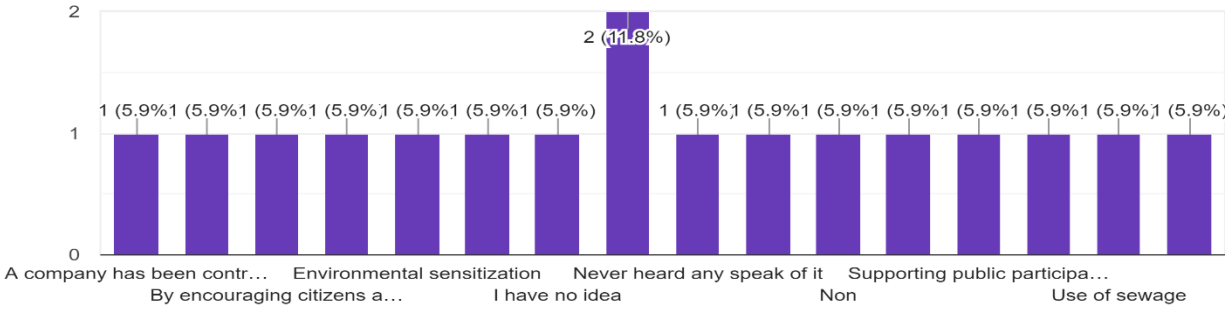


Figure 11

AREA OF INQUIRY 3: Private-public partnership

Awareness of existence of private sectors: Majority which translate 70% were not aware of the existence of mutual collaboration between municipality and private partners in achieving the set goals of the company. 3.3% of respondent had a clue of the existence of this partnership but are not sure whether it has impact in addressing challenges the municipality was experiencing in guest to addressing the solid waste management issues within Lodwar and its environment. 26.7% had a firsthand information of the existence of the partnership and hinted that reduction of waste hazard to the community in Lodwar and its environ was a result of the various interventions implemented by world bank through the municipality and they felt that more partners need to work closely with the municipality with a view to address factors which hinder the firm from executing its Mandate as shown below in figure 12

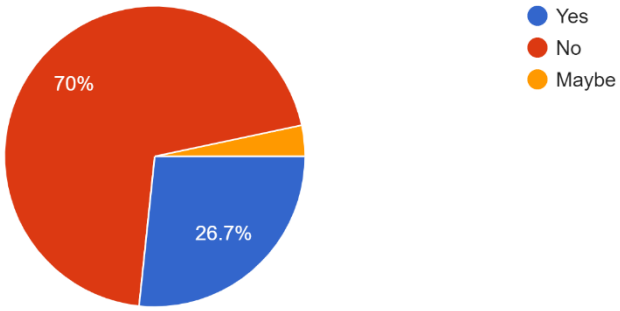


Figure 12

Private sectors: The responses were based the names of private sectors partnering with the municipality in achieving its goals of making Lodwar and its environment safer for human

habitation. Some of the private and public sectors identified were: Lowasco, KNNCI, KEFRI, NEEMA, Wetland , Lokado, Tupado,UNHCR, Equity , KCB, Ichobore and Cleaning company. The partners are supporting municipality through various streams such as supply of water, cleaning services, administration, infrastructure, policy development, garbage collection, technical support and knowledge management as per the figure 13 below,

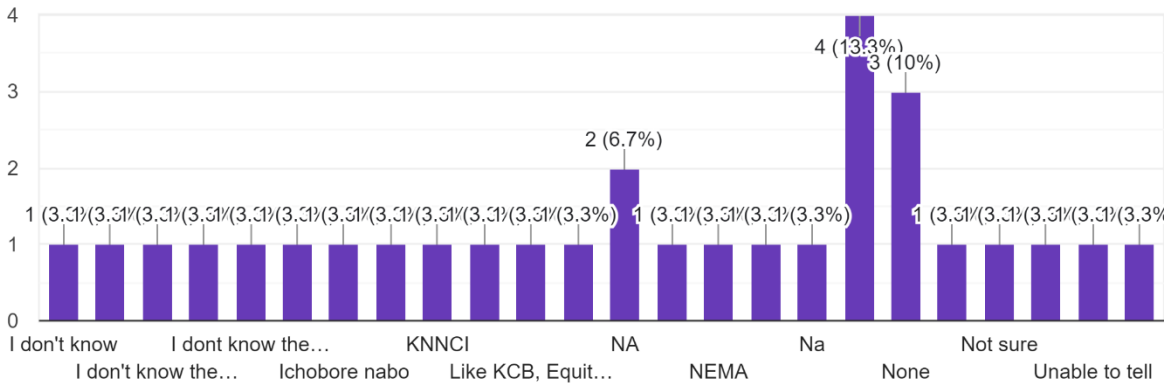


Figure 13

AREA OF INQUIRY 4: Adoption of the solid waste management system

It was evidence that 44.4 % of the respondents were not sure whether or not the municipality had adopted the waste management system because of the state of the waste disposal in Lodwar and believed that rampant cases of the outbreak of cholera, water borne diseases and death as result of chemicals effluent. 33.3% strongly believed of existence of the solid waste management system while 22.2% mentioned that there was no system in place to address problem of poor solid waste management and no sustainability plan for any system which will be brought to the firm as evidenced in figure 14 below.

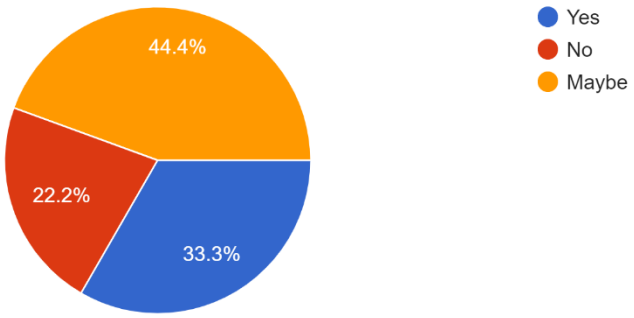


Figure 14

DISCUSION

Public Policy implémentation scholary has been described as one of the major problem facing majority of developing countries in the world. Egonmwan (2009) reiterated the Need for the developing countries to establish policy instruments for efficient and successful of implementation of public policy. Moreover, third world countries are experiencing a lot of difficulties in implementing policies because of poor goverance. This was evidenced in the study that majority répondent are not sure of the existence of the environmental policies neither are they aware of the instruments established by the municipalities to enhance its implementation. The key actors in this case were politician and community members and based on the research findings and in practice, numerous processes have been developed for exchange for county government programming and interaction between the political-administrative authorities have seen received resistance from both political divide and the target groups in the Municipality and the county government of Turkana. Thus, the target groups in this case the community members, traders, private investors, and policy actors tend to advocate for the need of having a more robust political groups to emerge as the privileged negotiating partners and think tanks of the public actors of a policy locally , regionally, and internationally. Supported by numerous special rules set by the local county government, this right at the disposal of municipality leadership ought to become an important asset at the disposal of target groups during the implementation game.

There is need for the county government of Turkana to support the municipality in establishing emission management plants for both solid and liquid effluent to reduce the effect of these waste endangering the lives of the community members. Increased infrastructure in the municipality of Lodwar with particular focus on the solid waste management plant can provide multiple benefits for green house gases mitigation, improved public health, conservation of water resources, and reduction of untreated discharges to surface water, groundwater, soils and riveraine zones. There are numerous mature technologies that can be implemented to improve solid waste collection, transport, re-use, recycling, treatment and residuals management. With respect to both waste and wastewater management for developing countries, key constraints on sustainable development include the local availability of capital as well as the selection of appropriate and truly sustainable technology in a particular setting.

Private-public partnership has boosted and leveraged the county and government support in Turkana County. Most private sectors have supported various projects which are aimed at improving resilience of the communities towards shocks and stresses. The world bank has been very instrumental in leveraging the work of the municipality in addressing the waste management and infrastructure establishment in Lodwar town and its environment. The world bank has pumped over 100 billions in establishment of the parking lots in Lodwar and solid waste effluent management firm. Moreso , IGAD , EU and USAID partners shifted their support in formulation

and implementation of the policies such as water act, environmental policy , climate change policies and more policies/act. These policies to some extend have helped the Lodwar municipality in streamlining its structure and operations and this has enabled it to achieve its set objectives.

Conclusion.

Policies implementations is a responsibility of everyone involved in the formulation, and its implement to take up the tasks and ensure its able to address the intended problem. More so systems and structure ought to be established to measure its effectiveness in addressing the problem the community, private sectors and government are facing to avert the calamity which might arise arbitrarily. In effect, the supporters of a bottom-up approach who in this case are the street level bureaucrats considers socio-political policies processes as the expression of the fact that the implementors and community members may inspire hope and different reactions and strategies based on the interests of the public and private actors involved. It is not always a question of unwillingness in the implementation of the policy by the municipality leaderships and key local actor, but what is the county and national government doing to support systems in addressing the gaps in the implementation of policies in their institutions.

This study recommends the need for municipality in the laying a monitoring system to measure the effectiveness of the environmental policy in addressing the solid waste management issues; there is need of the county government to provide enough resources to support the strategies lied by the policies for environmental sustainability; the community members , municipality and county government staff need to be sensitized on the existence of the environmental policy; a legal framework ought to be developed to provide the regulatory and fiscal instruments needed to achieve Turkana environment policy objectives.

References

Aidt, T.S. 1998. Political Internalization of Economic Externalities and Environmental Policy. Journal of Public Economics 69: 1–16.

Becker, G. 1983. A Theory of Competition among Pressure Groups for Political Influence. Quarterly Journal of Economics 98: 371–400.

Bergquist, A.-K., Söderholm, K., Kinneryd, H., Lindmark, M., Söderholm, P., 2013. Command and-control revisited: Environmental compliance and technological change in Swedish industry 1970–1990. Ecological Economics 85, 6-19.

Bharadwaj B, Rai RK, Nepal M. Sustainable financing for municipal solid waste management in Nepal. PLOS ONE. 2020 Aug 20;15(8):e0231933. doi: 10.1371/ journal. pone.0231933, PMID 32818952

Budiman, A, Ishida, M. A new method for disclosing internal phenomena in a distillation column by use of material-utilization diagram. Energy 2004; 29 (12-15 Spec Iss.): 2213-2223.

Busienei, etal. (2019). Open defecation practices in Lodwar-Kenya. A mixed-methods Research.

Claire A.(2019) .The National Science Foundation is also a co-author of this work. She would like to clarify that contents of this publication are solely those of the authors and do not necessarily represent official views of the foundation.

Eggenberger, M. and Partidario, M. (2000). "Development of a framework to assist the integration of environmental, social and economic issues in spatial planning" in Impact Assessment and Project Appraisal 18(3): 201-207.

Egonmwan, J.A. (2009). Public Policy Analysis, Concepts and Application: Resyin Nig, Company Benin City.

Gerland et al. 2014. World population stabilization unlikely this century. Science 346, 234-237. DOI:10.1126/science.1257469.

Gilbert, etal. (2007). Environmental pollution and Waste management: A case study of Ten Towns in Kenya.

Gutierrez, J.M., Jensen, M., Henius, M., Riaz, T.: Smart waste collection system based on location intelligence. Procedia Comput. Sci. (2015). https://doi.org/10.1016/j.procs.2015.09. 170.

Hertin, J. and F. Berkhout (2003). "Analysing institutional strategies for environmental policy integration: the case of EU enterprise policy" in Journal of Environmental Policy and Planning 5(1): 39-56.

Hey, C. (2002). "Why does environmental policy integration fail? The case of environmental taxation for heavy goods vehicles". Environmental policy integration: Greening sectoral policies in Europe. A. Lenschow. London: Earthscan

Jaffe, A.B., Newell, R.G., Stavins, R.N., 2002. Environmental Policy and Technological Change. Environmental and Resource Economics 22 41-69

Kates Robert W, Thomas M, Parris A, Leiserowitz A (2005), "What is Sustainable Development?", Environment, pp. 3-47.

Knill, C. and Liefferink, D. (2012) The establishment of EU environmental policy. In: Jordan, A.J. and C. Adelle (ed.) Environmental Policy in the European Union: Contexts, Actors and Policy Dynamics (3e). Earthscan: London and Sterling, VA.

Kumar, N.S., Vuayalakshmi, B., Prarthana, R.J., Shankar, A.: IOT based smart garbage alert system using Arduino UNO. In: IEEE Region 10 Annual International Conference, Proceedings/TENCON (2017). https://doi.org/10.1109/TENCON.2016.7848162

Lichtenberger , G and June, Sekera, 2020. "Assessing Carbon Capture: Public Policy, Science, and Societal Need," Biophysical Economics and Resource Quality, Springer, vol. 5(3), pages 1-28, September

Luttenberger LR,(2020). Waste management challenges in transition to circular economy – case of Croatia. J Cleaner Prod. 2020 May 20;256. doi: 10.1016/j. jclepro.2020.120495, PMID 120495.

Lafferty, W. (2002). Adapting government practice to the goals of sustainable development. Improving Governance for Sustainable Development. OECD Seminar 22-23 November 2001, Paris: OECD.

Ministry of environment and natural resources 2016 report on Kenya strategic investment framework for sustainable land management 2017-2027 .

Minutillo M, Perna A, Di Bona D. Modelling and performance analysis of an integrated plasma gasification combined cycle (IPGCC) power plant. Energ Convers Manag 2009; 50: 2837 – 2842.

NEMA. EIA, (2017). The proposed hazardous waste treatment and transfer station in Kangpetei area of Lokori , Turkana East constituency.

Requate, T., 2005. Dynamic incentives by environmental policy instruments—a survey. Ecological Economics 54, 175-195.

Sauvage, J. (2014), "The Stringency of Environmental Regulations and Trade in Environmental Goods and Services", OECD Trade and Environment Working Papers, No. 2014/03, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jxrjn7xsnmq-en.

Tavins, R.N., 2003. Experiences with market-based environmental policy instruments, in: Mäler, K.-G., Vincent, J. (Eds.), The Handbook of Environmental Economics. NorthHolland/Elsevier Science Amsterdam.

The 2010 IEG Evaluation of safeguards examines for the first time the safeguard and sustainability policies used in the World Bank Group (WBG) — including the World Bank, the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA). See IEG 2010.

Van de Klundert, A., & Anschütz, J. (2001). Integrated Sustainable Waste Management- the Concept. Tools for Decision-makers. Experiences from the Urban Waste Expertise Programme (1995-2001). Gouda, Netherlands: WASTE.

Vergara, S. E., and Tchobanoglous, G. (2012). Municipal Solid Waste and the Environment: Consideration of Emission Ratios in Sustainable/Integrated Municipal Solid Waste Management Planning, (6873) Macbeda Uche Michael-Agwuoke (New Zealand) FIG Congress 2014 Engaging the Challenges - Enhancing the Relevance Kuala Lumpur, Malaysia 16 – 21 June 2014 23/24 A Global

Perspective. Annu. Rev. Environ. Resour, 2012(37), 277-309. doi:10.1146/annurev-environ-050511-122532.

Weale, A. and Williams, A. (1993). "Between Economy and Ecology? The Single Market and the Integration of Environmental Policy". A Green Dimension for the European Community: Political Issues and Processes. D. Judge. London: Frank Cass.

World Bank. (2012). What a Waste: A Global Review of Solid Waste Management. Washington, DC. Retrieved from.