EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

Effectiveness of Environmental Policies on Environment Conservation in Samburu County, Kenya

[1*]Loong'onyo Mangistu Peter
Department of public policy and administration, Kenyatta University

[2]Dr. Patrick Mbataru
Department of public policy and administration, Kenyatta University

Corresponding E-mail: mangistupeter@gmail.com

How to cite this article: Peter, L. M., & Mbataru, P. (2023). Effectiveness of Environmental Policies on Environment Conservation in Samburu County, Kenya. ***Journal of Public Policy and Governance, 3*****(1), 1-14.**

Abstract

Human-wildlife conflict and drought arising from degradation are some of the environmental challenges that have been plaguing Samburu. These challenges have been occurring amid conservation policies facilitated by NEMA to protect the environment in the region besides other parts of Kenya. Whether environmental policies can avert environmental challenges depends on the degree to which they are implemented and the effectiveness thereof. The purpose of this study was to assess the effectiveness of environmental management policies implemented by NEMA in Samburu County. This study was conducted using a descriptive research design anchored on a quantitative research approach. Non-probability sampling was used to target 94 participants who included key informants such as NEMA officers, lead experts, area chiefs, and community members. Data was collected through semi-structured questionnaires and later analyzed using measures of dispersion, frequency distribution, correlation analysis, and chi-square analysis. The study observed increased awareness about environmental protection in Samburu County mainly from community elders and administrative officers. This study observed that there was a significantly high number of human-animal conflicts in the region, with the average adult experiencing up to ten incidents with wild animals in the year preceding this research. Moreover, flooding affected a majority of the respondents sometimes when there was rain. The study found that households in Samburu County were likely to cut trees for fuel without regard for the effect on the environment. There is a need for a policy that empowers NEMA towards enforcement of environmental affairs in a manner equivalent to the enforcement of other security policies. This study recommends a review of the enforcement of environmental policies beyond EIA activities.

Keywords: *Environmental policies, environment conservation, human-animal conflict, afforestation, flooding*

1.0 Introduction

Environmental policy and conservation have become important subjects owing to the increased pressure on the environment mainly through pollution and deforestation and the cost resulting from negligence (Tiba & Omri, 2017). The implication of this pressure has been a stretch on nature's ability to provide (Soyapi, 2019). Environmental degradation has a high financial toll on the world economy, resulting in over $4.6 trillion in welfare costs per year -equivalent to 6.2% of the world's economic output. Over nine million premature deaths in 2015 (16% of all global deaths) were attributable to diseases related to soil, air, and water pollution (Landrigan, et al., 2017). This figure means that pollution killed three times more people than the three leading diseases (AIDS, tuberculosis, and malaria) combined and 15 times more than violence-related deaths during the year. These effects have led to even more efforts to embed environmental policies in the national development agenda across the world. Europe is equally characterized by episodes of environmental degradation. The continent has been experiencing episodes of air and noise pollution emanating from climate change-related phenomena such as heatwaves and exposure to dangerous chemicals.

Africa has been one of the areas where the environment has been persistently abused for decades on end (Sarkodie, 2018). The continent is characterized by a high population growth rate, which has raised the pressure on its land's carrying capacity (Sarkodie, 2018). According to the Food and Agriculture Organization of the United Nations (FAO), virtually all inhabited parts of Africa are prone to environmental degradation in different forms (Food and Agriculture Organization, 2015). Some parts of the continent are marred with environmental degradation which has seen a surge in deforestation and dire implications for the food security of the continent (Food and Agriculture Organization, 2015). Africa is estimated to be losing five million hectares of tropical rainforest area annually, with land degradation affecting about 230 million hectares per year. The rate of reliance on trees for fuelwood consumption in a region like Sub-Saharan Africa is more than double the rate at which the environment can sustain growth (Olanipekun et al., 2019). Environmental degradation for a continent that is overly dependent on agriculture signals challenges for the continent in the future (Olanipekun, Olasehinde- Williams, & Alao, 2019). Forty-seven percent of the arable land in Africa is considered too dry for rain-reliant agriculture in addition to the fertility limitations facing about 16 percent of all arable lands in the continent (Food and Agriculture Organization, 2015).

Environmental degradation has been a threat to people's livelihoods in Kenya because of their dependence on land produce for their survival (Barczewski, 2013). The intricacies of environmental degradation in Kenya do not significantly vary from those of the larger African continent. Recent students suggest that more than 12 million Kenyans live on degraded lands, especially in rural areas where dependence on natural resources is higher than in urban areas (Mulinge, et al., 2016). This occurrence happens at a time when the country has had steady population growth, putting more pressure on the limited natural resource (Mulinge, et al., 2016). Poorly productive land coupled with a high number of dependents means that people seek more land resources to increase productivity.

Samburu County is one of the regions that are considered poor than most of the counties in Kenya (Straight, Lane, Hilton, & Letua, 2016). The county's poverty level based on the 2019 report by the World Bank stood at 60%, relatively higher than the national average level of poverty. The economic challenges in the county coupled with social-cultural aspects of the county have made Samburu vulnerable to environmental challenges (Kock & Prost, 2017). For instance, the Samburu people are overly reliant on trees for fuel, which has contributed to deforestation (Straight, Lane, Hilton, & Letua, 2016). This dependence makes the stability of

the environment a vital concern for the community as the source of their livelihood. To that effect, the county is an ideal case study for examining the effectiveness of the environmental policy in Kenya.

Samburu County has a total of 3,250 km2 of gazette forests translating to a 15.4 percent forest cover against NEMA's 10% national target (NEMA, 2013). One of the flagship conservation activities by NEMA in Samburu County has been its effort to conserve and protect endangered plant species, notably Podo and Cedar (World Health Organization, 2015). Despite this, Samburu County continues to experience a host of environmental degradation activities that continue to threaten its environment, from soil to vegetation (NEMA, 2020). Economic activities such as charcoal burning and lumbering focused on indigenous tree species such as Acacia have continued to present a stream of environmental challenges in the area (World Health Organization, 2015). Samburu County has also been experiencing a catalyzed urbanization empowered by the recent decentralization of power to county governments. The county has continued to see a rise in deforestation to create land for economic activities and building.

1.1 Problem Statement

Environmental challenges such as degradation-induced drought and human-wildlife conflict continue to plague the county amid NEMA policies that were aimed to protect the environment. The survival of endangered plant species such as Cedar and Podo has been on the line for a long period. Human activities such as charcoal burning and lumbering have resulted in a significant decline of indigenous plant species such as Acacia. Continued deforestation for fuel and urbanization in the county further worsen the situation for the forest cover in the region. However, scarce empirical research or literature has been published to explore the degree of effectiveness of environmental policies to inform future policy developments for environmental protection. A poor state of the environment in the County not only threatens the survival of the community through food insecurity but also prolongs the endemic human-wildlife conflict to the disfavor of the animals. Subverting such an environmental menace requires understanding the level of effectiveness of the environmental policy by NEMA in Samburu County and related concerns. Empirical research from other countries concedes that environmental policies have no rule of thumb concerning their ability to meet intended objectives (Shamaileh, 2015). In some cases, the policies can have negative externalities that ought to be managed for effectiveness in environmental conservation, and in others, a poor implementation may erode the potential intended from the policies. Therefore, there is a need to specifically examine policy implementation effectiveness in Samburu for enhanced implementation of policies.

1.2 Research Objectives

i. To examine the effectiveness of environmental management policy on the human-animal conflict in Samburu County.

ii. To assess the effectiveness of environmental management policy on afforestation in Samburu County.

iii. To examine the effectiveness of environmental management policy on flooding in Samburu County.

2.0 Literature Review

2.1 Theoretical Review

The study was anchored on the Institutional theory of environmental management. One of the most influential lines of scholarship in organizational studies is the institutionalism theory (Lengarpatei, 2021). The theory suggests that sociocultural prescriptions affect how organizations act in each region (DiMaggio & Powell, 1983). In pursuit of legitimacy, organizations subject to similar types of stresses appear to adapt, adopting similar practices and systems (Suchman, 1995). Because institutional constraints define each sector based on its regulatory, political, and social components, adaptation to institutional pressures results in institutional "isomorphism" within a particular sector (Meyer & Rowan, 1977). In EMS research, the importance of the institutional mechanism formed by coercive, normative, and mimetic forces in understanding the spread of voluntary environmental management techniques has been stressed.

The study was also supported by Diffusion of innovations theory (Rogers, 1962). The underlying idea of the theory is that initiatives and innovation are adopted progressively. This theory has been used to examine the adoption of environmental policies around the world. Zhu et al. (2012) investigated the adoption rate of ISO 14001 in China to test the DOI theory assumptions in environmental management activities. The authors find no statistically relevant proof of the role of instant adoption in the adoption of ISO 14001. They do, however, demonstrate that the imitation mechanism is important in the adoption of ISO 14001. Marimon et al. (2006) discovered evidence of the S-shaped ISO 14001 adoption curve worldwide and forecasted the saturation point of ISO 14001 by focusing on endogenous factors but ignoring exogenous factors that can affect the imitation process in late adopters when it comes to EMS diffusion patterns.

There has been an increasing interest in environmental conservation studies in recent years, informing this research's academic foundation. Several studies have been conducted around the world to ensure that the effort toward environmental protection is effective. Ainsworth et al. (2016) researched to evaluate the effectiveness of an environmental legal framework in the Great Barrier Reef (GBR) of Australia. The study set out to establish if the laws put in place to protect the reef were meeting their goals to safeguard human life from the environmental threats of the reef. The study was guided by the policy analysis theory anchored on a descriptive research design and a qualitative research approach. Data for the study was collected through literature surveys and case studies and analyzed through thematic content analysis.

Ainsworth et al. (2016) found that the legal framework had a small influence due to the lack of a conceptual and analytical framework for analyzing the outcomes of environmental legislation. The report also said that, while there are many beneficial aspects of the reaction to pressures on the Great Barrier Reef (GBR), the existing environmental law system is ineffective in preventing climate change from inflicting significant harm to the GBR. Based on current technology and greenhouse gas emissions, the effects of climate change have overshadowed the positive parts of the legal structure that protects the GBR. Carbon dioxide concentrations in the atmosphere were roughly 379 parts per million ("ppm") in 2005, rising by two ppm each year. The study is important to this research as it demonstrates the rarity of research on the effectiveness of environmental laws and policies around the world.

Shamaileh (2015) researched to evaluate the effectiveness of Jordan’s environmental policy. The study reviewed the environmental laws, measures, and processes put in place to safeguard the environment in Jordan. The evaluation included the banning and restriction of activities

that yielded significant negative externalities on the environment in Jordan. Data for the study was collected through questionnaires that were provided to key informants in addition to secondary sources such as media and non-governmental organizations. The study found that the policy was effective where the command-and-control approach was used to enforce the policy and ineffective where price-based and rights-based approaches were used. The study is an indication that the ineffectiveness of environmental policy does not come off the bat but is rather dependent on the implementation approach adopted.

Rwakakamba (2011) conducted peer-reviewed research to examine the effectiveness of environmental policies in Uganda. The study sought to establish whether the environment put in place in Uganda was doing enough to safeguard the lives of Ugandans owing to their inherent dependence on the environment. The study was focused on water resources in different districts of Uganda where it sought to explore the restoration and conservation of the catchment areas. The study utilized both qualitative and quantitative research methods anchored on a cross-sectional research design. The study concluded that there were glaring disparities between the formulated laws and the actualities of the implementation of the laws on hand. The study concluded that despite the existence of those laws, Ugandans were consistently facing threats of water challenges owing to poor implementation of environmental laws.

Barczewski (2013) performed research to examine the effectiveness of environmental policies in Kenya. Analysis suggests that the study is the most comprehensive analysis of the plight of environmental laws in Kenya. The study sought to examine the extent to which environmental legislation and policies had achieved their goals in the country. The study found that the regulations were lacking in that the existing regulations were not comprehensive enough to protect all aspects of ecosystems, waste management, and regular environmental assessment. The study further noted that the implementation of the regulations also faced hurdles, which threatened the ability of NEMA to meet its objectives. Notable, however, is that the study was conducted in 2013, a year before the actualization of devolution. As such, the study fails to take into consideration efforts and strategic plans that county governments and NEMA have put in place thereafter including NEMA (2013) and Samburu County Government (2018). Using the study to respond to the underlying research question may be inadequate and inaccurate when factoring in time, which necessitates the conduct of research with updated observations.

3.0 Methodology

This study was conducted using a descriptive research design anchored on a quantitative research approach. The study was based on the three constituencies of Samburu County namely Samburu East, Samburu North, and Samburu West. Non-probability sampling was used to target 94 participants who included key informants such as NEMA officers, lead experts, area chiefs, and community members. Data was collected through semi-structured questionnaires and later analyzed using measures of dispersion, frequency distribution, correlation analysis, and chi-square analysis.

4.0 Results and Discussion

4.1 Attitudes Towards Environmental Management

The research found it imperative to examine the attitude of the respondents towards the management and conservation of the environment. Part of the survey inquired the respondents about their attitudes toward environmental protection regarding prioritization. An overwhelming majority of the respondents (93%) noted that protecting the environment was a

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

priority in their lives as shown in Figure 1. Only 7% of the respondent noted that environmental protection was not a priority.

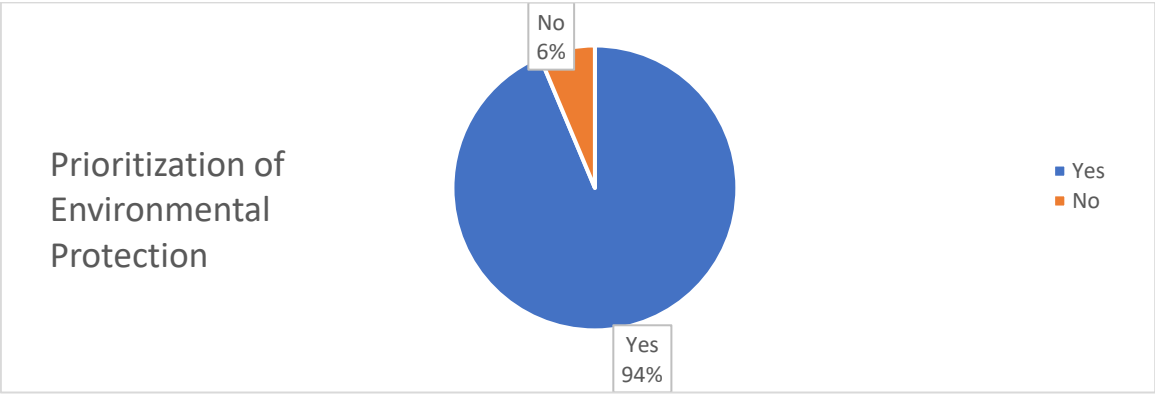

Figure 1: Respondents on whether environmental protection is their priority

The extent to which households prioritize environmental protection is attributable to whether they are aware of its benefits (Almulhim, 2022). This rationale formed the basis of the researcher's assessment of the frequency at which the respondents received or encountered prompts concerning the conservation and protection of the environment. This inquiry was aimed at assessing the level of public awareness concerning the protection of the environment. The author also inquired about the source of environmental message.

Table 1: Public awareness about environmental protection

	Responses	**Frequency**	**Percentage**
Prompts about protecting the environment	All of the time	13	16.5%
	Most of the time	5	6.3%
	Sometimes	37	46.8%
	Rarely	12	15.2%
	Never	12	15.2%
	Total	79	100.0%
Source of Environment Protection Message	Elders	18	35.3%
	Administrative Officers	17	33.3%
	Religious Leaders	2	3.9%
	County Leaders	9	17.6%
	NEMA Officials	5	9.8%
	Total	51	100.0%
Most recent prompt about environmental conservation	Less than a month ago	6	11.8%
	1 to 3 Months Ago	21	41.2%
	About 6 Months Ago	17	33.3%
	More than a Year Ago	7	13.7%
	Total	51	100.0%

On average, most of the respondents received prompts concerning the protection and conservation of the environment. Some received these prompts sometimes (36.7%) or all of the time (15.5%). However, a significant number of respondents rarely (15.2%) or had never been prompted to conserve the environment. The respondents were mostly prompted about the environment by administrative officers (33.3%) and village elders (35.3%) than they were by

NEMA officials. Slightly above 41% of the respondent were prompted to conserve the environment 1-3 months before they participated in the survey while 33.3% received such prompts almost six months prior. This observation denotes poor awareness concerning environmental protection among people in Samburu.

4.2 Human-Animal Conflict

The study sought to explore the influence of the implementation of the NEMA environmental policies on cases of human-animal conflict. The author first examined the individual experiences of incidences of human-animal conflict in the region. The researcher also examined the frequency at which human-animal conflicts occurred, trends of these conflicts, and the associated losses. The observations made concerning this inquiry are presented in Table 2 and other subsequent tables and figures.

Table 2: Human-animal conflict incidences

	Parameters	**Frequency**	**Percentage**
Number of incidents experienced in the past year	Never experienced	11	13.9%
	Less than 5 incidents	21	26.6%
	5 - 10 Incidents	31	39.2%
	11 - 15 Incidents	14	17.7%
	Over 15 Incidents	2	2.5%
	Total	**79**	100.0%
Loss or Damage to Property or Loved One	Yes, I have	27	34.2%
	No, I have never	21	26.6%
	I cannot remember	31	39.2%
	Total	79	100.0%

Most of the respondents (39.2%) indicated 5 – 10 incidences with wild animals, followed by 26.6% of the respondents who recounted less than five experiences. Only 13.9% of the respondents indicated that they had never experienced a conflict with a wild animal. Some 34.2% of the respondents noted that they had either experienced property damage or lost a loved one in the past because of human-animal conflict.

Most of these incidences could be attributed to the encroachment of animal habitats as opposed to animals leaving their habitat towards human settlements. Some 67.2% of the respondents indicated in their experience, human-animal conflict occurred when an individual wandered into animal habitat. Slightly more than half of that proportion experienced the conflict when an animal wandered into human settlement areas.

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

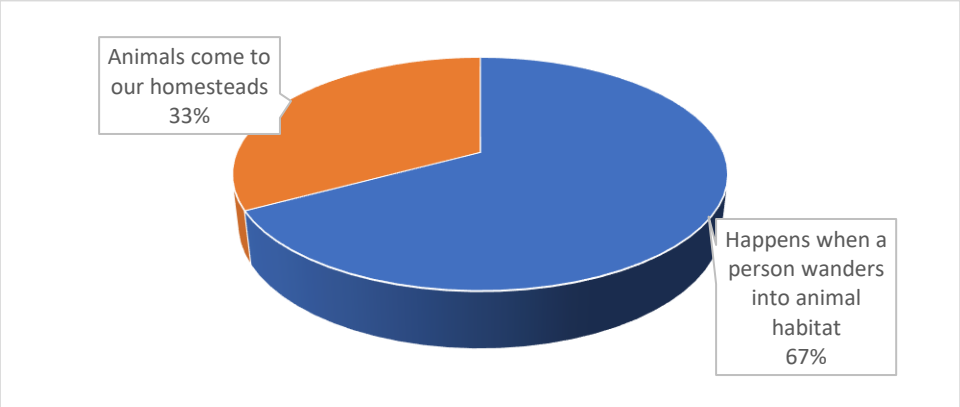

Figure 2: Mechanism of human-animal conflict

The frequency at which incidences of animal-human conflict occur was examined. The aim was to guide the researcher on whether the incidents were rampant based on the experience of the respondents. The researcher also surveyed the beliefs of the respondents concerning the trend of these incidents. This assessment aimed to determine whether they were increasing or decreasing based on the respondents' experiences. The outcome of these surveys is presented in Figure 3.

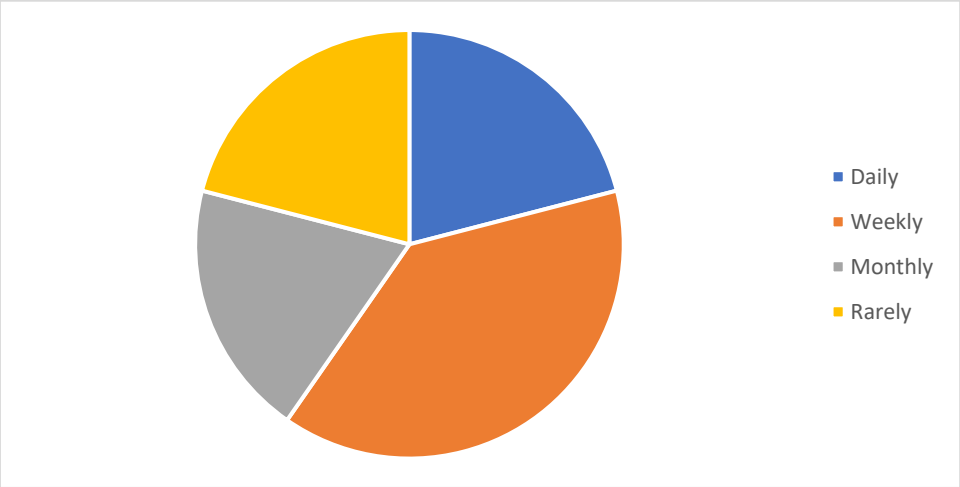

Figure 3: Frequency of human-animal conflicts

According to Treves (2009), the primary driver for human-animal conflict in protected areas is the pursuit of pastures or livelihood in the case of households. The encroachment of either animals or humans into the other's territories is primarily motivated by the search for food. The significant number of cases of these conflicts and the frequencies thereof could be attributed to encroachment motivated by a search for food by animals and pasture by humans in the region.

The last inquiry about human-animal conflicts was whether the respondents believed in peaceful co-existence with animals. One of the factors that influence the frequency and incidences of human-animal conflict is the belief of the community concerning peaceful coexistence with animals (Treves, 2009). When humans feel threatened by animals, or they view them from a negative angle, they were likely to attack them (Treves, 2009). The researcher examined the attitude of the respondents concerning this to determine whether their attitude could explain the frequency of human-animal conflicts.

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

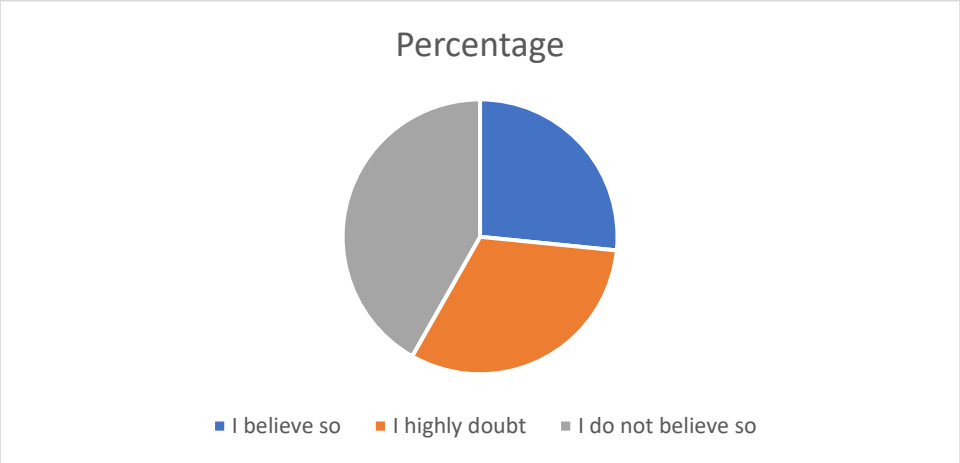

Figure 4: Attitude about peaceful co-existence with animals

4.3 Flooding

Slight above 54% of the respondents noted flooding problems in their localities compared to 45% of the respondents who did not experience flooding in their localities as shown in Figure 5 below. This observation was consistent with Boruru et al. (2011) who underscore the emerging trend of intermittent trends in Samburu because of climate change.

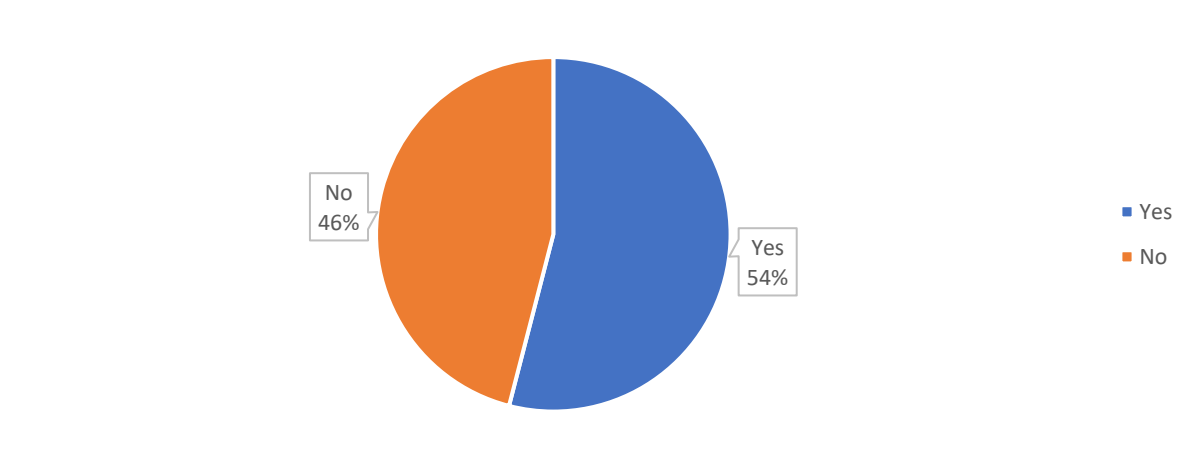

Figure 5: Flooding experience

The author further probed the experiences of the respondents concerning flooding occurrences in the region. The researcher wanted to understand the individual experiences of the respondents with floods. Slightly above 72% of the respondents indicated that flooding occurred unpredictably although 12.7% of the respondents reported that flooding occurred every time there was rain. Some 60.8% of the respondents recounted at least one account of experiencing floods showed in Table 3. This experience resulted in livestock loss for 73.4% of the respondents and the loss of a loved one for 11.4% of the respondents. Some 8.9% of the respondents recounted being displaced from their homes because of floods. For 6.3% of the respondents, their experience with floods was from third parties as opposed to personal experience. These experiences could explain why 13.9% of the respondents indicated *extreme worry* about floods while 65.8% were *a little worried* about flooding events. The differences in flooding experiences between the respondents could be attributed to the geographical differences between the target respondents.

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

Table 3: Respondents' experience with floods

		Percentage	Frequency
Ever Affected by Floods	Yes	60.8%	48
	No	39.2%	31
	Total	**100.0%**	**79**
Flooding Frequency	Every time there is rain	12.7%	10
	Sometimes	10.1%	8
	It is unpredictable	72.2%	57
	Rarely	5.1%	4
	Total	**100.0%**	**79**
Worried About Flooding		**Percentage**	**Frequency**
	Not Worried at all	13.9%	11
	A little worried	65.8%	52
	Very Worried	6.3%	5
	Extremely Worried	13.9%	11
	Total	**100.0%**	**79**
Effect of floods	Lost a livestock	73.4%	58
	Lost a loved one (relative)	11.4%	9
	Displaced from home	8.9%	7
	Witnessed the loss of another person	6.3%	5
	Total	**100.0%**	**79**

The researcher further examined the attitudes of the respondents concerning their beliefs about the environment's role in flooding experiences as shown in Table 4. The research inquired whether the respondents believed environmental protection would reduce incidences of flooding in the region. Almost 71% of the respondents indicated belief in this sentiment with 20.3% indicating *strong belief.* Some 59.5% of the respondents indicated their agreement with the idea that NEMA was doing enough to solve the flooding problem in the region, a position opposed by 40.5% of the respondents.

Table 4: Attitudes about environmental protection

		Percentage	Frequency
Do you believe protecting the environment can reduce floods?	I strongly believe	20.3%	16
	I believe	70.9%	56
	I do not believe so	1.3%	1
	I am not sure	7.6%	6
	Total	**100.0%**	**79**
Opinion about NEMA		**Percentage**	**Frequency**
	Yes	59.5%	47
	No	40.5%	32
	Total	**100.0%**	**79**

EdinBurg Peer Reviewed Journals and Books Publishers
Journal of Public Policy and Governance
Vol. 3||Issue 1||pp 1-14||April||2023
Email: info@edinburgjournals.org||ISSN: 2788-8509

4.4 Effect of environmental policy on environment conservation

The effect of environmental policy on environmental conservation was determined using ordinal (logistic) regression. The author regressed the attitudes of the respondents concerning the implementation of environmental policy in the region against the observed changes in the environment around deforestation, flooding, and human-wildlife conflicts. Logistic regression was utilized to measure the cause-effect because the data in the study was self-reported, hence categorized and ranked.

The author examined model fitness to assess the usefulness of the model in predicting changes in environmental parameters namely flooding, deforestation, and incidences of human-wildlife conflict. The fitness was determined by comparing the chi-square of the final model against the baseline model as shown in Table 5. The confidence level for this test was 90%.

Table 5: Model fitness test statistics

	Changes in land cover			Increase or decrease in flooding incidences			Human-wildlife conflict			
Model	**-2 Log Likelihood**	**Chi-Square**	**Sig.**	**-2 Log Likelihood**	**Chi-Square**	**Sig.**	**-2 Log Likelihood**	**Chi-Square**	**Sig.**	**df**
Intercept Only	11.08	0	0	14.58	0	0	10.76	0	0	
Final	7.336	3.742	0.091	9.02	5.561	0.035	7.60	3.151	0.069	3

The chi-square for the explanatory variable was statistically significant ($p<0.1$) across the three variables. This means that the model was sufficient for predicting changes in the environment based on the prevailing effectiveness of the environmental policy as reported by the respondents.

Table 6: Test of goodness of fit

Pseudo R-Square	Changes in land cover	Increase or decrease in flooding incidences	Human-wildlife conflict
Cox and Snell	0.042	0.062	0.036
Nagelkerke	0.107	0.112	0.083
McFadden	0.086	0.080	0.065

The goodness of fit was also examined using Pearson's chi-square statistic as shown in Table 7. This test was necessary to determine the consistency between the observed data and the fitted model. The null hypothesis for this test was that the fitness was good against a 5% significance level.

Table 7: Pearson's chi-square statistic

	Changes in land cover		Increase or decrease in flooding incidences		Human-wildlife conflict	
	Estimate	**Sig.**	**Estimate**	**Sig.**	**Estimate**	**Sig.**
Threshold	1.946	0.002	-2.398	0.001	2.398	0.001
[EffectivenessofEnvironmentPolicy=0]	-0.251	0.795	-1.012	0.275	-0.547	0.665
[EffectivenessofEnvironmentPolicy=1]	-19.77	0.000	18.67	0.000	-19.17	0.000
[EffectivenessofEnvironmentPolicy=2]	-1.455	0.221	-0.971	0.263	0.488	0.592
[EffectivenessofEnvironmentPolicy=3]	0[a]	0.000	0[a]	0.000	0[a]	0.000
a. This parameter is set to zero because it is redundant.						

5.0 Conclusion

The observations in this study were inconsistent with the expectations of the author concerning the effectiveness of environmental policy in protecting the environment. The diffusion theory of innovation that was previously reviewed in the literature undergirding this study suggested that innovation spreads gradually over time. The expectation was therefore that awareness, implementation, and enforcement of environmental policy had taken root in a region like Samburu. Samburu is one of the semi-arid regions in Kenya that are increasingly susceptible to the dire effect of climate change, hence the need to prioritize such regions in the discussion about the environment.

6.0 Recommendations

Environmental policies have been failing at implementation and enforcement levels. To that end, there is a need for a policy that empowers NEMA towards enforcement of environmental affairs in a manner equivalent to the enforcement of other security policies. The environment holds economic security not only for Samburu County but also Kenya as a whole, hence the need to protect it with more seriousness. This study recommends a review of the enforcement of environmental policies beyond EIA activities. Based on this study, it appears like NEMA, and associated agencies are more included in conducting an environmental impact assessment for projects. Although EIAs are important, there is a need to look into lifestyle aspects that threaten the environment. Second, this study recommends.

Launching community-based projects for promoting sustainable lifestyles anchored on protecting the environment. The public is the first line of defense when it comes to environmental protection. As such, while the national and county government formulate policies through their legislatures and commissions, the public bears a notable burden of obeying those policies regardless of the degree to which they are enforced. As such, it is incumbent upon the public to take environmental protection into their hands by engaging in activities such as community-based programs.

References

Ainsworth, T. D., Heron, S. F., Ortiz, J. C., Mumby, P. J., Grech, A., Ogawa, D., ... & Leggat, W. (2016). Climate change disables coral bleaching protection on the Great Barrier Reef. Science, 352(6283), 338-342.

Almulhim, A. I. (2022). Understanding public awareness and attitudes toward renewable energy resources in Saudi Arabia. Renewable Energy, 192, 572-582.

Barczewski, B. (2013). How well do environmental regulations work in Kenya? A case study of the Thika highway improvement project. Center for sustainable urban development.

Boruru, E. O., Ontita, E., Ogara, W. O., & Oguge, N. O. (2011). Climate change and the emergence of helter-skelter livelihoods among the pastoralists of Samburu East District, Kenya. Experiences of climate change adaptation in Africa, 97-110.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American sociological review, 147-160.

Food and Agriculture Organization. (2015). Land and Environmental Degradation and Desertification in Africa.

https://www.nema.go.ke/images/Docs/Awarness%20Materials/NEAPS/samburu.pdf

Kock, L., & Prost, A. (2017). Family planning and the Samburu: A qualitative study exploring the thoughts of men on a population health and environment program in rural Kenya. International journal of environmental research and public health, 528.

Landrigan, P., Fuller, R., Acosta, N., Adevi, O., Arnold, R., Balde, A., & Zhong, M. (2017). The Lancet Commission on Pollution and Health. In The Lancet (pp. 462-512).

Lengarpatei, J. (2021, April 16). 16 owners of hotels and petrol stations in Samburu were arrested. Retrieved from www.citizentv.co.ke: April 16, https://citizentv.co.ke/news/16-owners-of-hotels-petrol-stations-in-samburu-arrested-260741/

Marimon, F., Llach, J., & Bernardo, M. (2011). Comparative analysis of diffusion of the ISO 14001 standard by sector of activity. Journal of Cleaner Production, 19(15), 1734-1744.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. American journal of sociology, 83(2), 340-363.

Mulinge, W., Gicheru, P., Muriithi, F., Maingi, P., Kihiu, E., Kirui, O., & Mirzabaev, A. (2016). Economics of Land Degradation and Improvement in Kenya. In Economics of land degradation and improvement- A global assessment for sustainable development (pp. 471-498). Springer, Cham.

NEMA. (2013). Samburu District Environmental Action Plan. Nairobi: National Environment Management Agency. Retrieved from.

Olanipekun, I., Olasehinde- Williams, G., & Alao, R. (2019). Agriculture and Environmental Degradation in Africa. Science of the Total Environment, 60-67.

Rogers, E. M. (1962). Methods of measuring opinion leadership. Public opinion quarterly, 435-441.

Rwakakamba, T. (2009). How effective are Uganda's environmental policies? Mountain Research and Development, 121-127.

Sarkodie, S. (2018). The invisible hand and EKC hypothesis: what are the drivers of environmental degradation and pollution in Africa? Environmental Science and Pollution Research, 21993-22022.

Shamaileh, A. (2015). An evaluation of the effectiveness of environmental policy in Jordan. International Journal of Business and Management, 4(3), 130-162.

Straight, B., Lane, P., Hilton, C., & Letua, M. (2016). "Dust people": Samburu perspectives on disaster, identity, and landscape. Journal of Eastern African Studies, 10(1), 168-188.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. Academy of management review, 20(3), 571-610.

Tiba, S., & Omri, A. (2017). Literature survey on the relationships between energy, environment, and economic growth. Renewable and Sustainable Energy Reviews, 1129-1146.

Treves, A. (2009). Hunting for large carnivore conservation. Journal of Applied Ecology, 46(6), 1350-1356.

World Health Organization. (2015). Ecosystems and human well-being: A report of the Millenium Ecosystem Assessment. World Health Organization. WHO Press.