

# Effectiveness Of Emergency Response Strategies In The Management Of Human Wildlife Conflict In Baringo North Sub County, Kenya

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**Abstract-** Numerous incidents show the seriousness of human-wildlife conflict, which is quickly becoming a severe threat to the survival of many internationally and locally endangered species. States have invested heavily in implementation of strategies as a concerted effort to curb Human Wildlife Conflict. Despite this effort, cases of Human Wildlife Conflicts are still being reported, indicating that the policies in place seem not offering solutions to the prevailing Human Wildlife Conflict. The study aspired to analyze the effectiveness of emergency response strategies in the management of human wildlife conflict in Baringo North Sub-County, Kenya. The study is significant since its outcome could be used to review the current and existing wildlife conservation policies in order to enhance its effectiveness and to formulate new policies. Stern Theory of Value Belief Norm; Kenneth's and Kilmann's Conflict Styles theory and Dollard's Frustration Aggression Displacement theory guided the study. Descriptive research design was used in the study. The study population was; Government field officers, Civil society leaders, KWS official, Opinion leaders, Teachers, Community based organizations, Leaders of Farmers Corporations, village elders and victims of human wildlife conflicts, totaling to 329 respondents. Both probability and non-probability sampling techniques were used. Data was collected using questionnaires, interview schedules, observation checklist and Focus Group Discussions. Descriptive analysis using quantitative and qualitative techniques were used in the study. While quantitative data was presented in form of frequencies and percentage, in tables, charts and graphs, qualitative data was presented thematically through narratives reports and verbatim quotations. Findings indicated that the strategies employed in the management of HWC are not effective in dealing with the problem since they are short lived and are often reactive in nature. Therefore, the study recommends that the government agencies should be proactive to forestall belated attempts to address HWC.

**Index Terms-** Livelihood; Resilience; Socio-Economic Development

## I. INTRODUCTION

Human wildlife conflict occurs when the needs of wildlife and human populations collide, as stated by the World Conservation Union (WCU, 2002). This is especially true in areas with a high concentration of both human and wildlife, such as cities, rural areas, and protected areas, from which animals frequently wander into neighboring farmland or grazing pastures. The long-term effects of human activity on wildlife are the root cause of the rising risk of extinction for many animal species. Musiani, *et al.* (2003) cites human-caused injuries and deaths as a major factor in species decline. These might be the result of carelessness, such as when animals are hit by cars or trains or fall into snares meant for other species or farm wells, or they can be the result of malice, such as when people shoot back or poison those who have shot at them.

Okello *et al.* (2001) note that human-wildlife conflicts have intensified in recent years due to human population growth and the encroachment on wildlife habitats. People and wildlife are increasingly at odds with one another as a result of shifts in land use that are typically associated with activities that are counterproductive to conservation efforts. Due to the expenses associated with wildlife conflicts, such as property damage, livestock depredation, and disease transmission, many people view wildlife as a liability. These costs can include damage to crops, human deaths and injuries, the loss of legitimate and traditional rights, and the destruction or theft of personal property and livestock.

A number of studies in Africa have revealed that there are conflicts between humans and wildlife in all ecosystems, including those in west and central Africa as well as eastern and southern Africa (Treves & Karanth, 2003). The issue is particularly pressing in arid agricultural regions and in water-scarce pastoralist territories. There has been an increase in human-wildlife conflicts in these regions mostly because humans have expanded their activities onto territory that were once populated by wild animals. Although conflicts are most severe and widespread around protected areas, they are growing in other places as well, threatening conservation efforts due to factors like land clearance for agriculture and poaching. Therefore, various

management approaches are needed in various locations and at various times (Treves & Karanth, 2003).

In Kenya, human-animal conflicts can be traced back to the development of parks, reserves, and other wildlife protected areas in close proximity to human settlements. Whether by force or treaty, local communities were displaced to make way for the creation of parks and other protected places. Communities subsequently had their land rights taken away from them. For instance, the Maasai people who traditionally grazed in the Amboseli habitat were never paid for the land and water they no longer had access to after the park was established. Tsavo and Nairobi national parks, as well as Maasai Mara national reserve, all had the same problems when they were first established (Onyango, 2015). Since losing so much land, the people in those areas have become increasingly unsupportive of conservation efforts. Human-animal conflicts have become more problematic due to the rise of human activities, such as agriculture, in areas bordering parks and other protected areas that are mistakenly thought to be wildlife areas. Some residents have given up their usual routines because of frequent wildlife incursions, and people's tolerance for wildlife is decreasing as shown by the prevalence of poisoning and poaching of wild animals for bush meat, hide, and even trophies (Woodroffe *et al.*, 2005; Patterson *et al.*, 1999).

Jones (2012) asserts that the local populations that live close to and around national parks, including Nairobi National Park and game reserves, are those who bear the brunt of the costs associated with wildlife. Property damage and human fatalities or injuries caused by wildlife are the root causes of human-wildlife conflicts in Kenya's protected areas. In the large game reserves and national parks of Kenya, this is especially true. Little-known Lake Kamnarok National Reserve may be found in the breathtakingly gorgeous Kerio Valley, which furrows the North Rift. The African Jacana, grebe, hamerkop, heron, egret, ibis, tree duck, and Egyptian geese are just few of the avian species that may be found in the Reserve. Elephants can be spotted throughout the day under the dense cover of the bush in great numbers; at one point, the elephant population in this reserve totaled over 500. (Andrew, 2021). Very little prior study has considered community participation in resource usage when examining resource conflicts in Kamnarok National Reserve and the surrounding villages (Dickman, 2010).

Successful conflict management necessitates cordial relationships amongst the many agencies that may be engaged in order to negotiate the maze of rules and regulations and overlapping responsibilities. In addition to regulatory authority issues, several elements influence conflict resolution. State and federal authorities are hampered in their ability to respond by significant budgetary and human resource constraints. These constraints have led some state authorities to work with local governments on conflict resolution and policymaking. There are various partnership models, such as citizen action, citizen-agency partnership, and community vote (Denzin & Lincoln, 2005).

Orina (2009) conducted research on the Nairobi National Park and its surrounding Kitengela and Athi Kapiti plains, covering the resolution of human-wildlife conflict and various strategies the local community had implemented to do so. However, he did not examine the larger ecology of Nairobi in relation to other regions of Kenya, such as Baringo North Sub-

County (Slotow, 2008). Togoch (2018) conducted research at Kamnarok National Reserve, but his focus was on how the HWC has influenced the diversification of the residents' means of subsistence in the park's vicinity. According to Wang and Macdonald (2006), there have only been a few models that have been effectively implemented, while others have begun with a very limited grasp of the fundamental reasons of the risks to the protected areas that require conservation.

### **1.2 Statement of the Problem**

The nature of wildlife related conflicts and how they are resolved becomes complex each day (Woodroffe *et al.*, 2005). In some instances, conflicts about wildlife have degenerated into security issues. Human population increase projected to 60 million people by 2030 would complicate the dynamics of wildlife threatening tourism sector (Wang *et al.*, 2006). The country continues to lose citizens and animals through conflicts further threatening the survival of the wildlife heritage.

Despite all the multi-sectorial approach, there is still losing of human beings and animals. The retaliations towards wildlife killings affect our tourism, which is a main contributor to GDP and consequently the national human development index. This impacts then to our national security and jeopardizes our national interests further affecting the vision 2030 delivery. There is therefore need to have a permanent solution to human wildlife conflicts. There is need to look at conflict management strategies visa-versa the concept of human wildlife conflict. If the wrong concept is in use the most likely is that the wrong strategies are employed. Then a paradigm shift needs to be executed soonest to avoid a national tragedy in a few years to come

### **1.3 Objective of the Study**

The objective of the study was to evaluate the effectiveness of emergency response strategies in the management of Human Wildlife Conflict in Baringo North Sub County, Kenya.

### **1.4 Research Question**

How effective is emergency response strategies in the management of Human Wildlife Conflict in Baringo North Sub County, Kenya?

### **1.5 Justification of the Study**

#### **1.5.1 Academic Justification**

Orina (2009) studied conflict resolution on wildlife and various communities around Nairobi national park. His study didn't not look at the larger ecosystem in Kenya. Mukeka (2018) did a study on human wildlife conflict and how its correlates in Narok county and observed that the conflicts were mainly seasonal with annual fluctuations. Most studies on HWC have been done in most game reserves in Kenya (Ogutu *et al.*, 2008, Ogutu *et al.* 2018, Koech, 2018, Mukeka, 2019).

There's is dearth of information about the HWC and its effects on socio-economic aspects on communities living near Lake Kamnarok National game reserve. The findings of this study will form part of reference materials in library and other research works thus providing adequate information to other researchers in the related field of the study. The findings would also act as a source of reference material in the University libraries and other research websites where this work would be published.

#### **1.5.2 Policy Justification**

Study findings might be utilized to assess the efficacy of existing animal conservation measures and to develop new

regulations. The SDG agenda and its implementation strategy must incorporate the HWC. While it is impossible to totally eliminate HWC, there are methods that, with the full cooperation of local communities, can help diminish it and lead to cohabitation between humans and wildlife. Similarly, the study's recommendations could improve conditions at our nation's national parks. The findings are particularly significant because they give decision and policy makers a deeper understanding of the issues typically connected with wildlife protection.

## II. LITERATURE REVIEW

### 2.1.1 Emergency response strategies in the management of human wildlife conflict

Human wildlife conflict response management strategies including collaboration, compromise, land encroachment, and avoidance.

#### 2.1.1.1 Collaboration

Conflicts due to elephants need to be prioritized in trying to ameliorate Human-wildlife conflicts. However, this should not undermine the cost of Human-wildlife conflicts in the irrigated zones of Kitobo and Mbogoni, which are the grain basket. Strategies for managing conflicts occasioned by the different types of species need to be designed and implemented. This should however benefit from incorporating local communities in strategy design. Community involvement will most likely increase the chances of uptake of strategies agreed upon despite their negative attitudes towards conflict caused by wildlife species. Community wildlife education through seminars, study tours and workshops will be necessary to increase their knowledge about wildlife (Mateo, 2012).

However, authorities and policymakers have been concentrating on stopping poachers rather than purchasers and middlemen. These middlemen coordinate and orchestrate the trafficking of illegal wildlife and other resources from the wild to the marketplace. They have access to global trade networks and tend to be well-connected (Brockington & Scholfield, 2010).

Some researchers have begun investigating the economic, political, and systemic issues that contribute to environmental and animal crimes. In their opinion, the most important thing is to give people in the entire community a voice. By addressing poverty and inequality at its root, this has the potential to reduce wildlife crime as well as other forms of criminal activity. Experiences in Namibia, where former poachers have turned wildlife guardians, corroborate this (Blaum *et al.*, 2009).

With more say, ownership, and benefits, local communities might step up to protect animals and conservation areas. The communal conservancies in Namibia provide interesting insights into the process of rewarding communities, notwithstanding their imperfections. Evidently, we need to build sustainable, joyful societies that get the benefits of and coexist peacefully with ecosystems (Messer, 2009).

#### 2.1.1.2 Compromising

Historically, income-based poverty matrices have been used by programs to reduce regional poverty and incentivise local inhabitants to cease poaching operations, with the goal of protecting vulnerable animal species. Due to the scarcity of such data sets, it has been difficult to evaluate hypotheses regarding the

significance and extent of poverty in driving poaching (Orina, 2009).

The Serengeti Regional Conservation Project (SRCP) implemented strategies in the 1990s, such as game-cropping and provisioning, to improve the economic standing of rural households outside of Serengeti National Park in northern Tanzania. As part of the project's management strategy, bush meat that had been legally harvested was made available for purchase by the local populace. It was hoped that if people could get their hands on bush meat more cheaply, it would lessen the demand for poachers. Research showed that buying legal bush meat was still more expensive than poaching, so it was recommended that the experiment be scrapped. Poachers may not have been deterred from unlawfully harvesting bush meat because of SRCP because it provided an extra source of income. Even with the SRCP in place, poachers may be able to increase their protein intake and/or income if they persist in their illegal activity. Incentives like the SRCP may have failed in part because not all impoverished households engage in poaching (Cleverdon, 2002).

An insurance plan is a novel compensation strategy in which farmers pay a premium in exchange for protection against a specific risk, such as livestock predation. The fee can be set at the prevailing rate or subsidized by environmental groups. Since it operates on a smaller scale, reports can be more easily confirmed, but a precise assessment of the cause of crop damage, livestock depredation, human injury, or death is still necessary. The insurance program may need specific measures to be performed by participating farms in order to reduce the likelihood of human-wildlife conflict, but the strategy as a whole shows promise (Treves & Karanth, 2003).

#### 2.1.1.3 Accommodation

Who gets what out of conservation efforts, protected areas, and the income from the responsible use of natural resources is a clear indicator of this structural inequality. People have had to give up their homes, land, hunting privileges, grazing rights, and cultural places so that Disney-like safari parks and private reserves may move in and protect their exotic animals (Vijayan & Pati, 2002).

Those at the top of the economic ladder, including the state, hunters, farmers, tour operators, and others, have profited from conservation efforts. Community members have mostly benefited from low-paying occupations as trackers, rangers, and cooks, as well as the occasional contribution of game or elephant flesh. Top-down, without consultation with impacted populations, attempts have either not been made at all or have been made only partially to recoup property, cultural, and hunting rights (Cleverdon, 2002).

That some people who are already having trouble making ends meet would turn to poaching is probably not so shocking. The street value of rhino horn exceeds that of gold and platinum combined. Poaching and selling a single rhino horn can provide rural dwellers with more income in a year than they would normally receive from all other sources combined. Poachers are recruited by criminal organizations from the areas surrounding major reserves, putting locals at risk (Imam *et al.*, 2002). Illegal wildlife trafficking networks are the true villains, along with corrupt government officials and people working in the wildlife and conservation businesses (World Conservation Union, 2002).

#### 2.1.1.4 Avoiding and Prevention

The argument that providing poachers with jobs can reduce poaching is based on the premise that doing so increases a poacher's income and keeps them from engaging in illegal activities. Contrary to this, other studies have found that families where at least one member works full or part time are more likely to engage in poaching (Nuno *et al.*, 2014). The majority of poachers in this study used money from illegal activities as a secondary source of income, rather than as their primary source of support. This demonstrates that boosting employment in and around protected areas is not a failsafe method of lowering poaching rates. This study confirmed what was already known: respondents with greater levels of education had a better chance of gaining revenue from legitimate work. However, increasing education is not likely to help in the short-term because it is related to employment, and employment does not necessarily prevent poaching (World Conservation Union, 2002).

Species sanctuaries that are surrounded by fences offer people the chance to benefit from the area while remaining physically separated from the wildlife therein, which is especially useful for pastoral and agricultural applications. Fences also assist limit the transmission of certain endemic infectious diseases such as foot-and-mouth disease, African swine fever and theileriosis. The best results have usually come from separating wild animals from domestic livestock by setting up control areas, game-proof fences, sanitary cordons, and movement management. Traditionally, this strategy has been implemented in nations with sophisticated land-use policies in which nomad pastoralism is not common. Vaccination and vector management may be necessary to limit transmission of endemic arthropod-borne illnesses such trypanosomiasis, epizootic hemorrhagic disease, African horse sickness, and Rift Valley fever. Even while fencing is an effective tool for reducing human-wildlife conflict, it is not without cost to the ecosystem and economic repercussions, and it is never completely effective. All around Africa, people put up fences for a variety of reasons (Treves. & Karanth, 2003).

The community vouched extremely strongly for compensation when it came to the wild-life related conflicts. Direct compensation through the payment in the event of loss is usually confined to a single category of loss, such as human mortality or cattle slaughtered by predators or elephants. These programs are typically supported by a conservation group, although government funding is also available. All are intended to raise people's pain thresholds so they don't take drastic measures on their own, like hunting down and murdering elephants, lions, or whatever else is at fault (Messer, 2002).

There are compensation programs in sub-Saharan Africa for those who have suffered animal-related losses. Most African nations don't compensate victims of wildlife attacks because they believe such programs are ineffective in reducing conflicts between humans and wildlife and that they need to be updated to be less bureaucratic, more responsive, and more open (Kahumbu, 2015). Vigilance is an important component of crop or livestock protection and human-wildlife conflict management. Normally, animals will refrain from misbehaving because they are afraid of humans. Elephants in Uganda's Kibale National Park waited at the forest's boundary until the farmers had left the fields before venturing inside, indicating a fear of humans. Elephants near Ghana's Kakum Conservation Area seem to avoid farms where

humans are present. Guarding herds and taking steps to actively defend them are fundamental characteristics of animal husbandry. Predation on livestock is typically lower in areas where herdsmen are stationed than in areas where animals are allowed to roam freely. Human herders in East Africa are known for their bravery and ability to protect their livestock from predators, and it is said that they have been able to drive away lions, hyenas, and cheetahs with nothing more than spears, knives, and guns (Cleverdon, 2002).

### III. CONCEPTUAL FRAMEWORK

Wasike and Odhiambo (2016), discuss the role of theories in guiding the thrust of academic studies. They emphasize the importance of theories in offering compelling and incisive causal explanations with calculated precision. They assert that theories play the role of predicting, prescribing and evaluating socio-political phenomena hence they cannot be ignored.

#### 3.1.1 Frustration Aggression Displacement Theory

Dollard *et al.* (1939) introduced the Frustration Aggression Displacement Theory, which was later refined by Miller (1941) and Berkowitz (1969). Aggressiveness, according to the notion, is caused when someone or something prevents a person or group from achieving their goal(s); hence, frustration is the cause of aggression. Aggression is an inevitable consequence of dissatisfaction since it motivates violent actions.

According to this view, aggression is defined as an act whose goal-response is injury to an organism, creature, or human, while frustration occurs when a goal-response experiences interference. According to this view, aggressiveness stems from frustration but is directed elsewhere when the source of that frustration cannot be addressed directly. Riots and revolutions are often attributed to the underprivileged, who feel they have nowhere else to vent their frustrations and rage, and so resort to violence (Berkowitz, 1969). Dissatisfaction with the study stems from unfulfilled anticipation. The feeling of being ignored contributes to this discontent. The frustration-aggression theory explains how this leads to angry reactions. Anger and hostility can quickly escalate from here. Some disagreements don't become obvious until a certain event has place. High levels of competition for land usage are a major cause of human-wildlife conflicts. The concentration of human activity in places with abundant animals has had a negative impact on the region's ability to provide enough food to sustain its inhabitants. There is still a long way to go until we meet the bare necessities of human existence. Since animals are naturally aggressive, the lack of intelligence when it comes to interacting with humans makes them increasingly frustrated, especially at the first instance of experiencing threat, which compounds the already delicate interaction between wildlife and humans and complicates social-economic activities within areas which are rich in wildlife. However, when human objectives like grain production, animal rearing, and security are threatened by wild animals, people get dissatisfied and hostile, which in turn leads to human-wildlife conflict (Berkowitz, 1969).

According to the frustration-aggression-displacement theory, communities that previously coexisted with wildlife resort to their heritage killing of the animals when their basic needs are not supplied. For example, in semiarid places all over the world, residents experience frustration due to a shortage of food in wildlife reserves, a lack of water in both the population and the

reserves, and a climate that produces draught. Because of this, conflicts between humans and other forms of wildlife have only increased (Orina, 2009).

### 3.1.2 Value - Belief - Norm (VBN) Theory

The theory is divided into; moral norm activation, personal values, and the new ecological paradigm sections.

#### 3.1.2.1 Moral Norm Activation

Schwartz (1977) norm-activation theory of altruism has been applied to pro-environmental behavior with some success. This theory holds that pro-environmental actions occur in response to personal moral norms about such actions and that these are activated in individuals who believe that environmental conditions pose threats to other people, other species, or the biosphere (awareness of consequences, or AC) and that actions they initiate could avert those consequences (ascription of responsibility to self, or ARS). Supportive evidence comes from studies focused on a variety of pro-environmental actions.

#### 3.1.2.2 Personal Values

Researchers have used the value measures created in cross-national research, or modified versions of them, for environmental research because they follow the reasoning already described that ties pro-environmental behavior to certain basic types of values (Stern *et al.*, 1999). At its core, this strategy takes into account three distinct "value orientations" or types of values: self-interest, altruism towards other humans, and altruism towards other species and the biosphere. Environmental philosophy and the literature of the environmental movement recognize these three unique motivations for caring about the environment, but actual research has yet to show a difference between human altruism and altruism towards other species and the biosphere. However, in more environmentally conscious populations, such college students in the United States or the general public in some other nations, the contrast may be more salient.

This research delves at the selfless and selfish motivations behind environmental protection, or the Self-Transcendent (ST) and Self-Enhancement Value (SEV) value clusters, respectively. Schwartz identifies two key value categories, conservation (traditional) values and openness to change, and this study investigates both in search of evidence of their effects on environmentalism.

#### 3.1.2.3 New Ecological Paradigm

The rise of the environmental movement is linked to growing acceptance of a new ecological paradigm (NEP) or worldview, a view that human actions have substantial adverse effects on a fragile biosphere. The NEP scale primarily measures broad beliefs about the biosphere and the effects of human action on it a sort of "folk" ecological theory from which beliefs about the adverse consequences (AC) of ecological change can easily be deduced (Stern, *et al.*, 1999). In a sense, NEP measures awareness of very general adverse consequences of environmental conditions, whereas most studies using the Schwartz norm-activation model use measures of problem specific consequences. The NEP is a worldview that predisposes an individual to accept more narrowly focused AC beliefs.

Stem, *et al.* (1999) link individuals with community and observe the pro-environmental behavior, which comes from moral obligations or personal norms embedded with a certain value orientation. They believe that valued objects are threatened,

and believe that their actions can help restore those values, thus experience an obligation as a matter of norm.

The theory reveals a chain of influence on behavior from people's value sets and beliefs that the danger posed by the threats is greater than they feel obliged to address the environmental problems. The VBN - model builds on Schwartz and Howard (1981), topology of value theory that presumes that altruism value lead to awareness of adverse consequences on other people and thus instigates responsibility to help eliminate the problem.

#### 3.1.3 Conflict Styles Theory

The Conflict Styles Theory was developed by Kenneth Thomas and Ralph Kilmann in the 1970s. Different levels of cooperation and assertiveness characterize the five primary conflict resolution strategies defined by the theory. In their theory, Thomas and Kilmann claimed that everyone has a natural tendency toward one particular method of settling disputes. Thomas' conflict theory identifies five strategies for dealing with disagreements: competition, cooperation, accommodation, compromise, and avoidance.

Those who are competitive are those who have strong opinions and goals. In most cases, they are able to exert influence because of their status, level of education, field of expertise, or the ability to persuade others. Collaborative approaches are employed when multiple perspectives must be considered in order to arrive at the optimal answer, when tensions already exist within the group, or when the stakes are too high for a simple compromise. To compromise is to favor seeking out solutions that will, at the very least, leave some people happy.

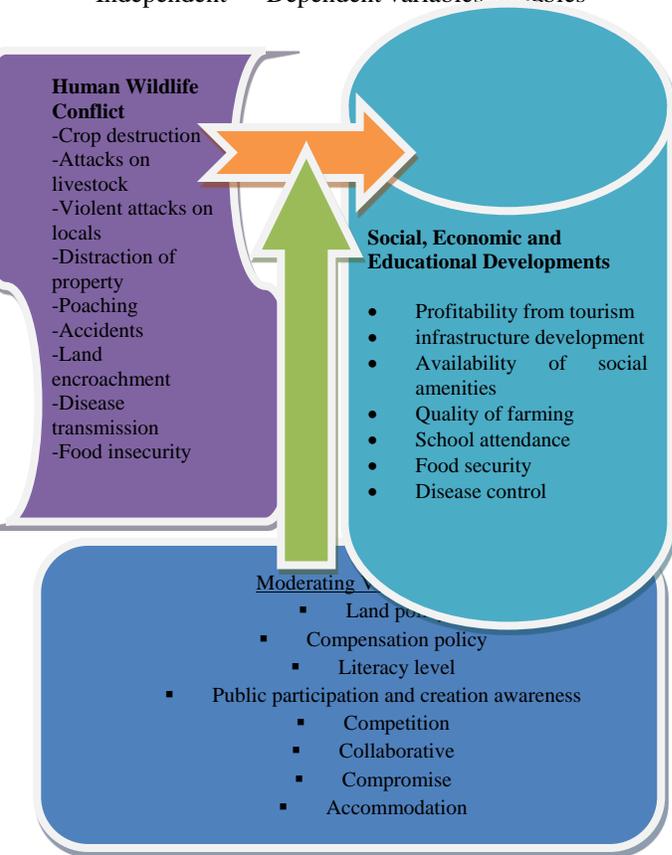
When both sides have roughly the same amount of power, when progress is at a standstill, and when time is running out, compromise is the best option. By definition, an accommodating personality will sacrifice their own wants and needs in order to make everyone else happy. The accommodating person typically has a good sense of when to give in, but can be convinced to back down from a stance even when it isn't merited. When the other party's interests outweigh your own, when keeping the peace is more important than winning, or if you want to be in a position to collect on this "courtesy" you've given, accommodation is the acceptable response. However, favors may not be returned, and this strategy is not likely to produce optimal results. Finally, avoidant members are those that want to stay out of the conflict altogether. Characteristics of this approach include passing off responsibility for difficult choices, being content with the status quo, and avoiding confrontation out of concern for others' feelings. There are times when it's the right move, such as when you know you can't win, the stakes are too low, or someone else is in a better position to handle the situation. This is a poor strategy to employ in many cases, however (Hamissou & DeSilvestre, 2008).

The Conflict Styles Theory is applicable to this study because it proposes strategies for resolving human-wildlife conflicts in the Baringo North Sub-County. For instance, policies that allow for a range of perspectives to be expressed, leaders that take contrasting stances on resolutions, and those who advocate for cooperative democracy. The study concludes that so long as people and wildlife in the Baringo North Sub-county coexist, conflict will inevitably arise, and that there are both immediate and long-term options for resolving the many forms of conflict that have been documented. When fighting breaks out, it forces people to rethink

their relationships with one another and whether or not they can live together in a way that is both peaceful and productive for the economy and society of the Baringo North sub-county. Therefore, since conflicts are driven by unmet demands, managing them well should eliminate the negative and damaging impacts, turning them into a net positive. The existing degree of human-wildlife conflicts can be reduced if the Baringo North Sub-county implements one or more parts of Conflict system theory, including competitiveness, collaboration, compromising, accommodation, and avoidance.

**Figure 1 Showing Conceptual Model Framework**

Independent variables → Dependent variables



**Figure 1: Conceptual Framework Model**

Source: Researcher, (2021)

#### IV. RESEARCH METHODOLOGY

##### 4.1.1 Research Design

Creswell and Miller (2000) define a study design as "a description of techniques that researchers employ to gather, analyze, interpret, and present their research results." Researchers follow the rationale established by their study design when conducting their investigations and analyzing their data (Flick, 2002). This study used a descriptive survey method to identify factors that either increase or decrease the likelihood of human-wildlife conflict in the Baringo North Sub-County. The study's methodology was judged adequate since it uncovered factors like population growth, shifts in land use, and the biased application of policies that contribute to human-wildlife conflict. As an added bonus, this

method allows the researcher to survey a sample of the population to gain insight into how its members think, feel, and act, as well as what they know. Since the conflicts in the area span the entirety of Baringo North Sub-County, it was necessary to adopt a cross-sectional study design to provide an accurate picture of the community at large.

##### 4.1.2 Study Area

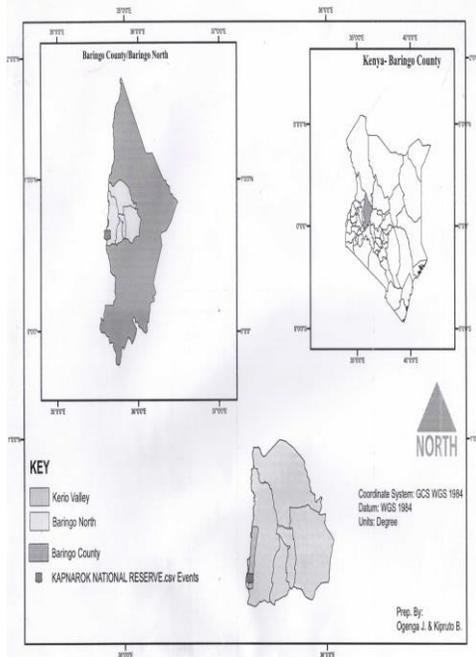
The research was conducted in the Baringo North Sub-County of Kenya, which lies roughly 270 kilometers north-west of Nairobi and is part of the country's former Rift Valley Province. It has a total area of 1,703.50 square kilometers. To the east are Samburu and Laikipia, to the north and north-east are Turkana, to the south is Nakuru, to the west is Elgeyo Marakwet, to the north-west are West Pokot and Uasin Gishu, and to the south-west are Kericho and Uasin Gishu (IEBC, 2017).

The southern half of the Sub-County experiences milder weather, with temperatures averaging 25°C in June and July and 30°C in the hottest months of January and February, while the northern parts have warmer weather, with temperatures averaging 30°C to 35°C throughout the year. Every year, the county's hills get between 1,000 and 1,500 millimeters (mm) of precipitation, while the lowlands only get 300 millimeters (mm) of rain. March through June (long rains) and November (short rains) are the two rainy seasons that Baringo North Sub-County experiences (Kenya Metrological Department, 2018).

The county's topography mostly consists of river valleys and plains, the Tugen Hills, the floor of the Rift Valley, and a northern plateau. The Kerio valley is notable as one of the major river valleys in the area. Located in the western part of the county, this plain is quite level. The height above sea level varies from 1000m to 2600m (Kenya Metrological Department, 2018).

The research focussed on the reserves in the Baringo North Sub-County, one of which being the Rimoi National Reserve, a sanctuary for endangered animals. The Kenya Wildlife Service guards the 66-square-kilometer reserve. It is a component of a conservation area that is five times greater than its size and is located next to the dried-up Lake Kamnarock. In addition to the world's rare white crocodiles, which may be seen at the campsite along the Kerio River, the reserve is home to a variety of reptiles such as Agama, lizards, tortoises, and snakes. Based on the efforts of the Kenya Wildlife Service (KWS) to include local communities in the management of wildlife resources in these locations, this study uses Rimoi National Reserve as a proxy for the other reserves. Which has helped local communities maintain its natural resources, but has had unintended negative consequences and has not improved their standard of living, hence the study's urgency (Woodroffe *et al.*, 2005). Therefore, KWS is eager to support and cooperate with people in Baringo North Sub-County, Rimoi being one of the reserves, to identify and implement optimal land uses that have high conservation and livelihood values (WWF, 2006).

**Figure 2. Baringo North Sub County**



Source: Researcher's (2021)

**4.1.3 Sampling Procedure and Sampling Size**

The researcher employed purposive sampling in selecting the respondents to constitute the sample for the study. The sample population of the respondents was calculated based on Krejcie and Morgan Table 1970, Conroy (2018) who suggested that a sample of 30% of the subjects can be sufficient and Creswell (2018) who said 10% of the sample is sufficient especially for phenomenological research. The total sample size was therefore 286 respondents. The sample included 6 government field officers which were purposively sampled, 3 civil society leaders, 3 KWS officials, 3 opinion leaders, 6 teachers, 20 community based organization leaders and farmers, 3 village elders and 242 victims of human wildlife conflicts.

Sample technique used in this study included purposive and simple random sampling. Purposive sampling was used to select government field officers and identified key informants while simple random sampling was used in selecting the victims of human wildlife conflicts.

**4.1.4 Data Collection Method**

The study used the questionnaire and interview guides in data collection. The questionnaire contained open ended questions which allowed the respondents to give their own views. These were; Government field officers, head teachers, KWS officials, and HWC survivors while interviews method was used to collect information from officials from the Ministry of Forestry and Wildlife with use of structured and semi-structured interview questions. The reason for use of interviews was that they are easy to administer since the questions are prepared in advance. They also allow a great deal of information to be gathered in a short period of time. Interviews also eliminate many sources of bias common to other instruments like observations.

Observation checklist was used to provide researchers with ways to check for nonverbal expression of feelings, determine who interacts with whom, grasp how participants communicate with each other, and check for how much time is spent on various activities (Schmuck, 1997). Participant observation allows researchers to check definitions of terms that participants use in interviews, observe events that informants may be unable or unwilling to share when doing so would be impolite, or insensitive, and observe situations informants have described in interviews, thereby making them aware of distortions or inaccuracies in description provided by those informants.

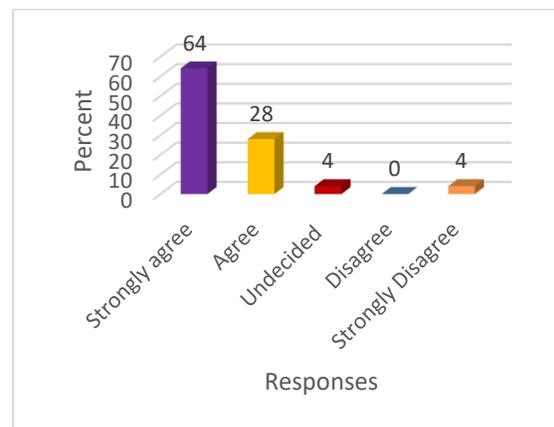
**4.1.5 Data Analysis and Presentation**

Analyzing data entails establishing some kind of hierarchy or framework for the gathered data in order to draw conclusions from it. The data analysis and visualizations employed a wide range of approaches. A mixture of quantitative and qualitative methods were used. Statistical software for social sciences (SPSS, version 21.0), together with proportions, percentages, and averages, were used in the studies, all of which are indicative of the quantitative method and were used to paint a broad picture from which conclusions could be drawn. The qualitative information gathered through surveys and in-depth interviews was subjected to a theme analysis. But statistical tables, bar graphs, charts, and even maps were all derived using qualitative methods (Espinosa & Yamashita, 2015).

**V. RESULTS**

**5.1.1 The Government to initiate Dialogue with the Communities living adjacent to the National Reserve**

The study sought to establish the extent to which the respondents agreed with the assertion that the government should initiate dialogue with communities living adjacent to the national reserve. The findings revealed that 64% strongly agreed, 28% agreed, 4% were undecided and 4% strongly disagreed.



**Figure 3: Government to Initiate Dialogue with Communities Living Adjacent to the National Reserve**

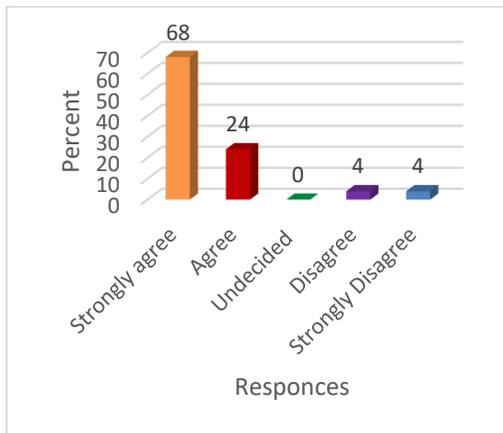
Source: Field Data, 2021

A greater percentage of the respondents were in agreement. This could be the position held by those who are pro conservation potentials. They were aware of future prospects of tourism earnings that can be generated from conservation. The small

number of respondents who negatively responded could be a representative of those who capitalize on the conflicts.

### 5.1.2 Electric fencing around the National Reserve will assist to keep off straying wildlife as a Coping Strategy

The study sought to establish the extent to which the respondents agreed with the assertion that electric fencing around the national reserve will assist to keep off straying wildlife as a copying strategy. According to the study findings as indicated on figure 4 revealed that 68% strongly agreed, 24% agreed, 4% strongly disagreed and 4% disagreed.



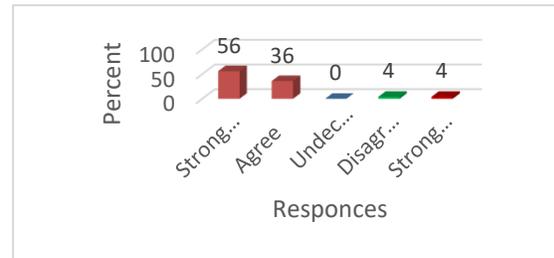
**Figure 4: Electric Fencing of National Parks to Assist in Keeping Off Wild Animals**  
Source: Field Data, 2021

During an interview by one of the chiefs he indicated that communities coping mechanisms: Raising formal complaints whenever there are attacks, injuries or destruction of property, fencing off their farms in attempt to keep the roaming wildlife at bay, Using traditional methods to keep off wildlife from their farms/places of residence. Use of smoke /fires, shouting at the approaching wild animal, beating of tins/drums. Insistence on fencing by the Government as well as compensate genuine owners. Appeals to the Government initiate co-operate social responsibility activities. Appeals to the Government to relocate “foreign” invaders from cattle rustling prone areas of Baringo North. One elder strongly pointed out, “*kila mtu anajua kwao, watoke ndani ya Game Reserve*”.

Respondents in the FGDs opined that respondents were in agreement on the need to fence off the conservation area as a coping strategy. These represent community members who value the existence of the national reserve. Other coping mechanisms were drawn from traditional methods employed to deter wild animals from invasion. This implies a historical co-existence between humans and world life. It could also mean that there exist a general positive people’s perceptions towards wild life. It also explains why some locals feel that HWC would not have persisted were it not for a protracted dispute. The Government has addressed the conflict early enough because of delay, the anti-conservation groups have found refuge in the reserve.

### 5.1.3 Community-based Conservation Strengthens Nature of conservation and provides Socio-economic gains for the local people

The study sought to establish weather Community-based Conservation Strengthens Nature of conservation and provides Socio-economic gains for the local people. The findings in Figure 6 revealed that 56% of the strongly agreed and 36% agreed.



**Figure 5: Community-based Conservation Strengthens Nature of conservation and provides Socio-economic gains for the local people.**  
Field Data, 2021

During the interviews with FGD, it emerged that the historical foundation of the conservation area traces back to colonial period. It all started at Rimo in Elgeiyo Marakwet in the years 1948, 1949 and 1950. The local’s oral narrative has it that a Second World War prisoner was exiled to the area as an Isolation case. He came to live in a grass thatched housing structure there at Rimoi. Through him, the colonial government conscripted some African men to offer labour services to him. They made a road from Rimoi to Lake Kamnarok for the locally nicknamed prisoner – Kipsomorgut so that he would routinely visit the ox-bow lake. The road ended at a location locally called Tabar where a signpost inscribed “Rimo Game Park” was fixed at the base of an acacia tree.it directed other visiting white tourists to a tent-mad camp at Tabar. Outside the camp, a metal frame staircase was erected for the citizens to climb up for an exciting view of grazing elephants and other wild game. To further his personal interests, the white man prisoner used local labour to clear 100 acres of land to practice agriculture; one labourer was called Kipkarne Arap Kipyo. He planted groundnuts and sorghum while the farm was guarded by an employed game warded named Chemogol from Elgeiyo Marakwet County. The warden was also charged with the responsibility of receiving reports from local appointees on any killings of wildlife by hunters are such as Mr. Cheribet Arap Chemonyei whose commitment to duty saw him secure the company of wildlife offices from Tambach for a manhunt of hunters at the valley. One of them was raided in his make shift structure near Kerio. The wildlife hides and skins were confiscated and the hunter got arrested and taken to serve imprisonment at Tambach (Elgeiyo Marakwet). The prisoner tourists camp was pulled out in the year 1960 at the advent of independence.

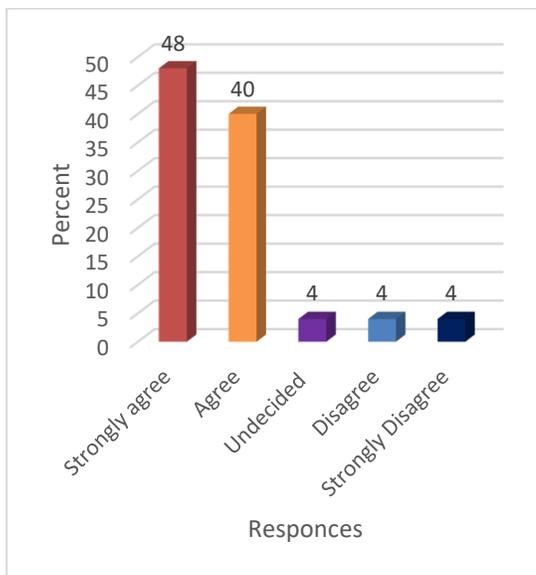
Another FGD participant stated that Successive Parliaments did deliberate on the need to demarcate Kerio Valley as a National Game Reserve. The area was seen as a potential tourist destination for tourism earnings. The government involvement with Baringo District Leadership 1983 – 1983 culminated in the community’s acceptance to surrender their land for wildlife conservation. This prompted the then Wildlife and Tourism Minister to Gazette the area in 1983. After the official gazettement, Baringo County Council officers with those from KWS came to fix concrete beacon along the reserves agreed boundary. Again, in local labour was sourced from community. Having agreed to the objectives by

a section of community members, the government went on to register the affected households which numbered 350. They were destined for compensation

Most respondents were in agreement, an indication that residents around Kamnarok Game Reserve are willing to be involved in conservation efforts. Their proper participation will likely minimize if not solve the perennial HWC if not checked, HWC would soon collapse the existence of the conservancy

**5.1.5 Community-wildlife conservation is based on the principle that local communities shall participate to benefit from wildlife conservation**

The study sought to find out whether Community-wildlife conservation is based on the principle that local communities shall participate to benefit from wildlife conservation. The findings in Figure 6.6 revealed that 48% of the strongly agreed and 40% agreed.

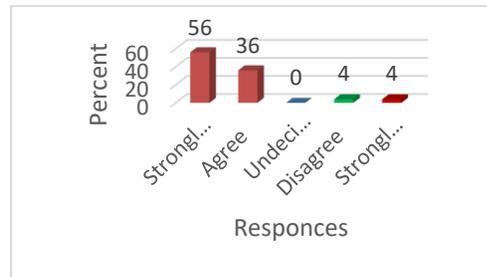


**Figure 7. Community-wildlife conservation is based on the principle that local communities shall participate to benefit from wildlife conservation**

Source: Field Data, 2021

**5.1.6 Combined government-community wildlife conservation motivates communities towards wildlife conservation without which wildlife conservation efforts are doomed to fail.**

The study sought to find out whether Combined government-community wildlife conservation motivates communities towards wildlife conservation without which wildlife conservation efforts are doomed to fail.. The findings in Figure 8 revealed that 56% of the strongly agreed and 36% agreed.



**Figure 8 government-community wildlife conservation motivates communities towards wildlife conservation without which wildlife conservation efforts are doomed to fail**

Source Field Data, 2021

In support of the findings, it emerged from one of the FGDs that the historical foundation of Kamnarok National Reserve is entrenched in Tugen community value for wildlife co-existence. The older people left the valley basin devoid of any human activities save for small hunting and bee keeping. People settled up the Tugen escarpment on grounds of its vantage point for security surveillance as well as skillful avoidance of disturbance to the wildlife and their habitats. The valley was associated with wildlife as their God-given habitats. Community elders then designated specific place / locations for wild animals-related species. Examples: Kubo ngetuny – a lion’s habitat; Beeb Kibaw – water for rhino; Kimugungon – footprints/hoof paths; Chatipbel – migratory route for elephants; Kap kuikui – a location for crocodiles (also kuikui).

It also emerged from the FGDs that the community endorsed Government’s proposal to set aside part of Kerio Valley for wildlife conservation. The government came to hold public barazas to sensitize communities on bio-diversity in existence at Kerio Valley 1970s – 1980s. Community elders gave the government a total acceptance to surrender the identified stretch of land parcel, currently occupied by Kamnarok National Game Reserve (1983).Elder form the area, echoed a statement by one man from *njongiate* who was present at local Kamnarok Baraza having told the government leaders that “*ngombe yangu hujilisha mchana na wenu (wildlife) hujilisha usiku*”

The government had engaged all leaders in the creation awareness campaign then North Baringo Area MP, Baringo County Council Leadership, Area Councilors and Provincial Administration such as District Commissioner, Are District Officer and ALL Area Chiefs. In support of conservation about 26 sub-clans along Baringo Kerio Valley in each sub location agreed unanimously to the government proposal.

In response to communities’ gesture, the government development of GPRS maps to inform the Ministry of Lands officers on demarcation boundary bordering the given-out land parcel for wildlife conservation and left out community lad for adjudication and subsequent land registration for individual ownership. The declaration of the area for land demarcations outside the conservation area was only objected on grounds of the need for compensation of the affected families. This explains why land demarcation and registration by the Ministry of Lands followed the National Game Reserve designated boundary. Both the Baringo County Council and KWS officers hired local labour from the affected communities to clear Kamnarok National Game reserve in 1986, including the few communities’ youth who had

earlier on objected to the conservation decision. They were paid as casuals. The county council later used a grader to clear it.

To tame the problems of HWC community members Participated in the formation of a task Force. Given the prolonged HC, all the affected communities in all sub-locations in Barwesa ward nominated each representative to form a task force under the management of Baringo County Government in 2014. The Task Force came into operation in the year 2015. There were 7 community representatives and other 15 co-opted persons.

## VI. SUMMARY AND CONCLUSION

Respondents agreed that the government should initiate dialogue with communities living adjacent to the national reserve. The findings revealed that 64% strongly agreed, 28 agreed, 4% were undecided and 4% strongly disagreed. The respondents also asserted that that electric fencing around the national reserve assisted in keeping off stray wild animals. This was supported as a copying strategy by 68% of them who strongly agreed. Additionally, the study sought to establish weather Community-based Conservation Strengthens Nature of conservation and provides Socio-economic gains for the local people. The findings revealed that 56% of the strongly agreed and 36% agreed. On investigating if combined government- community wildlife conservation motivates communities towards wildlife conservation without which wildlife conservation efforts are doomed to fail the findings revealed that 56% of the reacted positively over it, indicating that government- community wildlife conservation motivated communities towards wildlife conservation. On this basis, the study concludes that the strategies employed in the management of HWC are not effective in dealing with the problem since they are short lived and are often reactive in nature. In this regard, there is need to have for a more proactive approach by both national and county governments to tackle the situation differently.

### 7.2 Recommendation

Coping strategies employed are short-lived; there is need for government agencies to be proactive to forestall belated attempts to address HWC.

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