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Evaluation of Strategic Options for Enhancing Community Resilience to Drought in Kitui County, Kenya

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Abstract
In Kenya, Arid and semi-arid Lands are more affected by drought due to their fragile ecosystems, unfavourable climate, and historical marginalization. Kitui County is one of the counties that have been hit hard by protracted droughts over the past decades. This study aimed at addressing the increasing global, regional, and national attention on building community resilience to disasters. The overall objective of the study was to evaluate the strategic options for enhancing community resilience to drought in Kitui County. The study was conducted in Mwingi North and Mwingi West Sub-Counties which were selected using purposive sampling technique. The study utilized data collected from 385 households sampled using simple random sampling technique. Descriptive, correlation, and evaluation research designs were employed. Data was collected using structured questionnaires; focus group discussion guides; key informant interview guides and observation checklists and analysed using statistical package for social scientists (SPSS) software Version 28, STATA Version 15 and MS Excel. The results based on Spearman's weighting revealed support for more sustainable water sources had the highest rank 34.4%; followed by increased access to credit facilities 15.1%; livestock/crop insurance schemes 11.9% and support for food storage facilities 11% among others. R =0.534 and R2 = 0.286 revealed that the contribution of strategic options to community resilience to drought was significant. The study recommends use of both ex-ante and ex post strategies to enhance community resilience to drought. These findings will be beneficial in guiding the policy makers in improving strategies for enhancing community resilience to drought.
Key Words: *Drought; community resilience; vulnerability; households; climate change.*

1. Introduction

Droughts, exacerbated by climate change are increasing in frequency and intensity and are significantly impeding sustainable development (IPCC, 2022). This increase has attracted the attention of global policy actors (UNISDR, 2015). Drought is a challenging natural hazard that results in substantial impacts on human beings, ecosystems, water resources, and the sectors of the economy globally (Ayugi, Eresanya, Onyango, Ogou, Okoro, Aokoye & Onoruo & 2022). This is despite the renewed global attention to building resilience of nations and communities (Manyena,2016) as evidenced by the adoption of the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030 whose overall aim is to achieve substantial reduction of disaster risks and losses (UNISDR, 2015). African Union members have made a sluggish progress towards the development of national DRR strategies as required by Target E of the Sendai Framework. This slow progress has mainly been attributed to weak technical and institutional capacities, inadequate funds, limited decentralization of DRR and poor governance (Otwori & Nyandiko 2022).

In Africa, frequent and severe drought occurrences have resulted in reduced agricultural production, increased food insecurity and environmental degradation. Many countries, particularly those whose economies rely significantly on rain-fed agriculture, are particularly vulnerable to climate change driven droughts (Ayugi et al., 2022). The highest burden is borne by many people and communities in arid and semi-arid Lands (ASALs) (Birhanu, Ambelu, Berhanu, Tesfaye & Woldemichael, 2017). East Africa, mainly classified as ASAL region, continues to experience more

frequent, longer, and severe drought events resulting in massive economic and environmental losses. This trend is projected to increase with the intensification of extreme climate events towards the end of the 21st century (IPCC, 2022). In Kenya, drought events have been frequent and severe in the ASALs mainly due to their fragile ecosystems, unfavourable climate, poor infrastructure, and historical marginalization (Ayugi et al., 2022). The ASALs endured three severe droughts in the last decade (2010-2011, 2016-2017 and 2020-2022). Kitui County is an ASAL County (MoALFC 2021) where droughts have become part of the climate system in the past decades resulting in heightened levels of food insecurity, undermining poverty reduction efforts and significantly impeding sustainable development. There are now few normal seasons between droughts giving households in the County progressively less time within which to recover and gravely undermining community resilience building efforts (Khisa, 2017).

Humanitarian aid is critical in helping communities mitigate the impact of drought. However, the funding support on strategic options for enhancing community resilience to drought has remained inadequate (Venton, 2018). This study defines community resilience as the transformative process of strengthening the capacities of people, households, communities, governments, and the environment to improve living standards, transform livelihood systems and the general human well-being to be able to anticipate, prepare for, adapt, and flourish in the context of shocks and stresses. Climate finance has remained heavily focused on anticipatory action and there are no clear funding mechanisms for reducing the climate losses and damages communities incur (GHA, 2022). There is a concern that responding to protracted drought crises with ongoing aid is becoming increasingly costly and unsustainable (GHA, 2022) and therefore the need to invest in community resilience to reduce humanitarian aid needs has become more urgent (Shiferaw, Testaye, Kassie, Abate, Prasanna & Menkir, 2014).

The impact of drought disaster is both ex post and ex ante (Shiferaw et al., 2014). Although it is exceedingly difficult to cut to zero drought risks in the context of a changing climate (Khisa, 2017), enhancing community resilience to drought can be achieved through undertaking a raft of both ex-post and ex ante strategic options that have been found suitable for enhancing community resilience to drought. Such strategic options include investing in social protection and safety nets such as water supply and treatment, healthcare and quality education, housing and infrastructure, access to market insurance schemes, credit, and cash transfers, promoting drought-tolerant crop varieties and livestock breeds; conservation agriculture, and diversification of income sources (Shiferaw et al., 2014). Diversification of income sources helps drought prone households to cope with drought shocks as people suffer less from disasters if some of their income sources are located outside the area exposed to hazards and enables people to absorb, cope with, and quickly recover from drought impact (Hallegatte, Vogt-Schilb, Bangalore, & Rozenberg, 1017).

Strategies that are developmental in nature such as promotion of sustainable livelihoods significantly contributes to all aspects of disaster management cycle including mitigation, preparedness, response, and recovery and are a key link between disaster management and development (Frankenberger, Mueller, Spanger & Alexander, 2013). However, improving access to financial instruments by the drought affected communities is a long-term development action which the humanitarian aid system has been reluctant to pay attention to (Clarvis, Bohensky & Yirime, 2015) while some forms of diversification are perceived to be maladaptive, not always equal and are only accessible to the most vulnerable groups, an approach that may not reduce drought risks and build community resilience (Cochrane & Cater, 2017).

Drought is a long-term development challenge, that requires a multi-sectorial and multi-dimensional response including adoption of integrated technologies such as natural resource management, agricultural technologies including selection of appropriate crop varieties and soil conservation practices, improving irrigation, and institutional and policy options so as to reduce the key drivers of vulnerability (Ayugi et al., 2022). Further, development of early warning information systems is essential for informing policy making, forewarning, and promoting optimal ex ante strategies crucial for enhancing community resilience to drought (Verner, 2012). In addition, social capital that emerges from improved social connections and social networks enhances cooperations and supports disaster affected communities through linking them with the disaster system of care hence, enhancing community resilience to drought (Béné, Newsham, Davies, Ulrichs, & Godfrey-Wood, 2014). Moreover, strong partnerships involving national and County government agencies, International Non-Governmental Organisations (INGOs), Community Based Organisations (CBOs) and local communities to ensure adequate humanitarian aid to support implementation of impactful ex ante and post ante DRR activities and develop county adaptation strategies for providing guidelines for coping with climate change are critical in enhancing community resilience to drought.

Furthermore, disaster entrepreneurship helps disaster affected communities in returning to normal functioning following a disaster impact through poverty reduction efforts, thereby enhancing community resilience (Mohan & Joy, 2020). Strategic options for enhancing community resilience reduce the exposure and sensitivity of households' productive systems to drought risks, making their assets less vulnerable to drought hazards and thereby improving community's adaptive, absorptive, and transformative capacities to cope with unavoidable shocks from recurrent droughts (Béné et al., 2014). An integrated approach to supporting multiple strategic options is considered to be more impactful than a stand-alone approach (Hallegatte et al., 2017). However, for an integrated approach to be adopted, humanitarian aid system needs to shift from the current focus of supporting reactive and short-term emergency response actions into providing adequate and flexible funding for long-term DRR initiatives.

Several studies have been undertaken exploring suitable strategic options for enhancing community resilience to drought and other disasters. This study was undertaken to contribute to this on-going body of research. The objective of the study was to evaluate the strategic options for enhancing community resilience to drought in Kitui County.

2. Research Methods

The study was conducted in Mwingi North and Mwingi West Sub-Counties in Kitui County and used a mix of descriptive, correlation, and evaluation research designs. Mwingi North and Mwingi West Sub-Counties were purposively selected as they were the most typical of the population in relation to the characteristics under investigation. Kitui County was purposively selected from the category of ASAL Counties. Purposive sampling allows a researcher to use cases that have the required information with respect to the objectives of the study (Mugenda and Mugenda, 2003). Simple random sampling was used to select four Wards of Ngomeni and Kyuso from Mwingi North Sub-County and Nguutani and Thaana Nzau from Mwingi West Sub-County and household heads who were living in drought affected villages. A two-level multi-stage sampling was undertaken. The First level was used to select at least 10% (Mugenda & Mugenda, 2003) of the two Villages from each Ward in each Sub-County. The second level was utilized to select the rest of the Villages in each Wards from each Sub-County. The appropriate sample size was calculated from an estimated household population in each of the four study Wards informed by the 2019 population data (KNBS, 2019). Proportionate sampling was used to distribute the samples in the Wards and Villages based on their population variations in the sampling frame. The distribution of the study sample size of 385, was determined using the formula by Fischer *et al.,* (1983):

$$n = \frac{pq\,z^2}{e^2}$$

Where:
n = the desired sample size if the target population is greater than 10,000;
z = the standard normal variate at a required confidence level.
p = the proportion in the study population estimate to have the characteristics being measured;
q = 1- p and e = the level of statistical significance set.

If there is no estimate available of the proportion in the study population to have the characteristics of interest, then p = 50% should be used as recommended by Fischer *et al* (1983). Since there is no estimate available of the proportion in the proposed study population assumed to have the characteristic of interest, p = 50% will be used. At a 95% level of confidence which will be our desired accuracy, the z statistic is 1.96 and e = 5% hence:

$$n = \frac{0.5x0.5x1.96^2}{0.05^2} \approx 385$$

However, if the target population is less than 10,000, the required sample will be smaller.

Further, to triangulate information gathered from the household survey, the study utilized purposively sampled key informants including: 6 representatives from I/NGOs, CBOs and Faith Based Organisations, 2 from National Drought Management Authority and 8 from County Ministries of Agriculture, Water and Livestock; Education, ICT and Youth Development; Environment and Natural Resources; Health and Sanitation; Lands, Infrastructure, Housing and Urban Development; Tourism, Sports and Culture: Trade, Cooperatives and Investment & the Office of the Governor. Moreover, 4 focus groups of 10-12 members selected through quota sampling, 2 groups, one representing youth and another representing women and men in each Sub-County. Data was collected using structured questionnaires; focus group discussion guides; key informant interview guides and observation checklists and analysed using statistical package for social scientists (SPSS) software Version 28, STATA Version 15 and MS Excel.

3. Analysis Result and Discussion

3.1 Types of Humanitarian Aid Implemented in Kitui County and Community Resilience

The study sought to find out the types of humanitarian aid supported by humanitarian aid agencies working in Kitui County. The results were summarized in Figure 3.1 below. The results indicate 20% (77) of household respondents ranked access to food support as the main humanitarian aid supported by humanitarian aid agencies during drought disasters in Kitui County while community resilient building actions scored low such as support for drought resilient crops as confirmed by 11.7% (45) of the household respondents, awareness creation on drought mitigation 9.6% (37), drought early warning information systems 8.3% (32), conducting drought risk assessments by 7.5% (29), implementation of community drought actions by 5.5% (21), and crop and livestock insurance 1.8% (7) among others.

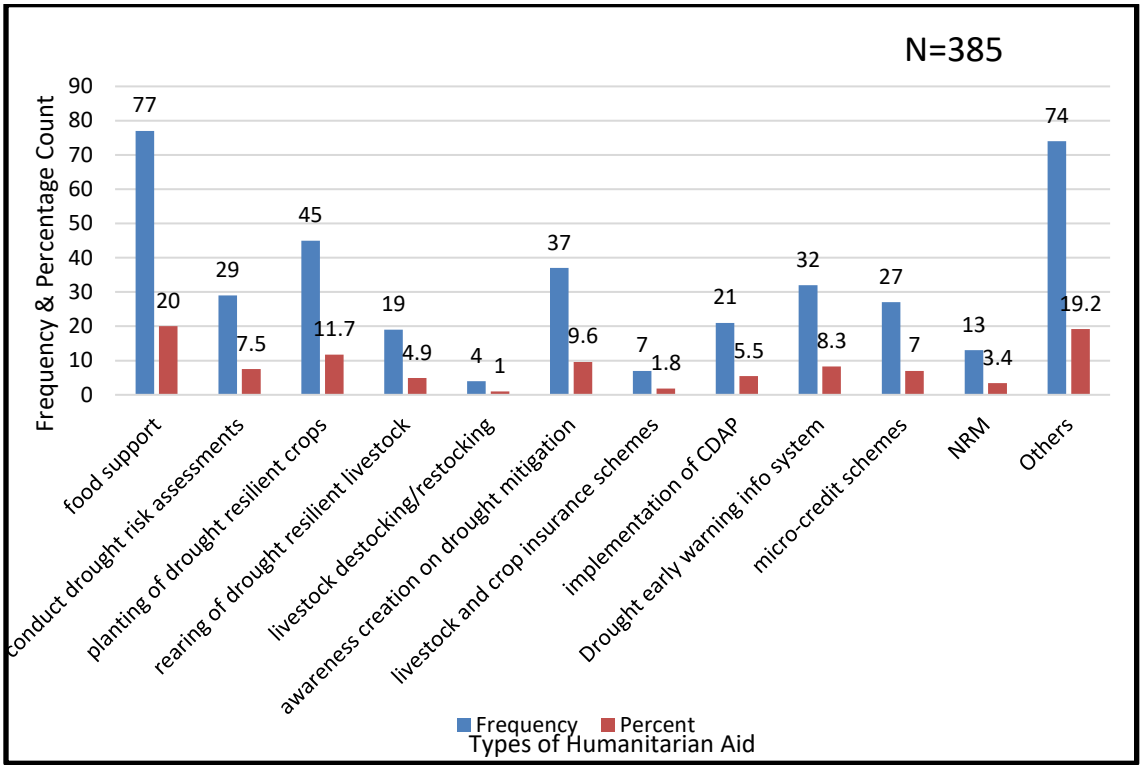

Fig 1: Showing Types of Humanitarian Aid Being Implemented in Response to Drought Disaster in Kitui County.

Existing studies reveal that communities in Kitui County have adopted various community drought resilience enhancing measures through the support of various humanitarian aid agencies (Mwangi et al., 2020). Such adaptation measures include planting of drought tolerant and early maturing crop varieties, adopting drought-tolerant livestock breeds, preservation of fodder and crop residue, soil and water conservation practices, engaging in conservation measures, construction of water structures among others (MoALFC, 2021). Ending Drought Emergencies (EDE) reports show that good progress has been made on implementing planned activities for EDE in ASALs in Kenya including Kitui County (GoK, 2022). However, over the years the bulk of humanitarian aid has remained focused more on food support compared to building community resilience against drought. Although several drought mitigation measures have been deployed over the past decades, substantial number of these measures have tended to be ad-hoc, uncoordinated and short-term response measures characterised by reactive tendencies mainly in form of emergency relief services to the drought affected communities (IGAD, 2013). It has been noted that although resilience building efforts are helping in mitigating drought crisis, one of the critical challenges facing these efforts has been ensuring that they are providing sustainable solutions to ongoing drought crisis (Munene, Sang & Makay, 2022). Additionally, there is a challenge that the global humanitarian aid funds reactive actions as opposed to funding long-term development focused actions which are critical in addressing the underlying causes of community vulnerability to drought hazards and consequently building community resilience and contributing to sustainable development (Clarvis et al., 2015).

3.2 Strategic Options for enhancing Community Resilience to Drought

This study sought to identify strategic options which can be undertaken to enhance community resilience to drought in Kitui County by the humanitarian aid actors. The strategic options were randomly selected from a list of indicators for community resilience drawn from a recent study on community resilience conceptual frameworks (Frankenberger et al., 2013; UNDP, 2013; Kwasinski, Trainor, Wolshon & Lavelle, 2016) and from the views gathered from the community members. These included timely and reliable sharing of early warning information systems, support for sustainable water sources, more community engagement in DRR planning, increased credit facilities, diversification from farming to non-farming livelihoods options, more engagement in drought risk assessment, support for food banking and storage facilities and livestock and crop insurance schemes. The strategic options were subjected to a household survey administered by trained Research Assistants and the survey results were ranked using Spearman's correlation weighting by cases approach. The ranks in percentages were presented in descending order as shown in Table 3.1 below. The ranks informed that some of the respondents gave more than one answer on one variable, hence resulting in a final of 2,172 as the total responses. The ranking revealed that support for more sustainable water sources had the highest rank as confirmed by 34.4% (747) responses; followed by increased access to credit facilities 15.1% (328); livestock/crop insurance schemes 11.9% (259) and support for food banking/storage facilities 11% (240) among others.

Table 1: Strategic Options for Enhancing Community Resilience to Drought

Strategic Options for enhancing community Resilience to drought	Frequency	Percent
1. Support for more sustainable water sources	747	34.4
2. Increased access to credit facilities	328	15.1
3. Livestock/crop insurance schemes	259	11.9
4. Support for food banking/storage facilities	240	11.0
5. Timely & reliable sharing of early warning information system	180	8.3
6. More community engagement in DRR planning	162	7.5
7. Diversification from farming to non-farming livelihoods options	136	6.3
8. More community engagement in drought risk assessments	120	5.5
Total	**2172**	**100.0**

The above findings were confirmed through triangulation using KIIs and FGDs. During one of the KIIs one of the male participants said:

> "Strategies such as increased access to water projects, increased access to credit facilities, support for crop and livestock insurance are critical in enhancing community resilience to drought in Kitui County".

Further, during one of the FGDs, a male participant said:

> "Strategies such as increased support for diversification of income sources, sustainable sources of water, credit facilities and crop and livestock insurance are viable strategies for enhancing resilience to drought in my community".

Existing studies indicate that access to water as a basic human right is a limiting factor in Kitui County as people living in the County experiences acute water insecurity in terms of inadequate access to clean water, safe and affordable water to meet all the requisite water needs (Bukachi, Omia, Musyoka, Wambua, Peter & Karzenevica, 2021). The main sources of drinking water in Kitui county include ponds, lakes, streams, protected springs, protected wells, boreholes, water piped into plots or dwellings, bottled water, harvested rainwater, purchase from water vendors, and public taps (KNBS, 2019). Further, only 53% of residents in Kitui County use improved sources of water and the average distance to the nearest water point is 7 km and this distance increases during dry spells where 58% of households spend more than thirty minutes in fetching drinking water (County Government of Kitui, 2018). Adequate access to water includes the capacity of the people to safeguard sustainable access to adequate, sustainable, and acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development. A resilient community has the ability to cope with water-related uncertainties and risks arising from drought (Bukachi et al., 2021). This study found that Kitui county experiences acute deficiencies in water supply due to protracted drought which adversely affects livelihoods and progressively undermines community resilience building efforts. As result, the study contends that providing more support for sustainable water sources through humanitarian aid system would be a suitable strategic option for improving community resilience to drought disaster in Kitui County.

Previous studies undertaken in Kitui County indicate that limited financial capital is a main constraint in drought resilience building efforts (MoALFC, 2021). Further, poverty and limited financial capacity have been noted to be limiting factors for smallholder farmers in adapting to drought challenges in Kitui County (Wens, Mwangi, Loon & Jeroen, 2021). Such services help the poor people in reducing vulnerability to drought shocks, promotes adaptation, and enhances community resilience to drought conditions through enabling them to absorb, cope with, and quickly recover from drought damages. Drought-related livestock losses can push households into a chronic poverty trap. When drought disasters strikes, in most instances affected communities experience delayed response from humanitarian aid system which results in loss of livelihoods and undermines recovery efforts (Francesco, Jensen, Sina, Mude & Maher, 2021).

Undertaking drought risk assessments enhances community knowledgeability about drought risks while development and implementation of community action plans enhances community resilience and adaptation to drought hazards (Kamara, Sahle, Agho & Renzaho, 2020). Further, low support by humanitarian aid actors in Kitui County for disaster risk assessments undermine community capacity in developing a deeper understanding on the vulnerability of disaster-prone people and hinders progression towards drought disaster preparedness (Hallegatte et al., 2017).The ability to assess, manage and monitor risk and develop community action plans has been acknowledged as a key characteristic of a resilient community (Haile, Tang, Sun, Huang, Zhang & Liu, 2019). Further undertaking drought risk assessment and development of community action plans forms a strong foundation for development of drought policies and preparedness plans with a strong focus on DRR. Such policies enable drought-prone communities to shift from the current traditional focus on reactive emergency management characterised by high community dependency on external handouts which undermine community resilience building efforts (Wilhite, Sivakumar & Pulwarty, 2014). This study found that the current humanitarian aid has invested very little in drought risk assessment and development of community action plans as only 7.5% (29) and 5.5% (21) confirmed their support in that order. Further, the study found that lack of storage facilities is one of the reasons given by 9% (16) household respondents who sell their food produce immediately after harvest. High level of food insecurity is a key indicator of low community resilience. Existing studies indicate that one of the key characteristics of a resilient community is the ability to manage community- based assets in an equitable and sustainable way (Frankenberger et al., 2013).

Further, the current early warning systems in Kitui County are unreliable (Wens et al., 2021). Improved sharing of timely and reliable early warning information has been identified to be a good approach that strengthens risk reduction and community coping capacity for community organization for collective action (Frankenberger et al., 2013). Additionally, people normally suffer less from disasters if some of their income sources are located outside the area exposed to hazard through reliance on income sources that are not exposed to drought risks (Hallegatte et al., 2017). Strategic options, implemented in an integrated manner and responding to specific needs, have high probability of reducing drought vulnerability through reducing exposure to drought risks, adapting to the changing climate, and enhancing community resilience (Ahmadalipour, Moradkhani, Castelletti & Magliocca, 2019). Further, with adequate awareness of future drought risks, flawless early warning systems, and without socio-economic limitations, people in Kitui County would be able to make proactive, rational decisions and achieve optimal drought risk reduction (Wens et al., 2021). Resilient communities have dynamic qualities that enable them to manage community- based assets in an equitable and sustainable way. This study found low investment by humanitarian aid actors on community resilience building processes compared to food aid as a limiting factor on building community resilience to drought (Frankenberger et al., 2013).

3.1.1 Normality Test between Strategic Options Factors and Community Resilience do Drought

Analysis of the results of tests of normality between community resilience to drought (dependent variable) and strategic options factors (independent variable) showed that the data set on community resilience to drought against that of strategic options factors were non-normally distributed, a violation of normality assumption. This is because the Kolmogorov - Smirnov and the Shapiro - Wilk tests, performed on the data sets for the two variables gave p-values less than 0.05 at 5% level of significance, implying that the data values for the dependent variable were skewed. Linear models make inferences about means, thus if the means are normally distributed, the inferences will be valid. Fortunately, means tend to follow a normal distribution even when the variable itself does not. The larger the sample size, the more extreme the distribution of the observations can be without compromising the validity of the t-test. Thus, even when the underlying aspect follows a highly skewed distribution, the means approach a bell curve as the sample size increases.

3.2.2: Linearity Test between community resilience to drought and Strategic Option Factors

The Karl Pearson's coefficient of correlations for testing the relationship between strategic options and community resilience to drought is based on the assumption that there is an average linear relationship between the two variables (Saleemi, 1997). A linearity test was carried out to establish the relationship between strategic options to drought and community resilience. The results show that there is an average linear relationship between community resilience to drought and strategic options factors ($y=1.46+0.12*x$; $R^2=0.286$). This relationship revealed that community resilience to drought and strategic options factors are positively related with the line of the best fit showing a rising trend. Thus, the linearity test shows that there is a cause-and-effect relationship between the forces affecting the distribution of the items in the strategic options factors and community resilience to drought.

3.2.3: Regression Analysis Results on Strategic Options and Community Resilience to Drought

To ascertain the effect of strategic options on community resilience to drought, regression analysis was conducted, and the results showed the effect strategic options adopted by the community on enhancing resilience to drought was significant ($F(1, 397) = 158.674$, $p = 0.000 < 0.05$). With $R = 0.534$ and $R2 = 0.286$, the model implies that about 28.6% of the total variation within community resilience to drought was accounted for by strategic options. From ANOVA, since $p = 0.000$ and was lower than $p = 0.05$, then the contribution of strategic options to community resilience to drought was significant, and the conclusion is that strategic options have significantly increased community resilience to drought. The coefficient for strategic options (β) was also significant ($\beta = 0.534$, $t = 12.597$, $p = 0.000 < 0.05$) indicating that for every unit increase in community resilience to drought (0.534) there was a predicted increase of (0.12) units in log odds of strategic options adopted by the community. Since p - value = $0.000 < 0.05$, the null hypothesis was rejected and concluded that there was a statistically significant relationship between strategic options and community resilience to drought.

3.2.4: Pearson's Correlation Test between Strategic options and community resilience to drought

Pearson Correlation between strategic options and community resilience to drought were found to be significant at $p = 0.000 < 0.05$ at 0.05, with a strong correlation coefficient of $R = 0.534$ as shown in Table 2 below.

Table 2: Showing Correlation Analysis for Strategic Options on Community Resilience to Drought

Correlations

		Strategic. Options	Community. resilience.to.drought
Strategic. Options	Pearson Correlation	1	.534**
	Sig. (2-tailed)		.000
	N	399	399
Community. resilience.to.drought	Pearson Correlation	.534**	1
	Sig. (2-tailed)	.000	
	N	399	399

**. Correlation is significant at the 0.01 level (2-tailed).

3.3 Other Proposed Strategies that can be adopted for Improved Community resilience to Drought in Kitui County

Although it is exceedingly difficult to cut to zero drought risks in the context of constantly changing climate, (Khisa, 2017), community resilience to drought in Kitui County can be achieved through undertaking a raft of several strategic options to reduce household exposure to drought risks and thereby improve the ability of the community to cope with recurrent droughts shocks. The ex-ante strategic options help in diversification and adaptation of flexible decision-making while the ex post strategic options are critical in reducing income fluctuations and consumption smoothing (Shiferaw et al., 2014). Additionally, undertaking adaptation strategies on efficient and sustainable use of resources by farmers to achieve longer-term livelihood security through maintaining, supporting farmers to shift from one form of economic activity to another as the situation accommodates and increased adoption of diversified drought resilience and short maturing crop varieties; promoting better access to market information systems, improved infrastructure,

improving irrigation services as well as adoption of integrated technological, institutional and policy strategic options are suitable in reducing drought risks (Khisa, 2017).

Additionally, enhancing support for social capital among vulnerable people and building strong and sound partnerships involving national and county government agencies, INGOs, CBOs and local communities for increased access to adequate, sustainable, and flexible humanitarian aid that adequately meets local needs and builds local capacity by humanitarian aid actors will be critical in enhancing community resilience to drought (Suda, 2000). However, a great percentage of the humanitarian aid funds reactive actions, ad-hoc, uncoordinated short-term response measures, mainly in form of emergency relief services to the drought affected communities, initiatives that do not provide sustainable solutions as opposed to funding long-term development focused and DRR actions which have the capacity to address the underlying causes of community vulnerability to drought and building community resilience (Clarvis et al., 2015).

Moreover, controlling population has been proven effective in mitigating drought risk in Africa, even more effective than mitigating climate change due to its high potential in improving socio-economic vulnerability and reducing potential exposure to drought risks (Ahmadalipour et al., 2019). Previous studies indicate that Kitui County has adopted several national policies geared toward adapting to climate change and its associated risks. Such policies provide information to farmers and enable them to plan, make feasible decisions, and adapt to the anticipated climate risks (MoALFC, 2021). Further, development of adaptive capacities of farmers to engage in climate-smart agricultural practices and prioritization of supporting agricultural activities by the humanitarian aid system would bear huge dividends in enhancing community resilience to drought. Further, supporting mainstreaming of the national policies such as the Kenya National Climate Change Response Strategy (NCCRS) (GoK, 2010) and the National Climate Action Plan (NCCAP) (GoK, 2012) into the Country-level policies and integrated development plans by the humanitarian aid actors would be beneficial in enhancing community resilience to drought in in Kitui County. Moreover, community resilience can be enhanced through supporting government ownership of resilience strategies, strengthening administrative and technical capacity among key institutions, supporting basic social services such as health, education, and rule of law, supporting climate change adaptation, promoting peacebuilding and conflict resolution initiatives, advocating for long-term funding for resilience initiatives and formal social protection mechanisms. Finally, community resilience to drought would be enhanced through promoting diverse livelihood strategies such as asset accumulation and diversification, improving human capital (health, education, nutrition), supporting smallholder market linkages, and improving access to technologies, promoting gender empowerment, and supporting healthy ecosystems (Frankenberger et al., 2013).

4. Conclusions

This study revealed that the current humanitarian aid is more focused on food support and strategic options such as support for more sustainable water sources, increased access to credit facilities, livestock/crop insurance are critical in enhancing community resilience to drought. Additionally support for food banking/storage facilities, timely and reliable sharing of early warning information and more engagement of communities in DRR planning are suitable options for enhancing community resilience to drought. Finally, the study found that diversification from farming to non-farming livelihood options and more community engagement in drought risk assessments were suitable for enhancing community resilience to drought in Kitui County. Just like all other studies, this study faced the following limitations that include: the study did not cover large geographical areas, and this may have limited the scope of application of the resilience conceptual framework. This limitation was addressed through selecting study areas that were representative on the Kitui County. Additionally, the respondents were reluctant in providing answers to questions that they perceived to be too personal. This limitation was addressed by assuring confidentiality on the information provided by the respondent in the beginning of the interview and, also, by explaining how the information gathered would be used and offering an opportunity to the respondent to choose to participate in the interview or not to participate. Finally, despite the convincing evidence that women and people with disability often experience drought stresses and hardships differently, this study did not endeavour to treat them differently. Instead, the study only focused on the resilience building at the community and household levels which could benefit community members in general. This limitation was addressed through ensuring there was no deliberate effort to exclude people with disabilities especially through FGDs and KII interviews. Instead, people with disabilities were consulted alongside with other people.

5. Recommendations

The study recommends the need for increased humanitarian aid to support increased adoption of various technological, institutional and policy strategic options for enhancing community resilience to drought in Kitui County. These include support for more sustainable water sources, increased access to credit facilities, livestock, and crop insurance. Additionally, there is need to support the establishment of food banking and storage facilities, timely and reliable sharing of early warning information and more community engagement in DRR planning. Further, diversification from farming to non-farming livelihood options and more community engagement in drought risk assessments are needed to enhance the current level of community resilience in Kitui County. Implementation of these strategic options require proper integration to effectively manage both drought ex ante and reduce the ex post negative effects of drought on vulnerable communities in order to enhance the current level of community resilience to drought. The study recommends further research to determine the level of resilience to drought within the market systems in Kitui County. These findings will be beneficial in guiding the policy makers in improving strategies for enhancing community resilience to drought.

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