

# Strategic Measures Employed by the National Drought Management Authority for Drought mitigation in Kenya

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**Abstract:** Most countries across the world are still adopting the crisis management approach in their drought management efforts. This approach has been criticized due to its reactive nature. Researchers emphasize the need for a more strategic and proactive drought management approach. In Kenya, the National Drought Management Authority (NDMA) was constituted to manage the persistent droughts that are experienced in the country. However, there is paucity on research focusing on the strategic measures that the organization has adopted to achieve this goal. The study at hand was guided by theories such as strategic alliances theory and organizational adaptation theory to investigate the strategic measures that the NDMA has adopted and their effectiveness. It adopted a correlational research design. Primary data was collected from a random sample of 86 NDMA employees through a self-developed questionnaire. The questionnaire was pilot tested among 10 managers to ensure its validity. The researcher gave out 86 questionnaires but only 80 were returned and upon data cleaning they were used in data analysis. Data analysis was achieved through descriptive statistics and presented through tables. There were 54 males who took part compared to 26 female participants. The study established that there is a relationship between drought monitoring and early warning systems and drought mitigation in Kenya. The study also revealed that there are challenges to drought mitigation which include lack of political goodwill or government support and persistence of illegal tree logging. According to this study the lack of a sound policy framework and the focus on short-term goals are also identified as challenges NDMA encounters in carrying out its mandate. NDMA however collaborates with other organizations both public and non-governmental by sharing of information. In addition, there was a significant relationship between collaboration, education, and training as well as government support in contributing to drought mitigation in Kenya. The NDMA should embrace education and training as a means of equipping farmers to respond to the needs and challenges of climate change. The organization should also develop a framework for enlightening farmers about the best farming methods and practices in light of climatic changes. The government is encouraged to increase its support to NDMA to facilitate attainment of the mandate. Future researchers can also explore the measures that can be adopted to curb the challenges to drought mitigation including illegal tree logging and occupation in catchment areas.

**Keywords:** STRATEGIC, MANAGEMENT, MITIGATION IN KENYA.

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## 1. INTRODUCTION

### Background of the Study:

Kenya is largely an agricultural economy as agriculture supports over 75% of the country's population. It also meets almost all of the nation's food requirements. However, drought is a key constraint to rain-fed agricultural production, particularly in arid and semi-arid lands (ASALs) which characterize approximately 88% of the nation (Huhuo&Mugalavai, 2010). Over the last 100 years, Kenya has experienced 28 major droughts, three of which occurred in the last decade. The severity and frequency of droughts appear to increase in the country overtime. The country has experienced several

droughts over the last half of the 20th century including in 1951, 1952-55, 1957-58, 1957-58, 1974-76, 1980-81, 1983-85, 1987, 1992-93, 1995-96, 1999-2000, and 2004-06 (Ngaira, 2004). Kenya has declared seven national disasters, out of which five were due to droughts while the other two were due to floods. Besides, the country has experienced a series of severe weather-related emergencies such as famines, floods, and landslides.

### **Status of Drought in Kenya:**

Currently, Kenya has experienced drought for the better part of 2016 and 2017. The government has declared the current drought a national emergency (Uhe *et al.*, 2017). Drought started during the October-December 2016 period which was characterized by failed rains and unusually high temperatures. The northwest and southeast parts of the country have been hard hit by the drought as they have received the lowest levels of rainfall. The drought has exposed the country's vulnerability as it has affected 23 of 47 counties (see appendix C: Map of Kenya). The worst-affected counties are Turkana, Marsabit, Samburu, Tana River, Isiolo, Mandera, Garissa, Wajir and Baringo.

### **Role of National Drought Management Authority (NDMA):**

The National Drought Management Authority (NDMA) is a public organization that was established by the NDMA Act of 2016. The organization was previously under the State Corporations Act (Cap 466) of the Laws of Kenya according to Legal Notice Number 171 of November 24, 2011. It is mandated to coordinate matters relating to drought management including the implementation of policies and programs in relation to drought management (NDMA, 2017). The history of Kenya's efforts on drought management dates back to 1985, with the development of a drought contingency planning system in Turkana. The system was extended to other arid regions through the support of the Netherlands government. From 1992, it was expanded further through the Emergency Drought Recovery Project and the Arid Lands and Resource Management Project (ALRMP) with the support of the World Bank. The drought management system was covering 28 arid and semi-arid districts (currently 23 counties) by the end of Phase II of the ALRMP (NDMA, 2017). The short-term, project-based interventions were being adopted when the country was experiencing increasingly frequent and intense drought periods, affecting the household food security as well as livelihoods of over ten million citizens. The state acknowledged the need to enhance the sustainability and quality of drought management in the country leading to the establishment of the NDMA.

NDMA is responsible for incorporating risk reduction as well as climate adaptation into planning. The organization also implements social protection programs in food insecure populations as well as the implementation of strategic projects that improve drought preparedness in the country. Furthermore, the organization prepares, consolidates, and disseminates drought early warning information through the management of the early warning system, participation in national and county food security measures, communicating the current drought status, as well as mapping the vulnerable zones (NDMA, 2017). The organization further manages knowledge on drought management and climate change adaptation activities and contributes to policy formulation on matters that align with its mandate.

### **Statement of the Problem:**

Kenya continues to experience perennial drought years after independence. The droughts have significant negative impacts on food security in the country as they lead to low crop yields, reduced-rain-fed crop farming activities, changes in planting dates, changes in crop varieties, loss of livestock, and changes in livestock composition (Huhó&Mugalavai, 2010). Despite the country's vulnerability to drought, the government has been accused of adopting reactive rather than proactive drought management measures. Particularly, the government allegedly adopts ineffective central planning which limits its capabilities to develop systems that respond to change quickly and promote innovation in relation to drought management. Ideally, the government entities in charge of drought management respond by dispatching relief aid, destocking livestock, and rehabilitating or constructing boreholes, distilling water pans, banning export of maize, as well as appealing for more funding to respond to the drought seasons (Mugwe, 2017).

Research indicates that governments in the Horn of Africa need to shift from the crisis management approach to a strategic approach in relation to drought management. The crisis management approach is largely ineffective as it focuses on response activities rather than long-term developmental activities involving planning, mitigation, and disaster preparedness (Tadesse, 2016). There is paucity in studies exploring the strategic management measures in relation to drought management in Kenya, creating the need to close this research gap.

## 2. LITERATURE REVIEW

### Strategic Alliances Theory (Lammi, 2013):

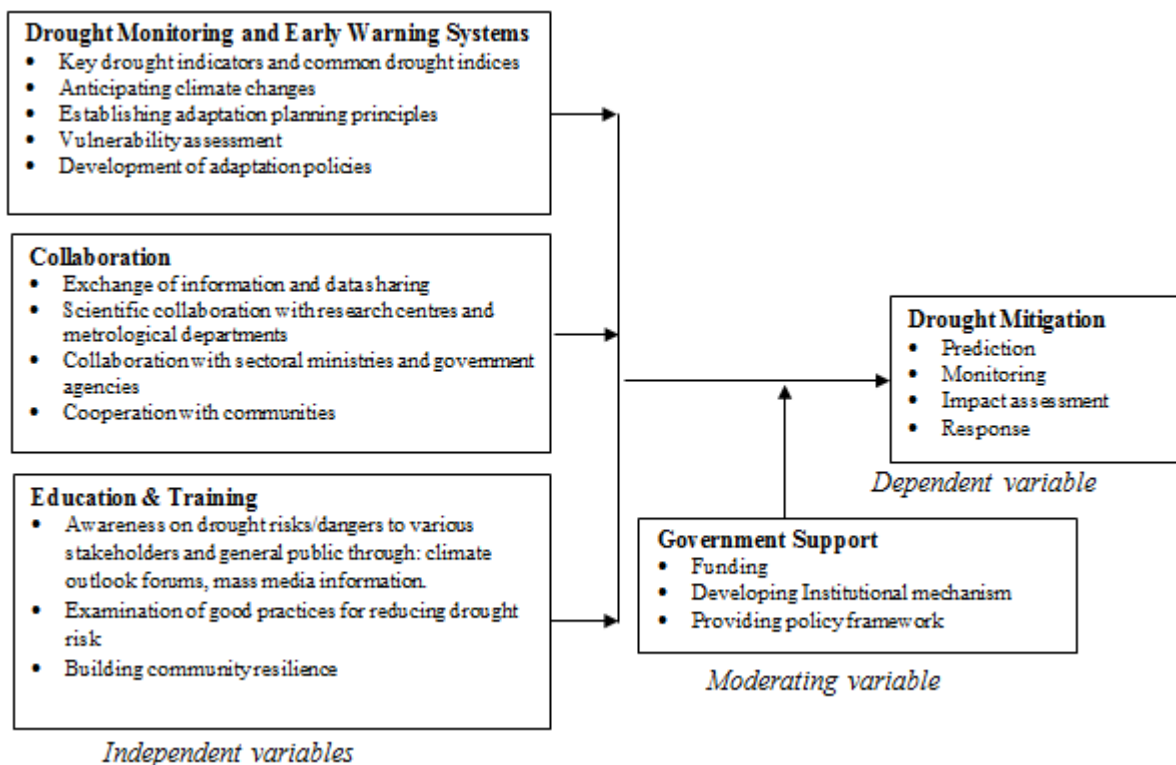
The concept of 'strategic alliances' refers to wide range of enduring inter-firm cooperative arrangements. Examples of strategic alliances include product and technology licensing arrangements, joint ventures, outsourcing arrangements, joint marketing, and joint research and development. Transaction cost theory is the most common theoretical perspective that is used to explain strategic alliances. The logic behind this perspective is cost minimization as a guideline when organizations choose their mode of transacting. Firms form strategic alliances in order to minimize the sum of transaction as well as production costs (Lammi, 2013). Strategic alliances can also be explained through the resource-based view perspective.

### Organizational Adaptation Theory (Purna 2017):

The theory posits that firms should transform their procedures or structures in order to cope with the changes in their operating environment. Changes manifest in different forms arranging from a shifting economic landscape, new legislations, or increased competition. Organizational adaptation is required to correct imbalances as well as improve inefficient processes within a firm (Purna, 2017). Adaptation can either be reactive, whereby it occurs after changes in the external environment. It can also be pre-emptive. In such cases, managers implement organizational changes in their firm's procedures or culture in anticipation of the changes in the external operating environment.

### Conceptual Framework:

The conceptual framework shows how the variables interact with each other and depicts the effectiveness of the strategic drought mitigation measures that are adopted by the NDMA is moderated by government support.



## 3. RESEARCH FINDINGS AND DISCUSSION

### Response Rate:

### Demographic Statistics:

The researcher gave out 86 questionnaires but only 80 were returned and upon data cleaning they were used in data analysis. There were 54 males who took part compared to 26 female participants. A majority of those who took part in the study had worked at the organization for 4 to 5 years as indicated by 47 employees making up 58.8%. Most of those who participated were aged between 41 and 45 as shown by 26% followed by those aged between 26 and 30 who made up 18% of the participants as shown on the table below.

**Demographic statistics of the employees who took part in study**

		Frequency	Percent
Gender	Male	54	67.5
	Female	26	32.5
Time Worked	2 to 3 years	33	41.3
	4 to 5 years	47	58.8
Age	20-25	6	7.5
	26-30	15	18.8
	31-35	13	16.3
	36-40	12	15
	41-45	21	26.3
	46-50	7	8.8
	51-60	6	7.5

**Research Findings:**

**Mitigation Approaches Adopted by the NDMA:**

As evident from 40%, a majority of those who took part highly agreed use of global standard indicators for early identification is one of the mitigation approaches used by NDMA. Only 9% and a further 10% disagreed and highly disagreed that the use of global standard indicators for early identification is not one of the mitigation approaches utilized by the NDMA. When asked about if the NDMA provides early warning systems based on weather patterns to mitigate drought, 29% and 28% agreed and highly agreed, respectively. Similarly, 14% of those whose took part and a further 34% agreed and highly agreed that the organization conducts vulnerability assessment to reduce the effects of drought in Kenya, respectively. More than half (55%) of the respondents highly agreed that the institution seeks government support and institutional cooperation to mitigate drought while an additional 32% agreed to the same. Notably, there was no respondent who highly disagreed that NDMA does seek support from the government and other institutions in its effort to manage drought. With regard to the use of building resilience measures, 29% highly agreed with a further 23% agrees on the same as shown below

**Table: Overall analysis of respondents to Drought mitigation process by NDMA**

		Frequency	Percent
Drought Mitigation	Highly Disagree	21	26.3
	Disagree	16	20
	Neutral	12	15
	Agree	15	18.8
	Highly Agree	16	20

The results show that most of those who took part were positive that the organization employs the aforementioned approaches. In particular, 30% and 36% agreed and highly agreed that NDMA champions sustainable development, respectively. On the other hand, a majority of those who took part did not agree that the organization integrates water resource management, engages in climate change adaptation planning as well as developing a risk reduction policy framework to mitigate the effects of drought. In particular, a summative total of 50%, 56%, and 41% did not agree that the organization integrates water resource management, engages in climate change adaptation planning and developing of a risk reduction policy framework to mitigate the effects of drought, respectively. When asked if NDMA educates farmers to create awareness in order to mitigate health, 45% of the respondents had a positive opinion which was similar to 41% who said that the organization promotes sustainable farming practices.

**Table: Drought Mitigation approaches adopted by the NDMA**

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree
Use of global standard indicators for early identification	10%	9%	16%	25%	40%
Providing early warning systems based on weather patterns	18%	21%	5%	29%	28%
Conducting vulnerability assessment	25%	20%	8%	14%	34%
Seeking government support and institutional cooperation	0%	6%	6%	31%	55%

Resilience building measures	19%	24%	6%	23%	29%
Championing sustainable development	13%	11%	10%	30%	36%
Integrated water resource management	10%	40%	21%	8%	21%
Climate change adaptation planning	30%	26%	13%	19%	13%
Championing sustainable development	40%	24%	9%	15%	13%
Developing a risk reduction policy framework	13%	25%	24%	19%	20%
Educating and creating awareness among farmers	18%	26%	11%	20%	25%
Promoting sustainable farming practices	26%	30%	3%	25%	16%
Impact assessment	21%	24%	6%	19%	30%

**Challenges Encountered by NDMA in Drought Mitigation:**

The researcher sought to know the challenges NDMA encounters in its efforts to carry out its mandate of mitigating drought and ensuing effects. A total of 50% agreed that the lack of understanding of the link between water scarcity and drought was not one of the challenges the organization was facing. Only 5% highly agreed that the failure to understand the link between water scarcity and drought was a challenge while a further 28% agreed to the same. As seen from 19% who highly agreed and 35% who agreed, the results show that most of the respondents had a positive opinion that reluctance to protect critical ecosystem functions and services was a challenge NDMA encountered. In the same vein, 48% agreed that the lack of incentives for water conservation and a further 59% were of the opinion that lack of institutional cooperation was challenges in drought mitigation. Given the significance of political will in the success of government policies, the researcher sought to know its effect in realization of the NDMA mandate.

The findings indicated that 48% agreed and 39% highly agreed that the lack of political goodwill and government support was one of the challenges the institution faced. Similarly, a majority (62%) agreed that lack of a sound policy framework and the lack of sufficient resource and manpower were among the challenges that NDMA faced. The availability of infrastructure is an important aspect in success of implementing plans. In this regard, when asked, 62% of those who took part agreed that the reliance on grey infrastructure was a challenge at NDMA. One of the causes of drought is logging. The participants were asked if persistence of illegal tree logging and occupation in catchment areas posed a great challenge and the results showed that 64% agreed. Finally, as seen from 24% who highly agreed and 30% who agreed, the focus on short-term goals is a challenge at NDMA.

**Table: Challenges Encountered by NDMA in Drought Mitigation**

	<b>Highly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Highly Agree</b>
Failure to understand the link between water scarcity and drought?	30%	20%	18%	28%	5%
Reluctance to protect critical ecosystem functions and services	19%	15%	13%	35%	19%
Lack of incentives for water conservation	18%	13%	23%	23%	25%
Lack of institutional cooperation	15%	15%	11%	26%	33%
Lack of political goodwill and government support	4%	4%	6%	48%	39%
Lack of a sound policy framework?	11%	16%	10%	26%	36%
Lack of sufficient resources and manpower	25%	19%	5%	51%	0%
Reliance on grey infrastructure	14%	19%	6%	29%	33%
Persistence of illegal tree logging and occupation in catchment areas	19%	15%	3%	38%	26%
Focus on short-term goals	16%	14%	16%	30%	24%

**Aspects of Collaboration to foster Drought Mitigation in Kenya:**

Effective mitigation of drought is a responsibility of many agencies including Non-Governmental Organizations (NGOs). In this regard, the researcher sought to capture the aspects of collaboration used by NDMA to mitigate drought and minimize the effects. The results showed that 85% agreed that there was exchange of information between agencies while a further 78% agreed that data availability of data between agencies was an aspect collaboration embraced by NDMA. This was closely related to scientific collaboration with research centers and universities as was seen from 69% of the

respondents who agreed it was one way of collaborating with other institutions. When asked if the development of drought policies and partnering with NGOs, CBOs, donors and private sector were approaches of collaboration, 56% and 71% respectively agreed. As evident from 71%, a majority of the respondents agreed that there was NDMA had embraced cooperation with sectoral ministries and government agencies and a further 54% agreeing that there was cooperation with government agencies for planning and budgeting. In the same vein, 29% agreed and 25% highly agreed that there is cooperation with citizens and communities. When asked if there is implementation of multilateral environmental agreements 56% agreed while 35% disagreed.

**Table: Aspects of Collaboration used by NDMA to foster Drought Mitigation by NDMA**

	<b>Highly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Highly Agree</b>
Exchange of information between agencies	1%	10%	4%	54%	31%
Data availability between agencies	5%	11%	6%	30%	48%
Scientific collaboration with research centers, universities	16%	10%	5%	33%	36%
Drought policy development	8%	11%	25%	21%	35%
Partnering with NGOs, CBOs, Donors and private sector	4%	18%	8%	40%	31%
Cooperation with sectoral ministries and government agencies	6%	6%	0%	46%	41%
Cooperation with government agencies for planning and budgeting	13%	28%	6%	29%	25%
Cooperation with citizens and communities	10%	21%	5%	34%	30%
Implementation of Multilateral Environmental Agreements	13%	23%	9%	35%	21%

**Aspects of Education and Training that affect Drought Mitigation in Kenya:**

The study sought to capture how aspects of education and training affect drought mitigation in Kenya. A keen look shows that 49% disagreed there is use of climate outlook forums while a close proportion of 46% agreed to the same. Similarly, a majority (51%) did not agree that there is building of awareness among the public, political and staff. On the other hand, most (51%) of the participants agreed that there is public engagement on effects of climate change and a further 64% disagreeing that there is use of formal education. Sixty-nine (69%) of the participants were of the opinion that NDMA does not use mass media information as a medium to train the public on aspects of drought. A combined total of 64% agreed that the creation of awareness about drought risks and dangers was employed by the organization. The results show that 28% agreed and 54% highly agreed that there is identification and examination of good practices to reduce drought risk through education, knowledge, and innovation.

**Table: Aspects of Education and Training that affect Drought Mitigation by NDMA**

	<b>Highly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Highly Agree</b>
Climate outlook forums	25%	24%	6%	23%	23%
Building public, political and staff awareness	23%	28%	15%	23%	13%
Public Engagement on effects of climate change	8%	28%	14%	20%	31%
Formal education	33%	31%	3%	14%	20%
Mass media information	40%	29%	6%	8%	18%
Awareness about drought risks and dangers	4%	19%	14%	15%	49%
Identification and examination of good practices to reduce drought risk through education, knowledge, and innovation	8%	8%	4%	28%	54%

**Aspects of Government support in relation to Drought Mitigation in Kenya:**

Government support is essential for the success of undertakings by its agencies. In this regard, the researcher sought to understand how government supported efforts by NDMA to mitigate drought in Kenya. The results show a majority (79%) of the respondents were of the opinion that there is support in form of government policies. On the other hand, 44% disagreed that there is availability of funds by the government. A combined total of 50% and 49% agreed that there is coordination of agencies and existing legislation. There is government support in terms of government emergency drought relief as agreed by 80% while a further 47% agreed that there is government drought rehabilitation. Similarly, 78% of the respondents agreed that there is government drought mitigation.

**Table: Aspects of Government support in relation to Drought Mitigation by NDMA**

	Highly Disagree	Disagree	Neutral	Agree	Highly Agree
Government policies	1%	11%	9%	35%	44%
Availability of funds	4%	44%	16%	18%	19%
Coordination of agencies	3%	34%	14%	15%	35%
Existing legislation	14%	21%	16%	20%	29%
Government emergency drought relief	9%	8%	5%	28%	51%
Government drought rehabilitation	6%	26%	21%	14%	33%
Government drought mitigation	11%	6%	8%	23%	53%

**Inferential Statistics:**

The study sought to examine the relationship between drought monitoring and early warning systems and drought mitigation in Kenya and the relationship between collaboration and drought mitigation in Kenya. In addition, the relationship between education and training and drought mitigation in Kenya and role of government support in contributing to drought mitigation in Kenya were also explored. The relationships were explored through correlation analysis.

The researcher analyzed correlation between adoption of drought mitigation measures and mitigation approaches have been adopted by the NDMA. The results show that there is a positive correlation between drought mitigation and the approaches the organization has employed to manage drought. This shows that that an increase in approaches leads to drought mitigation. For instance, there is a correlation of 0.662 between provision of early warning systems based on weather patterns and drought mitigation. Conducting vulnerability had a coefficient of 0.765, seeking government support had a correlation of 0.601 while building resilience measures had a correlation of 0.625. The results show that there are medium correlations indicating that there is a strong association between the measures and drought mitigation.

**Table: Correlation for Drought Mitigation approaches adopted by the NDMA**

Correlations	Drought Mitigation
Use of global standard indicators for early identification	0.664
Providing early warning systems based on weather patterns	0.662
Conducting vulnerability assessment	0.765
Seeking government support and institutional cooperation	0.601
Resilience building measures	0.625
Championing sustainable development	0.536
Integrated water resource management	0.517
Climate change adaptation planning	0.557
Championing sustainable development	0.431
Developing a risk reduction policy framework	0.502
Educating and creating awareness among farmers	0.553
Promoting sustainable farming practices	0.502
Impact assessment	0.503

There was significant correlation between drought mitigation and the challenges that NDMA encounters in delivering its mandate. The findings show that failure to understand the link between water scarcity and drought had a coefficient of 0.519, lack of incentives for water conservation had a coefficient of 0.615, and persistence of illegal tree logging and occupation in catchment areas had a coefficient of 0.632. In addition, focus on short-term goals had a coefficient of 0.467; lack of institutional cooperation had a coefficient of 0.515 while lack of sound policy framework had a correlation of 0.451.

**Table: Correlation for Challenges encountered by NDMA in Drought Mitigation**

	Drought Mitigation
Failure to understand the link between water scarcity and drought	0.519
Reluctance to protect critical ecosystem functions and services	0.535
Lack of incentives for water conservation	0.615

Lack of institutional cooperation	0.515
Lack of political goodwill and government support	0.576
Lack of a sound policy framework	0.451
Lack of sufficient resources and manpower	0.419
Reliance on grey infrastructure	0.472
Persistence of illegal tree logging and occupation in catchment areas	0.632
Focus on short-term goals	0.467

The results show that there was significant association between drought mitigation and aspects of collaboration foster drought mitigation in Kenya. In particular, drought had a coefficient of 0.739 with exchange of information between agencies, a coefficient of 0.851 with partnering with NGOs, CBOs, donors, and the private sector and a coefficient of 0.818 with cooperation with government agencies for planning and budgeting.

#### **Summary of Research Findings:**

The findings show that most respondents agreed that NDMA has drought mitigation approaches. The commonly used mitigation approaches are use of global standard indicators for early, providing early warning systems based on weather patterns, conducting vulnerability assessment, seeking government support and institutional cooperation, championing sustainable development, championing sustainable development and developing a risk reduction policy framework. The least used are resilience building measures, integrated water resource management, climate change adaptation planning, educating and creating awareness among farmers and promoting sustainable farming practices.

There are challenges to drought mitigation where the greatest are lack of political goodwill and government support, persistence of illegal tree logging and occupation in catchment areas, lack of a sound policy framework and focus on short-term goals. The most common drought monitoring measures used by NDMA are probabilistic classification, issuance of early warning systems, common drought indices, and archiving of impacts. NDMA embraces collaboration to mitigate drought through exchange of information between agencies, data availability between agencies and cooperation with sectoral ministries and government agencies. A keen look shows that most respondents did not agree that the NDMA has embraced education and training as an approach to mitigate drought in Kenya. In relation to government support, most agreed that there is lack of enough support. This is captured through government policies, lack of funds, existing legislation and government emergency drought relief. The inferential statistics showed that there is significant correlation between drought mitigation and drought monitoring and early warning systems, collaboration, education and training as well as with government support.

### **4. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **Summary of Key Findings:**

Most of those who took part agreed that NDMA uses drought monitoring, early warning systems and collaboration to mitigate drought. However, there is little education and training and there is lack of government support. The findings show drought monitoring and early warning systems, education and training government support and collaboration have a significant association with drought mitigation. In all the variables, most of the correlations are moderately strong.

The study revealed that there are challenges to drought mitigation which include lack of political goodwill and government support and persistence of illegal tree logging. According to thus study lack of a sound policy framework and the focus on short-term goals are challenges NDMA encounters in carrying out its mandate. The findings also show that NDMA collaborates with other organizations both public and non-governmental. This is through sharing of information, availing of relevant data, and cooperating with government ministries and agencies.

The findings show that NDMA has not embraced education and training as an approach to execute drought mitigation. Similarly, there is limited government support. This was captured in aspects such as lack of adequate and time funds, government policies, current legislation and government emergency drought relief.

Given the past changes in climate, drought has become a more common occurrence forcing government agencies, NGOs, private companies, and ordinary citizens especially farmers to act with urgency. In this regard, all parties should use tools and resources at their disposal to minimize the possibility of drought and prepare to respond effectively to droughts. Responses include having a sustainable supply of food which comes from farmers or has to be imported from other countries.



### **Conclusion:**

The study established that there is a relationship between drought monitoring and early warning systems and drought mitigation in Kenya. In addition, there was a significant relationship between collaboration, education and training as well as government support in contributing to drought mitigation in Kenya. This is because early warning system that supports the timely implementation of drought impact mitigation is one key element of an effective drought management strategy. Government should incorporate climate change in their adaptation plans, policies and budgets. In addition, NDMA should enable communities to deal with the impacts of climate change.

The study also established that there is need for NDMA to collaborate with other stakeholders. This is because no single organization is a custodian of information. In some cases, some institutions such as the meteorological department have specialized in water hence have expertise that NDMA does not have. There is also need for collaboration with research organizations to better understand emerging trends and develop new approaches to address new challenges and opportunities.

The findings show that government support significantly affects drought mitigation in Kenya. This is partly because effective prevention and management of drought is done through inaction of laws which can be done the government. In addition, there is an indispensable need for resources to manage drought. In this regard, provision or resources in adequate proportions and in a timely manner goes a long way in determining how NDMA will manage drought. The government also needs to ensure that there is collaboration between key ministries and agencies in order to equip NDMA with necessary information necessary to manage drought.

### **Recommendations:**

Findings show that NDMA has not embraced educating, training and equipping farmers to respond to the needs and challenges of climate change. In this regard, the organization should develop a framework intended to inform farmers on how best they can align their methods in line with the changing climate (Radojevic, 2015). The government should also increase its support to NDMA to enable the institutions realize its mandate. This support should be both monetary and non-monetary in form of political good-will and enabling collaboration with other agencies. The government should help farmers grow food in the face of extreme weather disasters; thereby creating the need for new creative solutions, visions, and partnerships. It is time for citizens, governments, universities and private partners to join together to empower smallholder farmers with the tools they need to navigate the climate challenges ahead (Wilhite *et al.*, 2014).

### **Areas for Further Research:**

Further research on how best can collaborate with all stakeholders who have an interest in drought mitigation in the country. Additionally, there is a need for further research on the educational program that can be used by stakeholders to equip citizens to cope with climatic changes. Future researchers can also explore the measures that can be adopted to curb the challenges to drought mitigation including illegal tree logging and occupation in catchment areas.

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