Enhancing Food Security Through Result-Oriented Policies in Kenya's Drylands: A Case of Kikumbulyu North Ward, Makueni County

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Abstract: - Food security and economic growth in Kenya's Drylands is undermined by lack of adequate application of policy interventions. This paper examines insights on how food policy interventions influence on food security in Kikumbulyu North Ward of Makueni County. Specifically, the research established the extent in which policy intervention affect food security, assessed to what degree them strategies deployed achieved food security and established to what extent policy strategies were adequate in achieving food security in Kikumbulyu North Ward of Makueni County. The study used a cross-sectional descriptive research design. The data was collected using a structured questionnaire and an interview guide to key informants. A sample size of 138 households in Kikumbulyu North Ward were interviewed. A stratified sampling method was used to administer the 138 questionnaires to the sample. Data analysis was further performed using descriptive methods and inferential analysis methods where frequencies, mean, standard deviation were used to summarise the collected data and the results were presented in form of tables and charts. The response rate was 97.1% and the findings showed that food policies have not been successful in improving food security. Therefore, to improve on policy interventions of food security, it was recommended of the need to strengthen the monitoring and evaluating of food security issues in Kenya Drylands by periodically reviewing our policy implementation results so as to adopt result-oriented policies. This will focus on improving the previous period of policy implementation as a baseline in formulating and implementation of new period policy. This, therefore, will ensure connectivity of policy implementation and guide on how the food stakeholders can do business geared towards achieving the zero hunger agenda.

Key words: Food security, Drylands, policy interventions, monitoring and evaluation, result-oriented policies, policy implementation

I. INTRODUCTION

Poodsecurity has its foundation on food availability which refers to adequate amounts of food availed regularly; food accessibility which involves having adequate resources to buy food that will provide proper diet and food utilisation, this entails proper use as well as being knowledgeable and having skills in nutrition, water and sanitation. Important indicators of food security involve calorie consumption and nutritional situation, expenses on food, food production, income and expenditure (FAO 2008). The global agenda on ensuring food security will be guided by the Sustainable Development Goals

(SDGs) building on Goal 5 on "achieving gender equality and empowering all women and girls and Goal 2 which is all about ending hunger, achieving food security and improved nutrition, and promote sustainable agriculture" (Taylor, 2017). According to Food and Agriculture Organization (FAO) of the United Nations 795 million people are chronically starving (FAO, 2015), with over one in nine people in the world still facing starvation (Njuki, 2015). The biggest burden of starvation occurs in Southern Asia, which has the highest number of those malnourished at 281 million people (Njuki, 2015).

Agriculture is the main source of livelihoods in the county but it is not sustainable in the light of challenges such as climate change hence requires a sustainable agricultural systems approach to achieve food security. The achievement of national food security is a key objective of the agricultural sector. Food security in this case is defined as " a situation in which all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (Kenya Food Security Steering Group, 2008). Official estimates indicate over 10 million people are food insecure with majority of them living on food relief. Households are also incurring huge food bills due to the high food prices. Maize being staple food due to the food preferences is in short supply and most households have limited choices of other food stuffs. Food insecurity problems are attributed to several factors, including the frequent droughts in most parts of the country, high costs of domestic food production due to high costs of inputs especially fertilizer, high global food prices and low purchasing power for large proportion of the population due to high level of poverty.

The Arid and Semi-arid Lands (ASALs) of Kenya occupy 89% of the country with an estimated population of about 14million people and comprising 70% of the national livestock herd (Mortimore *et al.*, 2009). There exists enormous hidden potential in the ASALs which can be harnessed to contribute to National Development. Most ASAL regions are frequently stricken by droughts and are characterised by highly unpredictable rainfall (ROK, 2015). Kikumbulyu North ward in Makueni County falls within the

ASAL region in Kenya with widespread and chronic household food insecurity (Lemba, 2009). According to the 2018 short rains food security assessment conducted by Kenya Food Security Steering Group (KFSSG) and Technical Working Group (TWG) of Makueni County shows that the integrated food security phase classification (IPC) classify Kikumbulyu North Ward as a marginal mixed farming livelihood zone as stressed (IPC phase 2). 'For these areas in stress the indication is that even with any humanitarian assistance at least one in five households in the area have the following or worse: minimally adequate food consumption but are unable to afford some non-food expenditures without engaging in irreversible coping strategies (Kenya Food Security Steering Group (KFSSG) 2018). Kikumbulyu North Ward which is ranked as the "hottest spot" in household food insecurity thus requiring disaster mitigation initiatives. However, the disaster mitigation strategies need to be supported by empirical evidence which is currently not documented. This study therefore aims to assess the effects of Agricultural practices, gender and post-harvest strategies on food security in Kikumbulyu North Ward.

1.1 Policy Interventions to Food Security in Kenya's Drylands

Policy interventions is an initiative driven by government in response to the problems arising from food and nutrition insecurity thus food policies need to be formulated and implemented as a priority agenda. This therefore reinforces the role of agriculture in spearheading the food policy implementation in line with the local and international conventions United Nations Millennium Development Goals (UN-MDGS), United Nations Sustainable Development Goals (UN-SDGs), New Partnership for Africa's Development (NEPADS - Maputo Declaration 2003), Comprehensive Africa Agriculture Development Program (CAADP 2002), Malabo Declaration, Agenda 2063 of African Union, while the local concerns are Kenya National Food Policy Sessional Paper No. 4 of 1981, District Focus Strategy (DFS)-1983, Rural-Urban Balance Strategy (RUBS-1986), Integrated Strategy to Rural Development Planning (1990), Sessional Paper No. 2 1994 (GOK, 1981 & 1994), Poverty Reduction Strategy Paper (PRSP 2001-2004), Economic Recovery Strategy for Wealth and Employment Creation 2003 to 2007, The Kenya Vision 2030, Strategy for Revitalization of Agriculture 2004 to 2014 (SRA), National Food Security and Nutrition Policy Constitution of Kenya 2010 article 43, Sessional Paper No. 8 of 2012 on Sustainable Development of ASALs, Agricultural Sector Development Strategy 2009 to 2020 (ASDS), the Big Four Agenda 2017, Makueni Vision 2025 Makueni county CIDP and Agricultural Sector Transformation and Growth Strategy (ASTGS) 2019 - 2029 Draft National Livestock Policy (2019).

In the past, Kenya Drylands development efforts have had a variety of donor support investing in the Drylands in a top down intervention with the agricultural sector receiving significant attention; yet this has not translated to achieving

food and nutrition security. According to Amwata *et al.*, (2016), policy initiatives should emphasize on a holistic and a systems development approach. This is particularly so for a county like Makueni which is agro-pastoral policy initiatives should focus on supporting access to resources and diversification. Innovative efforts should be encouraged especially in the area of climate change in promoting agroforestry and other important shrubs to help in the rainfall attraction for improved eco-system services.

A study in Laikipia central Kenya applied a descriptive survey design method and findings point at an unsuccessful food policy implementation which has not been able to address issues of food availability and accessibility. Empirical analysis found that food policies support to achieve sufficient food security was unsuccessful, hence continuous demand for relief food assistance (Kilonzi 2013). The findings present a scope gap because this study was conducted in central Lakipia.

This study sought to establish the influence of policy interventions on food security in Kikumbulyu North Ward of Makueni County. To improve on this scenario the study recommends a reorientation of food policies to achieve successful implementation process within the framework of decision making, resource availability, empowerment of farmers and integrated methods (Kilonzi, 2013). According to (Ng'endo et al 2013) farmers' adoption of policies is influenced by personal benefits and not external motivation. The study applied a participatory policy analysis approach and found that adoption of CAWT was difficult due to factors of policies and institutional framework. In addition, small scale farmers are not targeted by the policies as they are poorly implemented. Services such as extension services and market development offer better motivation to farmers adopting policies (CAWT).

1.2 Result Oriented Policies

There is no silver bullet in achieving food security in Kenya's Drylands; rather we need to diligently implement the existing policy documents containing viable strategies that can enhance food security. The key policy documents which are result-oriented and offer various incentives include the Vision 2030, third medium term plan 2018-2020, the Agriculture Sector Development Strategy 2010-2020 and the Big Four agenda. Notably, (Mackay, 2007) and (UNICEF, 2009) point to the fact that monitoring evaluation (M&E) is a key performance management tool whose aim is to reduce economic risks and uncertainties. The information generated from M&E helps in the improvement of effectiveness of policy implementation as well as providing a framework for evidence based policy making processes aimed at improving performance. For example, the successful implementation of Economic Recovery Strategy policy (ERS 2003 - 2007) resulted into an economic growth of 7.1 percent in 2007. From the economic survey, the Kenyan economy recovered from a low economic growth of 2.9 percent in 2003 to 7.1

percent in 2007. This good performance is informed by successful monitoring, evaluation and reporting on the economic progress of the implementation of ERS from 2003 – 2007 (GoK, 2008). Effective Monitoring Evaluation and reporting of ERS implementation ensured that the Kenyan economy remained on the projected growth trajectory during the implementation period. The success of ERS motivated the government to come up with a long term economic blue print known as the Kenya Vision 2030 (GoK 2008)

1.3. Changes Affecting Policies in Kenya

Article 43(1)(c) of the Constitution of Kenya(2010), guarantees food security to all Kenyans and this right to food as presented in the Kenya Constitution implies three obligations of the government: respecting, protecting and fulfilling that right, meaning that it has to implement strategies that will guarantee food security to all Kenyans. Policy interventions in Kenya are derived from blue prints both at Global, Regional and local levels. Sustainable Development Goals (SDG) is a blueprint to achieve better and a more sustainable future. A policy document to note on drylands is the 'sessional paper No8 of 2012, which elaborates the national policy for the sustainable development of Northern Kenya and other arid lands' (ROK, 2012). The document thematic areas are on gender, water and irrigation, infrastructure development, drought management and climate change, land and natural resource management, land women access, agriculture policy intervention, water and irrigation, dryland farming and livelihood diversification.

At county level, 'Makueni County Integrated Development Plan is inextricably linked to other overarching development frameworks which include the Sustainable Development Goals (SDGs), the Kenya Vision 2030 and the Makueni Vision 2025 The CIDP links well with the Medium Term Plan (MTP) III which is the third implementation framework for the Kenya Vision 2030. At the lower levels, the CIDP creates inputs for five annual development plans (ADPs), annual development work plans and the annual program based budgeting (PBB) which guide the annual development activities. The CIDP which draws adequately from the draft County Spatial Plan is alive to the Big 4 pillars of the MTP III as it focuses on among others agricultural productivity and commercialization enhancement which impacts positively on food security and nutrition.

However, the population growth coupled with recurrent droughts calls for the need for result oriented policies that will guarantee food availability and access to food or a combination of both. Notably, there is need for food policies

to empower households to recognise the value of food availability and access. To embrace result-oriented policies aimed at enhancing food security will require effective monitoring and evaluation to ensure eventual sustainability.

II. MATERIALS AND METHODS

This study was carried out in Kikumbulyu North Ward located in Kibwezi West Constituency which has an area of 1,184.2 Km². The target population of this study area was 20,064 households in Ngulu, Kathyaka and Ndetani sub locations in Kikumbulyu North Ward in Makueni County Kenya. The research focused on this area as it is highly poorly ranked in food security in the short and long rains assessment by the KFFSG.

The study used a cross-sectional descriptive research design. The data was collected using a structured questionnaire and an interview guide to key informants. A sample size of 138 households in Kikumbulyu North Ward were interviewed. A stratified sampling method was used to administer the 138 questionnaires to the sample. Data analysis was further performed using descriptive methods and inferential analysis methods where frequencies, mean, standard deviation were used to summarise the collected data and the results were presented in form of tables and charts. Under the Inferential analysis, Pearson's correlation analysis and simple linear regression were used in assessing the influence of the independent variable on the dependent variable and were also used testing the study hypothesis. The study used a 5% level of significance. The results revealed that food security was significantly affected by policy interventions (r = 0.197, p =0.023). From regression analysis the percentage variation in food security that was explained by policy interventions was 3.9%.

III. RESEARCH FINDINGS AND DISCUSSION

This response rate was 97.1% where there were more male (60%) than female 40%) who participates in the study. The key informants involved field officers who are in direct contact with the local community and conversant with food policy implementation in the area. Table 3.1 to 3.6 represent the responses on the various parameters used to measure the variables in the study.

3.1 Policy Interventions in relation to Food security

Table 3.1 shows responses on the extent to which policy interventions affected food security in Kikumbulyu North Ward of Makueni County.

Table 3.1: Analysis of	policy interventions	in relation to f	and security
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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
	%	%	%	%	%		
I am aware of strategies which support drought management focusing on different ways of household food shortage coping mechanisms such as: Rely on less preferred, less expensive, reduced quantity of food, rely on casual labour, let children eat, sell livestock.	0.7	0.7	0.7	46.3	51.5	4.47	.634
I am aware of policies that empower farmers in terms of training on improved varieties, Crop/animal Husbandry and Post-harvest handling.	6.0	33.6	13.4	35.1	11.9	3.13	1.181
I am aware of policies that support sustainable agricultural practice modern farming methods (examples; fertilisers, machinery, improved breeding, pesticides, certified seeds etc.)	6.0	31.3	32.1	28.4	2.2	2.90	.960
I am aware of policies that support practice of soil and water conservation methods (terracing, retention ditches, stone lines, trash lines and others)	2.2	11.2	1.5	76.9	8.2	3.78	.837
I am aware of policies that support provision of financial resources to the food security sector in the production of adequate food for the family throughout the year	0.7	0.7	0.0	42.5	56.0	4.52	.622
Average						3.76	0.548

From the results in Table 3.1, it was observed that the respondents were aware of strategies which support drought management use in different ways in household food shortage coping mechanisms such as: Rely on less preferred, less expensive, reduced quantity of food, rely on casual labour, let children eat, sell livestock etc. (M= 4.47, SD = 0.634). This was also seen as most of the respondents (97.8%) agreed. 0.7% remained neutral while 1.4 disagreed. From the results, it was again seen that the respondents remained undecided as to whether they were aware of policies that support empowerment of farmers in terms of training on improved varieties, Crop/animal Husbandry and Post-harvest handling have been put in place (M= 3.13, SD = 1.81). This was also seen as most of the respondents (68.7%) agreed 33.6% disagreed.

From the results, it was again seen that the respondents remained undecided as to whether they were aware of policies which support sustainable agricultural practice modern farming methods (examples; fertilizers, machinery, improved breeding, pesticides, certified seeds etc.) (M= 2.90, SD =

0.960). This was also seen as most of the respondents 32.1% remained neutral while 28.4% agreed and 31.3% disagreed. The results implied that the respondents were aware of policies that support practice of soil and water conservation methods (terracing, retention ditches, stone lines, trash lines and others) (M = 3.78, SD = 0.837). This was also seen as most of the respondents (85.1%) agreed. Few of them remained neutral (1.5%) while disagreed (33.2%).Lastly, it was established that they were aware of policies which support provision of financial resources to the food security sector in the production of adequate food for the family throughout the year (M = 4.52, SD = 0.666). Majority of the respondents (98.0%) agreed. Few of them disagreed (1.4%). The researcher went ahead to seek more information on policy strategies in relation to food security in Kikumbulyu North Ward of Makueni County from key informants. They were asked on the effectiveness of the policies, policy formulation and how they help in achieving food security.

3.2. Policy Strategies by key informants

Table 3.2: Policy Strategies by key informants

	Low	Average	High	Mean	SD
	%	%	%	Mean	SD
Effectiveness of food policies in achieving food security (availability, accessibility and affordability)	26.9	53.8	19.2	1.92	.688
Relief food demand	3.8	50.0	46.2	2.42	.578
Coordination and supervision in the food production sector.	26.9	50.0	23.1	1.96	.720
Political will and commitment towards improving food security.	46.2	53.8	0.0	1.54	.508
Extent of availability of farm inputs for improving food security.	73.1	26.9	0.0	1.27	.452
Support to market environment in achieving food security.	57.7	42.3	0.0	1.42	.504
Adequacy of resources to empower the farmers.	34.6	53.8	11.5	1.77	.652

From Table 3.2, it was established that the food policies that existed were moderately effective in achieving food security

(availability, accessibility and affordability) in the area $(M=1.92,\ SD=0.688)$. The key informants again indicated

that that there was an average demand for relief food (M=2.42, SD=0.578). The study established that there was an average coordination and supervision in the food production sector (M=1.96, SD=0.720, political will and commitment towards improving food security <math>(M=1.54, SD=0.508) and average adequacy of resources to empower the farmers (M=1.77, SD=0.652). The results implied that there was a low extent of availability of farm inputs for improving food security (M=1.27, SD=0.452) as well as support to

market environment in achieving food security (M= 1.42, SD = 0.504). The key informants went ahead and rated the extent to which the policy strategies deployed above were adequate in terms of policy formulation and implementation, goodwill and commitment by stakeholders, financial resources, empowerment of farmers and achieving food security. The results were presented in Table 3.3.

3.3. Adequacy of policy strategies

Table 3.3: Adequacy of policy strategies

	Low	Average	High	Mean	SD
	%	%	%		
Policy formulation and implementation	7.7	69.2	23.1	2.15	.543
Goodwill and commitment by stakeholders	38.5	57.7	3.8	1.65	.562
Financial resources	46.2	53.8	0.0	1.54	.508
Empowerment of farmers	57.7	42.3	0.0	1.42	.504
Achieving food security	42.3	57.7	0.0	1.58	.504

From the results in Table 3.3, the strategies on policy formulation and implementation were found to be moderately (average) adequate (M= 2.15, SD = 0.543). They were also averagely adequate in goodwill and commitment by stakeholders, financial resources, empowerment of farmers and achieving food security. However, the strategies on empowerment of farmers were found to be adequately low as indicated by a mean value of 1.42 and a standard deviation of 0.504.

3.1.1 Effect of policy interventions on food security

A simple regression was performed where food security was used as the response variable while policy interventions was taken to be the explanatory variable. To assess the effect of policy interventions on food security the following hypothesis was tested:

 H_{04} : Policy interventions do not have a significant effect on food security

The results are presented in tables 3.4, 3.5 and 3.6.

Table 3.4: Model Summary for policy interventions

Model	R R Square		Adjusted R Square	Std. Error of the Estimate	
1	.198	.039	.032	.31088	

From the results in table 3.4, policy interventions explained 3.9% of the change occurring in food security. Coefficient of determination 0.039 indicated this ($\mathbf{R}^2 = 0.039$).

Table 3.5: ANOVA for policy interventions

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	0.523	1	.523	5.408	.022 ^b
1	Residual	12.757	132	.097		
	Total	13.280	133			

Table 3.5 presents results of analysis of variance in the case of regression between policy interventions and food security. This was used to test whether the model with policy interventions as the explanatory factor was significant in forecasting the dependent variable which was food security.

The results again were used to test the hypothesis whether the coefficient associated with policy interventions was equal to zero or not $(H_0: \beta_4 = 0 \text{ vs } H_1: \beta_4 \neq 0)$.

The study results pointed out that the model significantly forecasted food security. The hypothesis was rejected insinuating that policy interventions have a significant effect on food security (F(1,132) = 5.408, p = 0.022).

	Model	Unstandardized Coefficients		Standardized Coefficients	t	C:a
Model		В	Std. Error	Beta		Sig.
	(Constant)	2.172	.187		11.617	.000
1	Policy Interventions	.114	.049	.198	2.326	.022

Table 3.6: Model Coefficients for policy interventions

The model below has been obtained from the study results in table 3.6.

Food security = 2.172 + 0.114 * policy interventions

The association between policy interventions and food security was found to be significant and positive, $\beta=0.114$, t=2.3326, p=0.022. Therefore, there was sufficient proof to reject the null hypothesis concluding that there was a significant association between policy interventions and food security. This findings affirm a study by Kilonzi (2013) who established that food policies support to achieve sufficient food security was unsuccessful, hence continuous demand for relief food assistance.

IV. CONCLUSIONS AND RECOMMENDATIONS

4.1 The influence of policy interventions on food security in Kikumbulyu North Ward.

The above objective aimed at establishing the influence of policy interventions on food security in Kikumbulyu North Ward. Households were aware of policy interventions to cub food insecurity in the area. However, though the policies existed, they were moderately effective in achieving food security. Correlation analysis established that there was a statistically significant influence of policy interventions on food security. The regression analysis results showed confirmed a significant effect of policy interventions on food security.

Food security is a shared future which all citizens must take part in. Notably, policy documents have outlined elaborately how and what the country need to do in achieving food security. However, there still exists difference between policy and action. The purpose of agriculture driving economic prosperity is for the sector to achieve food security and also have surplus for export while creating jobs. This therefore calls for stakeholders in the food production sector to focus on turning things around by joining together and matching policy with practice.

The Makueni County Government and other stakeholders should spearhead creation of awareness of existing policies as well as formulate new food security policies to households as it is a key factor to food security. Focus should be directed in the promotion of agricultural practices and policies that support effectiveness of household food productivity. Additionally, promotion of inter-county partnerships would ensure that counties that produce more at any one season to trade with their neighbours who have shortages therefore balancing availability throughout the year. Finally, the

problem of food security can be addressed by stakeholders through many viable solutions such as development and food policy documents that have been formulated and are yet to be properly implemented. Evidently, there is need to strengthen the monitoring and evaluating of food security issues in Kenya's Drylands by periodically reviewing policy implementation results so as to adopt result-oriented policies. In essence what was not achieved in the previous period of policy implementation should for a baseline in formulating and implementation of new period policy. This will ensure connectivity of policy implementation and guide on how the food stakeholders can do business geared towards achieving the zero hunger agenda. The findings in this study point at the real problem lying in the lack of will to implement the strategies contained in policy documents. Under the circumstances therefore, decisive steps need to be taken aimed at achieving food security as a vital pillar of the big four agenda. Otherwise, achieving food security will remain an elusive goal.

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