

Effects of Stakeholders Involvement on Sustainability of Food Security Projects in Arid Lands, Kenya

Nyaga Juster Gatumi¹, Dr. Lucy Ngugi², Dr. Franklin Kinoti²

¹PhD Candidate, Kenyatta University

²Senior Lecturer, Kenyatta University

***Corresponding Authors:** Nyaga Juster Gatumi, PhD Candidate, Kenyatta University, Kenya

Abstract: Food security projects are created to accomplish the legislative goals of improving food access in low-income communities. They help develop proactive approaches for the welfare of low-income communities by creating their own comprehensive and sustainable food systems. In this regard, numerous food security projects have been initiated in most Kenyan Counties by both state and non-state players in Kenya. However, sustainability of food projects has been a challenge in the sense that some projects remain partially operational after the withdrawal of the main donor while others become defunct. This study therefore seeks to investigate the influence of stakeholder engagement on the sustainability of food security projects in arid lands, Kenya. The study is anchored on stakeholder theory. Positivist philosophy is deemed appropriate for this study. Cross-sectional descriptive survey will be used. The study targets 413 food security projects implemented by UN Agencies within 8 Counties in Arid Lands in Kenya with a sample of 203 food security projects. Stratified sampling will be used and primary data will be collected using self-administered questionnaires. Descriptive statistics such as mean and standard deviation will be computed to explain the characteristics of the distribution. Correlation analysis and standard multiple regression models will assist to assess the degree of relationship between the study variables. This study will be of significant importance to the ministry of agriculture in enacting policies for sustainable food security; project donors and sponsors in accessing critical information on practices for sustainable food security projects; relevant UN agencies would obtain information which will help to shape the future of their projects by understanding key issues to be addressed to promote their sustainability; and finally the study is expected to immensely contribute to literature for use by future researchers and form a base for discussion in the area of project sustainability.

Keywords: Stakeholder Engagement, Project Sustainability, arid lands, Kenya

1. INTRODUCTION

Sustainable food projects are characterized by being able to create a community which is financially, technically and managerially self-sufficient (FAO, 2019). Financial self-reliance implies that the community has the ability to draw their own budgets for food security projects, they are able to sufficiently assemble their financial capitals, account for incomes received from food projects activities within their communities and can prepare financial reports for food projects. Moreover, technical self-reliance means the ability of the community to identify community people in need of food and with food insecurity without external expertise. Managerial self-reliance indicates that the community is able to identify food security needs, design food security projects, organize food security projects and effectively be in control of food security projects (FAO, 2019).

According to Smith (2020) sustainability of a food project can be measured in two ways including continuation of the project output or outcome and local actions which are stimulated by the project-built initiatives within the study area. He added that continued deliveries of the project output/outcomes include change in output and outcome of the project three years after passing over to beneficiaries, current outputs from the projects, increased food supply, increased availability, accessibility and affordability of food within the region throughout the year. Moreover, in relation to local actions being stimulated by projects include issues such as the current economic activities as a result of intervention, activities for a sustainable source of funding for project maintenance, community sale of produce to take care of other household needs, activities taken to reduce waste and loss, reduction of environmental pollution and reduced food-related problems/diseases as a result of the initiatives. Generally, these issues conclude that project sustainability can be in terms of economic, social and environmental.

Sustainability of food projects has been a great challenge in various developing countries, Kenya included, where huge money and time is invested during implementation but expected impact is not realized (IFAD, 2020). Bilateral aid agencies report indicated that the trend for food project implementation indicate improvement, however, sustainability of the same is disappointing as very few projects are sustainable (IFAD, 2020). Additionally, sustainability of projects is realized when institutions and community around the project continue to benefit from outcome without the support from external source. This argument is supported by Kamau, Rambo and Mbugua (2021) indicating that due to low community participation, insufficient funding and support structures, food projects stall and their impact is not felt by the beneficiaries. In this study, measure of project sustainability will be indicators falling under economic, social and economic sustainability.

Stakeholders have legitimate claim on the organization and may include owners, non-owners, contractors, community members and resource providers (Hill and Jones, 1992). According to Higgins and Morgan (2006), stakeholders can be categorized as internal stakeholders who are committed to serving to the interest of the project and external stakeholders who are not directly involved in the project activities. They indicated that stakeholders who can be engaged into a project can be categories into: primary stakeholders (who are actively involved in project activities or provide the necessary infrastructure to the project and key one is project team, donors, beneficiaries, government); and auxiliary partners who impact or influence or are influenced or impacted by the undertaking, in any case, they are not obliged in determining the survival of the undertaking. Although stakeholder engagement greatly influences project sustainability, (Higgins and Morgan, 2006) indicated week engagement of stakeholders in planning and executing development projects. On the basis of the above argument on stakeholder engagement, this study uses aspects of stakeholder engagement to include resource/ financial contribution, decision makings involving project sustainability by community members, attendance to the project meetings, belonging to a community groups and provision of locally available resources such as communal land.

Persistent drought in the region, create challenges in the water provision for livestock and farming. Most of the Kenyan lands is occupied by Arid lands (Ndambiri, Mbogoh, Ng'ang'a, Muiruri, Nyangwes, Ogada, Omboto, Kefa, Kubowon and Cherotwo, 2012). Thus, arid lands are home to approximately four million pastoralists with some areas practicing small scale farming. Despite many occupants, arid lands have the highest incidences of drought in the country. Counties within arid lands faces perennial drought which adversely affect their economic activities which is basically, agro-pastoral to include crop farming (through seasonal rain and irrigation), tourism, bio-business and agro-livestock businesses (Ndambiri, et. al., 2012).

1.1. Statement of the Problem

The government of Kenya has created legal and institutional frameworks for sustainable food in Kenya through measures such as emphasize on implementation of maintainable expansion goal two, which emphasize on 'end to malnutrition, attain food security, expand nutrition, promotion of sustainable agriculture'; and Government Big Four Agenda whose one pillar is food security as one of the panaceas to solving food insecurity problems in the country. Some strategies applied towards achieving these goals include supporting community driven projects for food security improvement, empowering community through the capacity building of the group members and promoting participation of private and CBOs in innovative food security and livelihoods initiatives. Despite of the measures and strategies applied, studies have indicated that food security projects have been facing various challenges which have made them not sustainable (Alelah and Mueke, 2017; FAO, 2019). According to FAO (2019) approximately 50 percent of the food projects in Kenya have brief life-span, slowed down, never affected the community and a few of them collapsed. IFAD report (2020) indicated that out of 45 food projects implemented by various CBOs and government of Kenya between year 2010 and 2015 only 15% are partly active and others are defunct and could not be traced after termination of the grant.

Due to complex nature of sustainability as a concept, reliable conclusion on project sustainability can only be derived at after considering both factors within the projects and those outside the project (White, 2013; Alelah & Mueke, 2017). However, previous studies on project sustainability consider only economic factors for project sustainability such as existence of the projects several years after implementation, increased food supplies and availability and accessibility of food produce (Tabassi,

et. al., 2016; Walter, Opong & Allgood, 2017; Nyaga & James, 2018). Consequently, social factors such as ability to identify people or household with food insecurity, and environmental degradation due to soil, land and water pollution from food projects have been ignored thus leading to unreliable conclusions due to knowledge gap. The present study, consider holistic approach to the project sustainability to include commercial, communal and ecofriendly factors of sustainability for more reliable conclusion as well as generalizability of the findings.

1.2. Objectives of the Study

To investigate the effect of stakeholder engagement affect sustainability of food security projects in arid lands, Kenya.

1.3. Research Hypothesis

H₀: Stakeholder engagement does not significantly influence sustainability of food security projects in Kenyan arid lands.

1.4. Significance of the Study

The study will inform practitioners such as development partners, project donors and sponsors by gaining insights on how projects can incorporate various project management practices with the view to enhance sustainability of the projects. Practitioners can use the information from this study to shape the future of the food projects towards their sustainability. Policy makers in the food security and agricultural projects in Kenya will use the findings to enact relevant policies and make informed decisions which provide enabling environment for food security projects to be sustainable and improve the national Gross Domestic Product (GDP). The study will also be of beneficial to scholars in related future investigation as it can form a basis for discussions in studies related to the issues leading to unsustainable food security projects hence food insecurity in Kenya. The study will inform the academicians on the present gaps in knowledge on sustainability of food projects and how those gaps could be addressed.

1.5. Scope of the Study

Focus of this study is on food security projects within eight Counties in arid lands in Kenya. The study targeted 413 food security projects supported by County government in collaboration with various agencies in 8 Counties within arid lands in Kenya implemented between the year 2014 and 2017. The study took place between January and April, 2022

1.6. Limitations of the Study

Individuals selected were unwilling to participate in the study due to fear of victimization and due to confidentiality of the information. Letter of research authorization and NACOSTI letter was provided to the respondents to indicate that study is scholarly work. Some of the questionnaires were not returned but the research made follow up through telephone call and physically revisiting the study area to obtain adequate response. There was a challenge of language barrier which was countered by use of local research assistance for interpretation.

2. LITERATURE REVIEW

2.1. Theoretical Review

This study was anchored on Stakeholder Theory by Freeman (1984). The main emphasize of this theory is the importance of the relationship which exist between project managers and other project stakeholders. "It portrays that a manager should understand that the success of the projects can be influenced greatly by the participation of various stakeholders"; and their participation depends on the relationship they foster with the top management. When managers want to understand the firms and its environment, they may use the stakeholders' approach, which enhances proper description of the firm (Okoth, 2016). He added that 'the approach is intended to broaden the management's vision of its roles and responsibilities beyond the profit maximization function and stakeholders identified in input-output models of the firm, to also include interests and claims of non-stockholding groups'. Freeman (1984) indicated that an organization/ project manager has to put into consideration stakeholders such as potential employees and customers as well as related corporations and the whole public.

According to Okoth (2016), the main aim of the stakeholder's theory is to enable project managers in understanding stakeholders and to strategically and hence accomplish the intended outcome. This means that if stakeholders are managed properly, then the project would be able to have a long-term survival in this dynamic environment. The main focus and emphasize of this stakeholder's theory is that project managers should have a good relationship with the stakeholders to enable it maximize on the return. Managers should understand that the success of the projects can be influenced greatly by the participation of various stakeholders. The level of participation of the stakeholders depends on the relationship the project managers are having with the project other stakeholders.

2.2. Empirical Review

A study was carried out by Leal & Brandli (2016) on the engaging stakeholders for sustainable development. The study focused on the extent to which stakeholders are engaged, benefits derived from engaging stakeholders and outlined reasons why stakeholder's engagement is low in most of the projects. The study was desk research to summarize the findings as per other researchers. There was low engagement of the stakeholders throughout the project was reported hence barring openness, dialogue and collaborations which are key aspects needed for projects to be sustainable. The study found that there are numerous benefits of engaging stakeholders such as increasing ability to work effectively, better results from decision makers, bring about better and new ideas which steers the projects toward sustainability, build trust among members and create long lasting relationship as well as reduction in conflict among the members. Leal & Brandli also indicated by stakeholder engagement enhance creation of forums to learn from each other and share values and visions. All these qualities are relevant for social and economic sustainable food security projects. This study helped a researcher to combine the indicators needed to measure the stakeholder engagement which are relevant to the project sustainability. However, the study lacked empirical data hence the current study fills the knowledge gap by incorporating the empirical studies.

Oganga, Olala and Odima (2017) conducted an investigation on stakeholder involvement and its influence on women development projects sustainability. The study specifically focused on finding out the various ways in which stakeholders are involved in the project's sustainability activities. Analysis involved use of mean and standard deviations and chi square as well as simple regression determined the level of association. Chi-square p-value indicated significance association between the stakeholder participation on project sustainability. Correlation analysis indicated a weak positive insignificant association between the study main variables and concluded the level of stakeholder's participation was not adequate and this explained why the projects were not sustainable. The ways in which stakeholders are involved include in provision of labour, providing financial resources, in project monitoring and in decision making. This study was adopted since it enables compilation of the relevant indicators to measure the project sustainability. However, the focus of one County out of many counties which has been experiencing repeated draught present contextual gap which the present study will fill by including all the eight counties.

Walter, Opong and Allgood (2017) conducted a study on World Vision's tactic to public engagement in sustainable water, sanitation and hygiene projects. The study indicated that over 30-50 percent of development ventures flop within two- to five-years of their execution. They added that failure is association with lack of embracing the technology needed as a result of early withdraw by sponsored which leaves community with non-sustainable incompetency for running the undertaking. Their study indicated that this take place because the development organization or agencies prematurely withdraw before the community is properly equipped to manage the projects. Lack of adequate community engagement may lead to unsustainable projects. the study recommended that community should be engaged over multiple years (5 to 10 years) to create ownership hence project sustainability. The methodological gap was filled by providing systematic methodology needed for any scientific investigation.

Ochunga and Awiti (2017) conducted a study on effect of stakeholder contribution on sustainability of community development projects implemented by plan international. Focus was on the effect of passive, collaborative, functional and optimum stakeholders' participation. The study found out if stakeholders share information with each other in recurrent manner, which stakeholders are actively involved in planning or controlling the ventures or making key decisions. Additionally, if the stakeholders participate in projects groups and committee formation, decision making and in doing

analysis which gives levels of participation and its effectiveness. The study concluded that communities being involved food programs in Turkana County did not get satisfactory project management training hence the projects were not sustainable. Additionally, the study was limited in terms of the knowledge areas where it focused on only one county among the seven Counties in arid lands. This limit the generalizability of the findings since various Counties in the study area are characterized by different environments which can influence the level of maintainability of the venture.

Nyaga and James (2018) on factors affecting food security in Kajiado County. The study focused on the food security projects implemented between year 2008 and 2013. The study specifically focused in finding the effect of stakeholder engagement and the funding levels on the project sustainability, which was measured in terms of the income obtained from the projects. The study targeted six food security projects. From the analysis done there was a strong positive relationship between community involvement and sustainability of the food security projects in Kajiado county. Low involvement of public led to lack of ownership which led to unsustainable projects.

2.3. Conceptual Framework

Conceptual framework shows the connection project sustainability and stakeholder engagement.

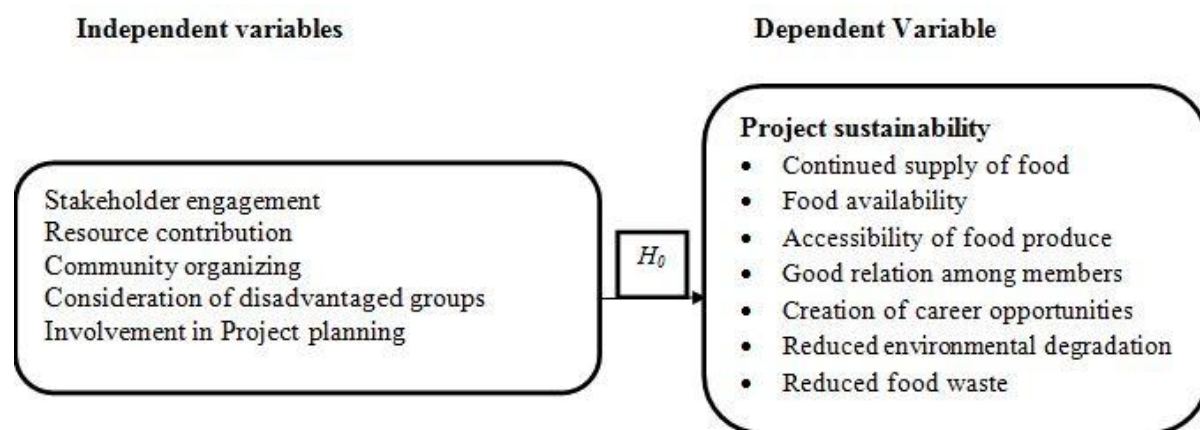


Figure1. Conceptual Framework

3. METHODOLOGY

Research design is a ‘blue print’ in which solutions to problems can be obtained (Kothari, 2009). Although there are different types of research designs, this study adopted explanatory research designs. The design was selected because is finest suitable for obtaining information where the researcher wants to elucidate a cause-effect association between variables (Saunders, Lewis & Thornhill, 2009). Research philosophy is the underlying predispositions in which research is based and it stipulate that since there exist no complete truth researchers undertake a study to ascertain the claims of abandoning a given truth which may be existing (Sekaran and Bougie, 2010). This study based on social science adopted positivism philosophy. The philosophy was selected because it is based on objectively investigating the facts from a neutral ground and measures to give valid results. To solve the existing problem from positivist approach, then one would require to formulate hypothesis based on social reality assumptions and then test them using the quantitative techniques.

The analytical model tests for the association amid dependent variable (project sustainability) and the independent variables (stakeholder management) can be expressed as:

$$Y = \beta_0 + \beta X + \epsilon$$

Where: Y is project sustainability and X is stakeholder engagement, β is the regression coefficients, β_0 is constant and ϵ is and for stochastic error terms.

Pearson correlation coefficient was used to determine the nature of relationship between variables and R² was used in determining the percentage of the disparity in food project sustainability which can be explained by stakeholders’ engagement. To determine if the overall model was significant, F statistics was used and P-value indicated statistical significance of individual regressor. Diagnostics tests to

ascertain that the OLS assumptions have not been violated was carried out. Gujarati and Sangeetha (2007) stated that when assumptions are violated, accuracy and inferences from the analysis are also affected. This included the test for normality, heteroscedasticity and linearity test.

The unit of analysis was food security projects in eight Counties within Arid Lands in Kenya which are registered under National Drought Management Authority (NDMA) and which were implemented between year 2014 and 2017. Kenya Resilience Investment Tracker (2018) from NDMA indicate 413 food security projects implemented by various UN agencies in partnership with the government of Kenya and distributed within the eight Counties in arid lands in Kenya and this formed the target population. The unit of observation was 413 project group leaders, 32 head of the field officers from FAO, FH-Kenya, WFP & Concern Worldwide Kenya offices in the eight Counties within arid lands and 8 County government officers in charge of food/ agricultural projects in each of the eight Counties in Arid lands. This gives a total unit of observation of 453. Sample size was then selected using Slovin's Formula to give a sample size of 203.

Questionnaire method containing both open ended and closed ended questions was used to collect the primary data. It was used because it guaranteed high response rate, allows data collection from large population and also allows for the collection of views, opinions and perception from the respondents on the issues being investigated (Mugenda & Gitau, 2020). Pilot study was carried out in food security projects in Kitui County which is in semi-arid lands to a total of 45 food security projects implemented by UN agencies which forms 10 percent of the target population as recommended by Cooper and Schindler (2013) who indicated that the sample size for pilot study can be 5-10 percent of the main survey.

Face validity was assessed by considering how suitable the contents of a test is on the surface. In this case subjective assessment of the questionnaire appearance in terms of readability and feasibility. Content validity was ensured by subjecting questionnaire to my supervisors as well as my fellow students so as to evaluate if each question in the questionnaire is crucial and useful to achieving the study objectives. Construct validity was measured by dividing the questionnaire into various sections guided by the study specific objectives or variables and also to guarantee same closely ties to the study conceptual framework. Since most of the questions in the questionnaire are Likert scale, Cronbach alpha method was used for this study. Reliability coefficient close to zero indicates that the test scores are unreliable and a higher coefficient (0.7 and above) indicates more reliable or accurate the test scores (Mugenda & Gitau, 2020). Participants were given an opportunity to participate on voluntary basis and therefore there was signing of the informed consent forms to confirm they were not coerced to participate. However, the names for those who participated in the study were not revealed and the information obtained were kept with utmost confidentiality. NACOSTI letter was provided to participants to indicate that the study was to enable adverse the knowledge in relation to sustainability of the food security projects in Counties within arid areas.

4. RESEARCH FINDINGS AND DISCUSSIONS

Kothari (2009), a response rate of 50 percent is good for academic studies while a response of 70 percent is very good. For this study 192 questionnaires were returned out of giving a response rate of 79 percent. Reliability test gave an alpha value of 0.815 for stakeholder engagement and 0.894 for project sustainability. All the values were greater than 0.7 indicating a reliability of the research instrument. The results agree with Gujarati & Sangeetha (2007) who indicated that a reliability of 0.7 and above is considered fit.

On demographic information, all the counties considered for this study were all represented. The main economic activities mentioned include livestock keeping, livestock trading, shop keeping, pastoralism, agriculture, poultry keeping, employment, small businesses and tourism. The main sources of food indicated included livestock or animal products, honey from bee keeping, crops from small scale farming, poultry, plant product, horticultural societies and barter trade. Most participants had university-level education, followed by secondary-level education then primary-level education. However, some did not have formal education. Majority of the respondents had worked for between 3 and 5 years, followed by those who had worked for between 5 and 7 years and then who had worked for 3 years and below years. Most residence practice pastoral farming, followed those doing mixed farming, then nomadic herding of camels, goats, sheep and cows and finally bee keeping.

4.1. Descriptive Analysis

4.1.1. Stakeholder Engagement

The respondents indicated that stakeholders are important as they assist in formation of project groups (67 percent), offer training to community members (49 percent), they provide labour for the project operations (48 percent) and some fund the project activities especially (45 percent). Additionally, stakeholders create awareness of the various members of the groups about their roles and responsibilities (37 percent) and assist in decision making by sharing their ideas. The respondents also mentioned that stakeholder's engagement is important as they provide technical advices in running the projects and create networking, partnership and linkages which assist in create a market for the farm produce from the community as well as certifying the seeds for farmers working in projects groups. Some stakeholders help to identify the project risks which affect project success and hence sustainability. Resources provided by stakeholders to assist in running the projects include: Food aids, labour or manpower, financial resources, trainings, free fertilizers to group members, seedlings and communal land and in livestock vaccination. Other resources provided as indicated but respondents include water tanks and pumps, sprinklers, animal drugs, farming machines and tools, poultry equipment, bee hives and chicken feeds.

Stakeholder engagement statistical results were collected based seven items in a five Likert scale, where 5 = very great extent; 4 = great extent; 3 = moderate extent; 2= small extent; 1 = Very low extent. The percentage, means and standard deviations for the variables were computed on a Likert scale. Results shows that to a great extent respondents agreed that project groups have been active in ensuring projects expected outputs are realized (mean = 3.92; standard deviation = 0.917); community members are never forced to join the project groups (mean = 3.82; standard deviation = 1.184); and community are involved in provision of communal lands for farming (mean = 3.68; standard deviation = 1.114). The respondents to a moderate extent agreed that food projects are mostly run by community members (mean = 3.24; standard deviation = 1.113) and that the written plan shows when the farm activities like planning, weeding and fertilizers are also performed (mean = 3.13; standard deviation = 0.985). Respondents to a small extent agreed that project plan shows how money is allocated on every farm activity such as farm preparation, planning, weeding and harvesting (mean=2.85; standard deviation = 1.108) and community members are involved in estimating the project resources (mean = 2.28; and standard deviation = 1.216). The aggregate mean score and standard deviation for stakeholder engagement is 3.274 and 1.091 respectively. The aggregate mean score round of to a score of 3 on the five-point Likert scale adopted in the study implies that to moderate extent the respondents felt that the aspects considered to measures takeholder's engagement are important. The findings are in agreements with the assertion by Oganga, Olala and Odima (2017) which indicated that ways in which stakeholders are involved include in provision of labor, providing financial resources, in project monitoring and in decision making.

4.2. Project Sustainability

Majority of the respondents (59 percent) had opinion that the projects are not sustainable. The respondents indicated reasons for their opinion including poor funding of the projects, lack of adequate skills and competences for the project leaders and harsh weather conditions. Sustainability of food security projects statistical results were collected based twelve items in a five Likert scale, 5 = very great extent; 4 = great extent; 3 = moderate extent; 2 = low extent and 1= very low extent. The percentage, means and standard deviations for the variables were computed on a Likert scale.

The results indicated that to a great extent respondent greatly agreed that financial reports in relation to project are prepared by group leaders (mean = 3.71; standard deviation = 1.017); and there is increased food safety among the community members (mean = 3.65; standard deviation = 1.017). The respondents to a moderate extent agreed that there is reduced food wastes (mean = 3.46; standard deviation = 1.106); food security projects on the county are sustainable (mean = 3.42; standard deviation = 1.061); there is increased food supply from the project (mean = 3.38; standard deviation = 1.17) and that community members can now identify community members with food insecurity (mean = 3.21; standard deviation = 1.148). Respondents to a low extent agreed that more community population can get access to sufficient food (mean=2.41; standard deviation = 1.125); public within the county can now access food throughout the year (mean = 2.29; standard deviation = 1.188); there

is increased availability of food to the locals (mean = 2.49; standard deviation = 1.18); community is allowed to buy from the region they are coming from (mean = 3.18; standard deviation = 1.331); project groups formed during project planning have maintained their operations (mean = 2.16; standard deviation = 1.373) and food produce are now affordable throughout the year (mean = 2.97; and standard deviation = 1.276). The aggregate mean score and standard deviation for sustainability of food security projects is 3.0275 and 1.1695 respectively. This implies that the respondents agreed that food security projects are sustainable. The findings are in agrees withFAO report of (2019) which indicated that sustainability of any projects emphasizes on the level of achievement of economic, social and environment aspects most of which have been considered in this study.

4.3. Correlation Analysis

Correlation analysis was conducted to established the strength and nature of the association between the study variables. The main focus was on determining whether various independent variables are associated with the dependent variable as well as determining the nature of the association. Pearson correlation coefficient between stakeholder engagement and project sustainability as 0.492. The tests were two tailed tests at 0.05 levels of significant. The results indicate the correlation coefficients as positive and significance with p value of 0.000.

4.4. Multiple Linear Regression Analysis

For any parametric test, there is a need to ensure assumptions for ordinary least squares have not been violated (Gujarati & Sangeetha, 2007). Since the sample was large (203), the study used Kolmogorov-Smirnov Test which is a numerical method. The decision rule was if the p-value (Sig.) is less than the test significance level which is 0.05 for this study, then the hypothesis that the observed distribution is normally distribution is rejected and the study concludes the distribution is not normally distributed, and vice versa.

Table1. Results on Kolmogorov-Smirnov Test for Normality

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stakeholder Engagement	.048	192	.200*	.995	192	.728
Sustainability of Food Projects	.035	192	.200*	.997	192	.989

Table 1 indicates that all the variables were normally distributed since the p-values obtained were greater than 0.5 obtained as follows: stakeholder engagement (0.200 > 0.05and sustainability of food security projects (0.200 > 0.05).

Levene test used in this study was used to test hypothesis that the error variances are all identical (homoscedasticity). The test results, for stakeholder engagement was Levene Statistics = 1.434; p-value= 0.096 The hypothesis that the error variances are all identical was not rejected since the p-values were higher than 0.05, hence concluding that there was no heteroscedasticity in the data and are fit for conducting inferential statistics.

The linearity test results were done using Pearson’s correlation test. The findings indicates that there is a significant positive linear relationship stakeholder engagement and sustainability of food security projects at p < 0.05 significant levels. Correlation does not necessarily mean that there is a causal relationship between variables of the study. Thus, it was important to conduct regression analysis in order to estimate causal regression.

4.5. Multiple Linear Regression Analysis

Table2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 ^a	.611	.593	.5521

a. Predictors: (Constant), Stakeholder Engagement

Table 2 shows that the adjusted R-squared was 0.593 with a standard error of estimate being 0.5521. This implies that 59.3 percent of the variation in the dependent variable (sustainability of food security projects) was explained by the variations in stakeholders’ engagement. The remaining 40.7 percent of the variations in the dependent variables are accounted for by others variables not discussed in this study.

Table 3 shows the results of ANOVA that was used to test the overall significance of the model.

Table3. ANOVA^aResults

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.133	5	8.227	55.214	.000 ^b
	Residual	26.218	175	.149		
	Total	67.350	180			
a. Dependent Variable: Sustainability of Food Security Projects						
b. Predictors (Constant), Stakeholder Engagement						

Table 3 shows that F-statistic for the model was 55.214 with 5 degrees of freedom and its p-value was 0.000. This implies that the overall model is significant (p< 0.05).

Table 4 shows the regression results of each of the stakeholder engagement on the sustainability of food security projects.

Table4. Regression Coefficients

Coefficients ^a								
Model		Unstandardized Coefficients		Standardize d Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0.094	.364		0.258	.001	.359	1.379
	Stakeholder Engagement	0.293	.079	.304	3.212	.000	.098	.355
a. Dependent Variable: Sustainability of Food Security Projects								

From Table 4, the overall regression models considering the coefficient is as shown below:

$$\text{Project Sustainability} = 0.094 + 0.304SE$$

Stakeholder engagement (SE) was positively related to the sustainability of food security projects. From the regression coefficient it can be interpreted that holding all factors constant the project sustainability would be 0.094. An increase in stakeholder engagement would lead to an increase in sustainability of food security projects. It is therefore important to embrace engage the stakeholders so as to increase the chances of project sustaibility. Walter, Opong and Allgood (2017)ascertain these results by indicating that properly communicating to the key stakeholders such as farmers would provide information adequate for sustainable projects.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusions

The study conclude that stakeholder engagement significantly influences sustainability of food security projects in arid lands positively. Therefore, it can be concluded that the more stakeholders are engaged, the higher the chances of projects being sustainable, as indicated by positive correlation coefficient and significant coefficients in the regression model. The study concludes that resources contributed by the stakeholders has improved the adoption of mechanization of farming, increased availability adequate farm inputs and enhanced irrigations which consequently has increased food supply in the region. However, the study conclude that stakeholder engagement has not been adequately embraced as it was indicated in open ended questions that there lacked transparency, accountability measures, proper and timely communication, response plan and platforms for engagement of stakeholders. This has limited willingness of stakeholders to be engaged in projects operations due to bad relationship among members which consequently affected the project sustainability negatively. Low or lack of stakeholders’ engagement limits its positive influence on the sustainability of food security projects.

5.2. Contribution of the Study to Knowledge

Previous studies related to the current study focused on one County among many Counties affected by scarcity of food due to unsustainable projects. This brought about contextual research gap which the current study contributes to bridging the gap by carrying out a survey in all the food security projects

in Counties within arid lands in Kenya. Most of the earlier studies analyzed the data using descriptive statistics. This brought about findings which cannot be generalized since they do not involve inductive methods. In the current study, the data has been analyzed using both descriptive and inferential statistics thus bringing about more reliable results which can be concluded and generalized.

5.3. Recommendations

Stakeholders were found to be engaged at a low extent at various stages of the projects. Sponsors for the projects and the County government should modify activities meant to ensure all stakeholders are participating in the projects. The stakeholder engagement should be addressed as a matter of policy such as identification of key stakeholders at various stages of the project and then coming up with procedure on how and when they will be engaged. This creates a feeling of ownership to the success of the projects and hence increases the chances of projects being sustained. Project leaders should come up with policy which guides on specific resources to be contributed by each stakeholder including finance, labour, land and so on.

REFERENCES

- Alelah, O. and Mueke, M. (2017). Influence of Community Participation on Sustainability of Water & Sanitation Projects in Rhonda Slum in Nakuru County, Kenya. *IOSR Journal of Humanities & Social Science (IOSR-JHSS)*, V. 22, Issue 10, 31-38
- Ariola M. M. (2006). *Principles and Methods of Research*. Rex Bookstore Inc., Sampaloc.
- Cooper, D. R. and Schindler, P. S. (2013). *Business Research Methods* (12th Edition), Boston McGraw-Hill
- FAO (2019). *Building a common Vision for sustainable Food and Agriculture-Principles and Approaches*. Rome, Italy: FAO. Retrieved from <https://www.fao.org/3/a-i3940e.pdf>
- Gujarati, D. and Sangeetha, N. (2007) *Basic Econometrics*. Fourth Edition, Tata McGraw-Hill, New Delhi.
- Hill, C. and Jones, T. (1992). Stakeholders-agency Theory, *Journal of Management Studies*, Vol. 29, NO. 2, pp 131-154.
- Higgins, E. and Morgan, J. (2006), Stakeholders Salience and Engagement in Political Organizations: Who and what really counts? *Society and Business Review*, Vol. 1 No. 1, pp 62-76.
- IFAD (2020). International Fund for Agricultural development Annual Report. www.ifad.org/ar2020
- Kamau S. J., Rambo, C. M., and Mbugua, J. J., (2021). Influences of Community Participation on School Infrastructure Policy Implementation and Performance of Construction Projects. *Open Journal of Social Sciences*, 9, 173-187. ISSN Online: 2327-5960; ISSN Print: 2327-5952.
- Kothari, C. R. (2009). *Research Methodology. Methods and Techniques*. New Age International Limited, Publishers. New Delhi
- Leal, W. and Brandli, L. (2016). Engaging Stakeholders for Sustainable Development. *Springer International Publishing Switzerland*. DOI 10.1007/978-3-319-26734-0_21
- Mugenda, O. and Gitau A. (2020). *Social science research. Nairobi: Applied Research and Training Services*. Nairobi: ACTS Press.
- Ndambiri, H.R., Mbogoh, S. G., Ng'ang'a, S. I., Muiruri, E.J., Nyangwes, P.M., Ogada, J. O., Omboto, P., I., Kefa, C., Kubowon, P. C., Cherotwo F. H. (2012). Assessment of Farmers' Adaptation to the Effects of Climate Change in Kenya: The Case of Kyuso District. *A Journal of Economic and Sustainable Development*. Vol. 3, No 12. ISSN 2222-1700 (Paper) ISSN 2222-2855(Online)
- Nyaga, J. and James, R. (2018). Factors Affecting Sustainability of Food Security Projects Among the Masaai Community in Kajiado County, Kenya. *Research Journal of Sociology Vol. 6/ No. 7. ISSN 2347-8241*
- Ochunga, F. O. and Awiti, L. H. (2017). Influence of Stakeholder Participation on Sustainability of Community Development Projects Implemented by Plan International in Homa Bay Town Sub-County, Kenya. *International Journal of Academic research in Business and Social Sciences*, Vol. 7 (4) ISSN: 2222-6990
- Oganga, C., Olala, G. and Odima, R. (2017). Stakeholder Involvement and Sustainability of Women Development Projects in Kisumu Central Constituency, Kisumu County, Kenya. *International Journal of Research in Social Sciences*. ISSN: 2249-2496, Vol. 7 Issue 8.
- Okoth, A. O. (2016). *Determinants of Sustainability of Health Projects: A Case of Public Hospitals in Nairobi County, Kenya*. Master's thesis, University of Nairobi, Kenya.
- Saunders, M, Lewis, P. & Thornhill, A. (2009), *Research Methods for Business Studies* Fifth Ed. Pearson Educational Centre Edinburgh Gate, Harlow, Essex CM 202 J. England
- Sekaran, U., & Bougie, R. (2010). *Research Methods for Business: A Skill-Building Approach* (5th ed.). Haddington: John Wiley & Sons

- Smith, J. W. (2020). Resilient Food and Agriculture Systems in Kenya Within the COVID-19 Pandemic: Opportunities and Challenges (Focus on Livestock). *Presented at the second High Panel Conference on Agricultural Research in Kenya*. ILRI
- Tabassi, A. Maria, A., Kamand, M. and Argyropoulou, R. (2016). Leadership Behaviour of Project Managers in Sustainable Construction Projects. *International Conference on Project Management*, University of Liverpool, Liverpool, UK.
- Walter, O., Opong, R. & Allgood, D. (2017). *World Vision's Approach to Community Engagement for Sustainable Water, Sanitation and Hygiene Projects*. World Vision International Annual Report

Citation: Nyaga Juster Gatumi et al. "Effects of Stakeholders Involvement on Sustainability of Food Security Projects in Arid Lands, Kenya" *International Journal of Managerial Studies and Research (IJMSR)*, vol 10, no. 6, 2022, pp. 19-29. DOI: <https://doi.org/10.20431/2349-0349.1006003>.

Copyright: © 2022 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.