

EFFECT OF PROJECT ENVIRONMENT ENABLERS ON THE LINK BETWEEN M&E TOOLS AND SUSTAINABILITY OF COMMUNITY AGRICULTURAL PROJECTS SUPPORTED BY CARITAS IN MERU COUNTY, KENYA

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ABSTRACT

Purpose of the Study: To determine the moderating effect of project environment enablers on the link between M&E Tools and sustainability of community agricultural projects supported by Caritas in Meru County, Kenya.

Methodology: A pragmatic research paradigm was adopted and a descriptive survey research design was utilized. The target population was 59 smallholder farmer groups and 24 Caritas Meru staff. The sample size was 51 smallholder farmer groups and the total sample size was 177 respondents comprising (153 group leaders and 24 project officers).

Results: The null hypothesis tested was that the relationship between M&E Tools and the Sustainability of community agricultural projects supported by Caritas in Meru County, Kenya does not depend on the project environment enablers. The results were $R^2=0.095$, $t=7.042$, $P=0.000<0.05$. The null hypothesis was rejected and was concluded that the relationship between M&E Tools and Sustainability of community agricultural projects undertaken by Caritas in Meru County, Kenya depended on the project environment enablers.

Conclusions: Moderating effect of Project Environment has a statistically significant influence on the sustainability of CAP supported by Caritas in Meru County, Kenya.

Recommendations: Findings suggest that an increase in the project environment enablers leads to an increase in the sustainability of the community agricultural project by Caritas in Meru County and vice versa. It is therefore imperative to the National and County governments

to create and promote citizen-friendly tax regime, simple groups' registration requirements, peaceful co-existence amongst neighboring communities, and Information Technology literacy.

Keywords: *Moderating effect, Project environment enablers, M&E tools, Sustainability of community agricultural projects.*

1.1 BACKGROUND OF THE STUDY

Sustainability of community agricultural projects is influenced by both project environment factors and monitoring and evaluation (M&E) tools. A review of the literature suggests that access to resources, community support, market opportunities, and stable governance and regulatory systems are key project environment factors that can impact the sustainability of community agricultural projects (Food and Agriculture Organization of the United Nations, 2019; World Bank Group, 2019).

M&E tools, together with regular assessments and evaluations of project performance, can also play a significant role in ensuring the sustainability of community agricultural projects (United Nations Development Programme, 2020). These tools can provide valuable information about the effectiveness of project activities and help to identify areas for improvement, which can enhance the sustainability of these projects. Additionally, the use of M&E tools can help to build accountability and transparency, and improve the decision-making process, which can lead to more effective and sustainable project outcomes (International Fund for Agricultural Development, 2021). By tracking progress and measuring impact, M&E tools can also help to demonstrate the value of community agricultural projects and attract additional support and resources.

Project environment enablers, such as access to resources, community support, market opportunities, and stable governance and regulatory systems, can have a moderating effect on the relationship between monitoring and evaluation (M&E) tools and the sustainability of community agricultural projects (Food and Agriculture Organization of the United Nations, 2019). The use of M&E tools is important for measuring the success and sustainability of community agricultural projects. However, these tools alone are not enough to ensure sustainability. Project environment enablers can play a crucial role in determining the effectiveness of M&E tools, and can also influence the overall sustainability of the project.

For example, access to resources such as land, water, and seed is critical for the success of community agricultural projects (World Bank Group, 2019). The presence of these resources can make it easier for M&E tools to measure the effectiveness of the project, as well as help to

ensure the sustainability of the project. On the other hand, if access to resources is limited, the use of M&E tools may not have as much impact on the sustainability of the project.

Similarly, community support and participation is critical for the sustainability of community agricultural projects (International Fund for Agricultural Development, 2021). If community members are actively involved in the project and support its goals, M&E tools may be more effective in measuring the project's success. However, if community support is lacking, the use of M&E tools may have limited impact on the sustainability of the project. In conclusion, while M&E tools are important for measuring the success and sustainability of community agricultural projects, project environment enablers can play a crucial role in determining the effectiveness of these tools and the overall sustainability of the project.

In Kenya, the sustainability of community agricultural projects is influenced by both project environment factors and monitoring and evaluation (M&E) tools. Project environment factors, such as access to resources, community support, market opportunities, and stable governance and regulatory systems, play a significant role in the sustainability of community agricultural projects in Kenya (Kakonge, 2017).

M&E tools, including regular assessments and evaluations of project performance, are also important for ensuring the sustainability of community agricultural projects in Kenya (Mugo, 2019). These tools can provide valuable information about the effectiveness of project activities and help to identify areas for improvement, which can enhance the sustainability of these projects. Additionally, the use of M&E tools can help to build accountability and transparency, and improve the decision-making process, which can lead to more effective and sustainable project outcomes (Ochieng, 2018). By tracking progress and measuring impact, M&E tools can also help to demonstrate the value of community agricultural projects and attract additional support and resources.

The sustainability of community agricultural projects in Kenya is influenced by a combination of project environment factors and M&E tools. Both of these factors are important for ensuring the long-term success and sustainability of these projects and should be considered when designing and implementing community agricultural projects in Kenya.

1.2 STATEMENT OF THE PROBLEM

The sustainable development of community agricultural projects in Meru County, Kenya, in particular, is a crucial factor for ensuring food security, livelihoods, and economic growth in rural areas. Despite the efforts made by governments, non-government organizations (NGOs),

and other stakeholders, the sustainability of community agricultural projects remains a persistent challenge in Meru County and other regions of Kenya. Several studies have identified several project environmental factors that can contribute to the sustainability of community agricultural projects in Kenya and other developing countries (Kargbo, 2013; Musa & Ahmed, 2015). However, these studies have not fully explored the interplay between project environmental factors and the use of monitoring and evaluation (M&E) tools in determining the sustainability of community agricultural projects in Kenya and Meru County.

Gaps in the literature exist regarding the extent to which project environmental factors influence the sustainability of community agricultural projects in Meru County and other regions of Kenya. Furthermore, the role of M&E tools in enhancing the sustainability of community agricultural projects in Kenya has not been thoroughly investigated. There is a need for a systematic examination of the relationship between project environmental factors and M&E tools in determining the sustainability of community agricultural projects in Kenya and Meru County.

In Meru County, several community agricultural projects have been initiated in recent years, but the majority of these projects have failed to achieve their desired outcomes and are not sustainable in the long-term. The sustainability of community agricultural projects in Meru County is influenced by various factors, including political instability, lack of community involvement, poor project design, limited access to resources and information, and poor project management (Nyaga & Mbogo, 2018). These factors affect the ability of community agricultural projects to achieve their intended outcomes and contribute to their eventual failure.

The sustainability of community agricultural projects in Meru County, Kenya remains a major challenge, and a better understanding of the interplay between project environmental factors and M&E tools is necessary to improve the sustainability of these projects. A comprehensive investigation of this relationship provides valuable insights into the factors that affect the sustainability of community agricultural projects and inform future project design, implementation, and management efforts.

2.1 LITERATURE REVIEW

The sustainability of community agricultural projects supported by Caritas in Meru County, Kenya, is a crucial issue that requires careful consideration. A well-designed and implemented community agricultural project can lead to improved food security, livelihoods, and economic growth in rural areas (Kargbo, 2013). However, many community agricultural projects in Meru

County and other regions of Kenya fail to achieve their desired outcomes and are not sustainable in the long-term (Nyaga & Mbogo, 2018).

Several studies have investigated the relationship between monitoring and evaluation (M&E) tools and the sustainability of community agricultural projects (Musa & Ahmed, 2015; Kargbo, 2013). These studies have shown that the effective use of M&E tools can significantly enhance the sustainability of community agricultural projects by providing reliable information for decision-making and ensuring that resources are used effectively (Musa & Ahmed, 2015). However, the impact of M&E tools on the sustainability of community agricultural projects is influenced by various project environmental factors (Kargbo, 2013).

The role of project environmental factors in determining the sustainability of community agricultural projects is well documented in the literature (Kargbo, 2013; Musa & Ahmed, 2015). These factors can either enable or hinder the success of community agricultural projects and include political stability, community involvement, project design, access to resources and information, and project management (Nyaga & Mbogo, 2018). The influence of these project environmental factors on the sustainability of community agricultural projects has been shown to be significant (Musa & Ahmed, 2015).

The moderating effect of project environmental enablers on the relationship between M&E tools and the sustainability of community agricultural projects has received limited attention in the literature. A study by Kargbo (2013) investigated the role of project environmental enablers in determining the sustainability of community agricultural projects in Sierra Leone. The study found that the presence of project environmental enablers, such as political stability and community involvement, positively influenced the relationship between M&E tools and the sustainability of community agricultural projects.

The literature suggests that the use of M&E tools is critical for enhancing the sustainability of community agricultural projects in Meru County and other regions of Kenya. However, the impact of M&E tools is influenced by various project environmental factors, including political stability, community involvement, project design, access to resources and information, and project management. The moderating effect of project environmental enablers on the relationship between M&E tools and the sustainability of community agricultural projects remains an under-researched area, and further investigation is needed to fully understand this relationship.

2.2 THEORETICAL REVIEW

Contingency Theory: This theory, first introduced by Lawrence and Lorsch (1967), posits that there is no one-size-fits-all approach to managing projects and that the success of a project is dependent on the specific project environment. According to this theory, the project environment, including factors such as project goals, constraints, and available resources, must be taken into consideration when making decisions about project management and implementation. In the context of community agricultural projects, contingency theory would suggest that the sustainability of the project would be influenced by factors such as access to funding, community support, and the presence of enabling infrastructure.

Resource-Based Theory: This theory, introduced by Wernerfelt (1984), posits that a project's resources, including both tangible and intangible assets, play a significant role in determining the success and sustainability of the project. In the context of community agricultural projects, this could include factors such as access to land, water, and other resources necessary for farming and food production. The resource-based theory would suggest that the sustainability of these projects would be influenced by the availability and allocation of resources, as well as the ability of the project team to effectively manage and utilize these resources over time.

2.3 CONCEPTUAL FRAMEWORK

The study conceptual framework presents a diagrammatic form of the researcher's conceptualized relationships between the dependent and the moderating variables.

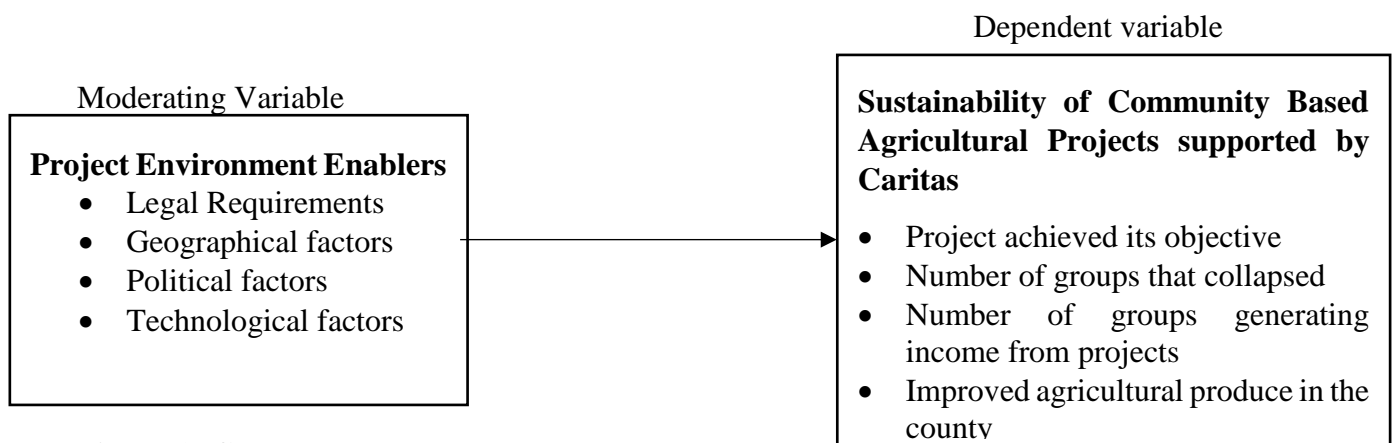


Figure 1: Conceptual Framework

3.1 RESEARCH METHODOLOGY

The study adopted the pragmatic paradigm and a descriptive research design. The researcher opted to use a descriptive research design because it ensures a complete description of the situation, making sure that there is minimum bias in the collection and interpretation of data

(Kumar, 2019). The target population for this was 59 farmer groups with a total of 997 members (Table 1) plus the 24 Caritas project staff as illustrated in Table2.

Table 1: Study Target Population for Farmers group.

Sub-county	No. of Groups	Members		Total
		Female	Male	
Buuri	31	271	174	445
Tigania West	14	158	124	282
Imenti Central	14	139	131	270
Total	59	568	429	997

Source: Caritas Meru Records (2021)

Table 2: Study Target population for Caritas Project Staff.

Category	Target Population
Field Officers	18
Senior administrative staff	3
Project Co-coordinators	3
Total	24

Source: Caritas Meru Records (2021)

The sample size for this study was 153 farmer groups’ leaders plus the 24 Caritas project officers. The total sample size was 177 (Table 3 and Table 4 respectively).

Table 3: Sample Size determination for Famers groups

Sub-county	Target Population	Sample size		Percentage
		Farmer Groups	3 top officials per group	
Buuri	31	27	81	52%
Tigania West	14	12	36	24%
Imenti Central	14	12	36	24%
Total	59	51	153	100%

Source: Caritas Meru Records (2021)

Table 3: Sample size determination for Caritas Project Staff

Category	Target Population	Census(Sample)
Field Officers	18	18
Senior administrative staff	3	3
Project Co-coordinators	3	3
Total	24	24

Source: Caritas Meru Records (2021)

The sampling techniques used in this study were cluster, simple random, proportionate and purposive sampling. Proportionate sampling was used to obtain the number of farmer groups per cluster from the total sample size of 51. To select the farmer groups from each cluster that participated in the study, simple random sampling was adopted. Purposive sampling was used to select 3 top officials from each farmer group sampled to participate in the study. Census technique was utilized to include all the 24 Caritas project staff. The researcher interviewed 3 Caritas senior administrative staff, namely; the director, the assistant director and the M&E officer to triangulate the study findings. The rest of the respondents filled in questionnaires. The study used a structured questionnaire and interview guide to collect data.

The completed questionnaires were subjected to data cleaning and categorization. Data processing was attained through coding and entering in the Statistical Package for Social Sciences (SPSS) software version 26. The qualitative data collected using interview guides were analyzed by way of identifying themes. This entailed grouping similar responses together and developing information from them. The linear regression and Pearson’s Correlation was utilized to determine the link between dependent and independent variables.

Data Analysis Techniques

The descriptive analysis generated data output such as percentages, frequencies, means and standard deviation presented in tabular format for ease of interpretation. The inferential analysis produced linear regression, autocorrelation test, and multicollinearity. Linear regression measures the extent to which there is a linear relationship between two variables. Pearson’s Correlation was utilized to determine the link between dependent and independent variables while linear regression was utilized to determine the moderating effect of the moderating variable. It was also used as the inferential statistics that informed the decision to

reject or not reject the alternative hypothesis for the research study. The regression equation was presented as follows.

There is no significant positive relationship between Project Environment Enablers and sustainability of CBAP supported by Caritas in Meru County, Kenya.

$$Y = \beta_0 + \beta_1 X_1 + \alpha$$

Where:

Y= Sustainability of CBAP supported by Caritas in Meru County, Kenya

β_0 = Y-intercept

X_1 = Project Environment

α = random error and it will be presumed to be 0.

4.1 RESULTS AND PRESENTATION

Sustainability of community agricultural projects

The researcher assessed whether agricultural projects achieved their intended purpose as it was planned. The result returned a mean score of 4.2414 and a standard deviation of 0.55798 (Table 5). Respondents agreed that the agricultural project achieved its intended purpose as it was planned. A mean score of 4.0632 and Std. Deviation of 0.90696 indicated that the respondents agreed the number of agricultural projects managed by farmers is above 50%, the respondents were undecided or neutral that some groups have collapsed due to mismanagement the recorded mean was 3.0862 with Std. Deviation of 1.18201, the respondents agreed that the projects run by the farmers are generating income the recorded mean was 3.9943 with Std. Deviation of 0.87017, Lastly respondents strongly agreed members are trained on modern farming methods, the recorded mean was 4.1092 and Std. Deviation of 0.57363. These findings suggest that community agricultural projects supported by Caritas are owned by the community hence they are sustainable.

Table 5: Sustainability of community agricultural projects

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
The agricultural project achieved its intended purpose as it was planned	174	3.00	5.00	4.2414	.55798
The number of agricultural projects managed by farmers is above 50%.	174	1.00	5.00	4.0632	.90696
Some groups have collapsed due to mismanagement	174	1.00	5.00	3.0862	1.18201
The projects run by the farmers are generating income	174	1.00	5.00	3.9943	.87017
Members are trained on modern farming methods	174	3.00	5.00	4.1092	.57363
Valid N (listwise)	174				

Source; field survey (2021)

The researcher interviewed 2 Caritas senior officers and they were asked to comment on the sustainability of community agricultural projects supported by Caritas in Meru County. Interviewee no 1 had this to say;

“Well, most projects supported by Caritas Meru have benefited the local community. Some started with 5 chickens 5 years ago but as we speak, they have hundreds, they supply eggs and chicken to hotels and they educate their children from the project”. Interviewee no 2 had this to say; *“Majority of these projects are fully owned by the community, especially the projects that started 5 years ago. The community generate income from these projects”.* Based on the comment made by Interview no 1&2, it is a clear indication that Caritas projects have helped the community in terms of development. This is also an indication that these projects are fully owned by the community.

Interviewees’ numbers 1 and 2 were asked how they ensure the projects’ continuity after donor fund. (Probe on the financing of future running costs and measures envisaged to enable the work to continue with funding from its resources, without external assistance, in future). Interviewee number 1 had this to say:

“Members are trained in bookkeeping, those who keep cows or goats are trained on animal health and how to care for them. Those growing crops are members of water projects and trained on modern farming methods”

Interviewee no 2 had this to say:

“We encourage members to have chamas and save a certain per cent of the money from the profit they get in those projects. That money is dedicated to run those projects, we also link the farmers with buyers for example those who want to sell their chickens or eggs. Once we connect

the farmers with buyers they can sell their products and create a sustainable long term business relationship”

Based on answers given above by interviewees 1 and 2 on projects’ continuity after donor fund, the findings imply that Caritas has a strategic plan that ensures that all the projects that they initiate or target community members are sustainable even after the donor withdraws.

Utilization of project environment enablers as moderating variable

Correlation coefficients were the statistical method utilized to explore the variables: Sustainability of projects (The agricultural project achieved its intended purpose as it was planned) and utilization of project environment enablers as moderating variable (Table 6). The findings reveal that there was a positive correlation $r=0.256$ between the project environment enablers and the sustainability of community-based agricultural projects. These findings imply that an increase in the project environment enablers as moderating variable leads to an increase in the sustainability of the community agricultural project by Caritas in Meru County and vice versa

Table 6 Utilization of project environment enablers as moderating variable

Correlations		Sustainability of community agricultural projects	Project enablers
Sustainability of community agricultural projects	Pearson Correlation	1	.256**
	Sig. (2-tailed)		.001
	N	174	174
Project enablers	Pearson Correlation	.256**	1
	Sig. (2-tailed)	.001	
	N	174	174

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

Model Summary

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (sustainability of community agricultural projects) that is explained by project enablers. The study found out only 65 % of the effects of the predictors of project enablers on the sustainability of community-based agricultural projects as represented by the R^2 which means that other monitoring and evaluation tools were not studied in this research contribute 25 % of the effects of the independent variables on the sustainability of the projects. (Table 7)

Table 7: Mode Summary of objective six

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.256 ^a	.065	.060	.54099

a. Predictors: (Constant), Project enablers

ANOVA Model

Study findings in ANOVA (table 8) indicated that the coefficient of determination was not significant as evidence of an F ratio of 12.036 with a p-value of 0.001 is less than 0.05 (level of significance). Thus, the model was fit to predict the sustainability of community agricultural projects supported by Caritas in Meru County using the project environment enablers as moderating variable.

Table 8: ANOVA Model

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.523	1	3.523	12.036	.001b
	Residual	50.339	172	.293		
	Total	53.862	173			

a. Dependent Variable: Sustainability of community projects
 b. Predictors: (Constant), Project enablers

4.2 HYPOTHESIS TESTING

Utilization of project environment enablers as moderating variable

The results of quantitative data were further subjected to regression analysis to test the hypothesis on this variable

H₀: There is no significant positive relationship between Project Environment and sustainability of CBAP supported by Caritas in Meru County, Kenya.

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

Where:

Y= Sustainability of CBAP supported by Caritas in Meru County, Kenya

β_0 = Y-intercept; X₁= Project Environment

α = random error and it will be presumed to be 0.

The result of the test is represented in (table 9)

Findings in Table 9 showed that utilization of project environmental enablers had coefficients of the estimate which was significant basing on $\beta_5 = 0.239$ (p-value = 0.001 which is less than $\alpha = 0.05$), an indication that there was an association. Therefore, we reject the hypothesis and conclude that there was a significant relationship between project Environment and sustainability of CBAP supported by Caritas in Meru County, Kenya.

Table 9: A coefficient estimate

Model	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.356	.259		12.979	.000
Project environmental enablers	.239	.069	.256	3.469	.001

a. Dependent Variable: Sustainability of community based agricultural projects

5.1 CONCLUSION

The study determined that utilization of project environmental enablers had coefficients of the estimate which was significant basing on $\beta_5 = 0.239$ (p-value = 0.001 which is less than $\alpha = 0.05$), an indication that there was an association. Therefore, we rejected the hypothesis and concluded that there was a significant relationship between project environment and sustainability of CAP supported by Caritas in Meru County, Kenya.

6.1 RECOMMENDATION

This study identifies project environment enablers as the moderating variable that may influence the sustainability of community agricultural projects. Findings suggest that an increase in the project environment enablers leads to an increase in the sustainability of the community agricultural project by Caritas in Meru County and vice versa. It is therefore imperative to the National and County governments to create and promote citizen-friendly tax regime, simple groups' registration requirements, peaceful co-existence amongst neighboring communities, and Information Technology literacy.

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