Community Empowerment, Sustainability of Forest Conservation Projects and the Moderating Influence of Monitoring and Evaluation Practices in Kenya

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Abstract: *This research sought to investigate the moderating influence of monitoring and evaluation practices on the relationship between community empowerment and the sustainability of forest conservation projects. This study was conducted in Taita-Taveta County, located in the southern part of Kenya. Community empowerment is viewed as a process and an end where community members gain control of their lives. The empowerment practices considered were knowledge and skills empowerment, decision-making empowerment, conflict resolution empowerment and income-generating empowerment activities. The study relied on a cross-sectional survey study design. A sample of 365 respondents for quantitative data was determined using Yamane formulae. Mixed methods were used to collect and analyse data. Cluster sampling and systematic sampling were used progressively to select respondents for quantitative questions, while those for qualitative questions were selected purposively. Additional data collection methods were observation and document analysis. The study noted that projects implemented in the study area were barely sustainable, with at least 44.1% of respondents agreeing while 52.1% neither agreed nor disagreed. Regression analysis results indicated the R-square change (model 2) of 0.015, which implied that model 2 with monitoring and evaluation practices positively enhanced the influence of community empowerment activities on the sustainability of forest conservation practices by at least 1.5%. Based on the results, the study concluded that monitoring and evaluation practices enhance the sustainability of forest conservation projects with a recommendation that project designers should always include monitoring and evaluation practices in their projects.*

Keywords: A Monitoring and evaluation, community, empowerment, sustainability, forest conservation, project.

1. Introduction

The concept of sustainability has continued to gain prominence in the contemporary world because sustainable development is viewed as a favourable model for attaining a wealthier and equitable world where all resources are utilised to meet current needs and those of succeeding generations (Evangelista et al., 2018). Sustainability should embrace knowledge, action and capacity building for transformative change (Caniglia et al., 2021). Concerns over the insufficiency of critical energy resources, and increasing emissions of Greenhouse Gasses (GHG) responsible for climate change have forced bureaucrats around the world to pay special attention to measures that curb the escalation of such threats to the environment, thus recommending conservation and sustainability of forest resources (Evangelista et al., 2018).

Forests are essential in the management of the water cycle and the sequestration of carbon, which is key in managing climate change and soil conservation. In addition, forests are habitats for biodiversity, including pollinators, without which agricultural productivity gets compromised (Food and Agriculture Organization [FAO], 2015). Forests also provide fruits, water, fodder, fibre, wood energy and income generation to local communities. Forests are, therefore, key to the opulence of the world. Based on the benefits that accrue from the forest resource, its sustainability is of paramount significance to the world.

According to Elkington (1997), sustainability is all about respecting "people" and their needs, "planet" earth and "proceeds" from work which he refers to as the three "P's". It, therefore, entails that for a forest conservation project to be sustainable, it must be capable of supplying the practical needs of the adjacent forest people. This will consider the needs and requirements of the forest resource to continue providing benefits. Lastly, there must be some economic benefits trickling to not only the forest adjacent community but also the larger society. The global community has embraced and emphasised sustainability through the adoption of Sustainable Development Goals that build on the achievements of the Millennium Development Goals (Allen et al., 2016).

In an effort to enhance the sustainability of forest conservation projects, different projects adopt different strategies, including training on agro-forestry, where food crops and forest trees are grown in the farmlands (Asige & Omuse, 2022; Song et al., 2016). Song et al. (2016) noted that forest project practices such as tree planting partly hinge on seed collection and availability of required tree species. Community members need to understand and demonstrate the ability to harness and preserve seeds from different tree species for their tree planting efforts to remain sustainable. The procurement of tree seedlings is among the challenges to tree planting because of high costs remedied by the community to develop and manage tree nurseries for farm forestry. Extinction of some tree species is currently being witnessed as some traditional cultivars are no longer available. Further, there is knowledge gap exacerbated by disregard for the custodians of such knowledge by the younger generation thus presenting a danger of complete loss of such knowledge (Jolly et al., 2017).

To determine the degree of sustainability of a forest conservation project, there must be benchmarks to show progress towards the achievement of sustainability (Beckley et al., 2002). The indicators are categorised as social, economic and ecosystem indicators. Social indicators refer to specific measures referring to the social interactions of a community living adjacent to the forest ecosystem. Economic indicators mostly refer to the economic status of the population adjacent forest ecosystem, while ecosystem indicators reference the health of the forest ecosystem (Beckley et al., 2002). The continuation of the forest-related project activities way beyond the project-funded phase forms an important indicator of a forest project's sustainability.

Social indicators may include sole or clusters of measures associated with the communal and commercial well-being of people. The indicators may be specific data gathered to inform policy in relation to a forest ecosystem (Beckley et al., 2002). Scholars have categorised different strategies for project sustainability such as; training which develops the skills base of the project implementers and other stakeholders; choice of stakeholders with unique competencies and roles; incorporating sustainability of forest conservation early at the design stage and inclusion of benefits enhancement schemes such as income generation (Aarseth, Ahola, Aaltonen, Økland & Andersen, 2017).

Beckley et al. (2002) argue that good indicators of forest project sustainability need to include a range of project aspects. The aspects should take a long-term view of the forest conservation project, take into account the economic, social and biological aspects, take care of both the intra and inter-generational equity, have a link between all project aspects, monitor inputs, and do not disadvantage the local community nor compromise the built and financial capital within the forest ecosystem. Forest conservation project indicators can be categorised according to the resource, process, outputs, impact and exogenous indicators (Kyalo et al., 2012). However, Kyalo et al. (2012) note that an

indicator may not be able to capture the totality, richness and complexity of a system or forest conservation project as it only gives a "slice" of the reality. Indicators only provide a certain degree of information and not the entire information on different aspects of forest projects. According to this research, sustainability indicators include continuation of project activities after the lapse of project funding, continued project benefits to the community, fall on projects and continued peer-learning visits from other projects.

Community empowerment is a process through which the community gains capacity or the results of that process of becoming its own masters (Zimmerman, 2000). Samsu et al. (2021) argue that economic factors, responsibility endowed on leadership and leaders' charisma influence community empowerment. The degree of empowerment can be assessed through ascertaining the existence of opportunities, individuals utilisation of the opportunity to make choices and whether the choice results in the desired outcome (Alsop & Heinsohn, 2005). Community empowerment is gained over time through training and the knowledge and skills marshalled together to achieve sustainability of projects (Cattaneo & Goodman, 2015).

The process of community empowerment enables taking ownership and action on particular social and structural barriers that hinder the attainment of desired goals and aspirations, such as high performance and sustainability of forest conservation projects (Kerrigan et al., 2015). Kadurenge and Nyonje (2017) observed that community empowerment partly entails involvement in development activities through decision-making that ranges from consultation, collegiate involvement and contractual involvement, where a single powerful individual dictates all decisions and direction owing to his actual or perceived power and position of influence. Additionally, there is collaborative involvement where decision-making powers are shared amongst the stakeholders according to their varied abilities, thus enhancing social justice, accountability and community ownership (Njoroge et al., 2016).

In this study, community empowerment entailed the ability of the community to undertake forest conservation activities and share knowledge and skills with their peers regarding the implementation and management of forest conservation projects. Major community empowerment activities were knowledge and skills empowerment, decision-making empowerment, conflict resolution empowerment and income-generating empowerment.

Projects are temporary, limited by scope, resources and time (Todorović et al., 2015), but their sustainability is very important for return on investment. Conventional project execution strategies and processes consider monitoring and evaluation an integral part of any project (Kyalo et al., 2015). Monitoring and evaluation practices are not only empowering processes to the forest adjacent community members but also aid in the achievement of desired forest project results which is critical to sustainability. The sustainability of forest conservation projects hinges on well-designed, implemented and evaluated monitoring and reporting mechanism. Monitoring and evaluation aid in project sustainability by encouraging good practices and constant improvements (Steele et al., 2017; Todorov, 2014). Despite the significance of monitoring and evaluation in the sustainability of forest conservation initiatives, different studies have recognised the numerous methods and models for undertaking monitoring and evaluation are many (Steele et al., 2017). It is recognised that practices in monitoring and evaluation can be undertaken internally or externally, formally or informally and on a large scale or small scale. The approach adopted in monitoring and evaluation practices can be influenced by the positivist paradigm, which emphasises quantifiable data or qualitative and critical approaches where the interplay of political, ethical, as well as social and contextual factors are considered. Prior to data collection, all the requirements for monitoring and evaluation ought to be adequately planned, including the scope, targets, resources required and the timeframes for obtaining the data, analysing and offering feedback to the community and all interested parties. Adequate planning for data collection ensures all components of data collection

are catered for, including obtaining necessary permits and offering required feedback to all stakeholders (Nicol et al., 2014). Monitoring and evaluation require risk mapping and local community planning for active participation and success (Ahmed et al., 2022). In this research, monitoring of project activities by the community entails keeping track of project inputs and expected deliverables. The community participates and records all activities' progress against expected outputs at given time intervals.

1.1 Research objective

Based on the above problem, the following research objective was explored:

- To determine the moderating influence of monitoring and evaluation practices on the relationship between community empowerment activities and sustainability of forest conservation projects.

1.2 Research question

Based on the above objective, the following research question was answered:

- How do monitoring and evaluation practices moderate the relationship between community empowerment activities and the sustainability of forest conservation projects?

1.3 Research hypothesis

Based on the above research question, the following hypothesis was analysed:

- There is no significant influence of monitoring and evaluation practices on the relationship between community empowerment activities and the sustainability of forest conservation projects.

2. Materials and Methods

This study relied on a cross-sectional survey research design. The present study was conducted in Mbololo and Mwambirwa forest patches, including 5 kilometres distance around the forest. The study location was Taita-Taveta County in the south-eastern part of Kenya, approximately $3^0 25'S$, $38^0 20'E$ (Himberg et al., 2009). The study used a mixed method approach in which the sample size for quantitative and qualitative data was determined accordingly. The target community was composed of 4,138 household heads and the sample size was determined using Yamane Formula;

$$n = \frac{N}{1 + N(e)^2}$$

Parameters are; n is the sample size while N is the entire population, and e was 0.05.

The sample for the survey questionnaire obtained was 365, while six respondents for interviews were selected from NGOs operating in the study site and legally mandated institutions (Kenya Forest Service) to conserve forests. Two sampling techniques, namely stratified sampling and systematic sampling were used for the survey questionnaire. Purposive sampling was used for the selection of qualitative data respondents. The five administrative units were each treated as distinct strata from which the respondents were picked using a systematic sampling technique. The number of households per strata was proportionately selected based on the census numbers of 2009. Where x = Number of households in a sub-location as provided by Kenya Population Census of 2009 (GoK 2009). N = Total number of households in the study area as per Kenya Population Census 2009 (GoK 209). n = sample size arrived at using the Yamane formula.

Allocation of sample per strata (Table 1) used systematic sampling where one household was skipped after every selection until 365 respondents were selected. The Mbololo chief's office marked

the starting point, and respondents were selected in a zigzag manner. The researcher's personal judgement guided the direction of movement to avoid picking respondents along a straight line.

Table 1: Proportionate sample of respondents

Location	Administrative unit	Household Numbers	Sample
Mbololo location	Mraru	1,413	125
	Tausa	748	66
Ngolia location	Wongonyi	500	44
	Ndome	723	64
	Ghazi	754	66
Total		**4,138**	**365**

Source: (GoK, 2009)

Likert scale type of questionnaire having five points was used for a survey where 05 represented strongly agree and 01 strongly disagree. Aggregate scores for all 24 items in each variable were obtained using SPSS version 21.0 software and averaged. Total values for 24 questions per variable were summed and the mean was obtained.

Correlation analysis was used to ascertain the construct validity of research instruments in which the researcher obtained a correlation of 0.84. Reliability of qualitative data collection tools was done through the use of inter-rater tests. Data analysis tools, including correlation and regression analysis, were used. All ethical considerations were observed. Researchers helped illiterate respondents understand the questions by translating them into local dialect and thereafter assisting in filing responses.

3. Presentation of Results

The results section is divided into two: dependent variable and moderating influence. The results for sustainability of forest conservation projects are provided using descriptive statistics while the moderating influence of monitoring and evaluation practices are provided using both descriptive and inferential statistics.

3.1 Sustainability of forest conservation projects

Survey responses on this aspect were collected accordingly. In this section, respondents were requested to provide their responses on how they rated forest conservation projects to be sustainable. Their responses are presented in Table 2.

Table 2: Variation of responses on the sustainability of forest conservation projects

Level of achievement of different forest conservation aspects	Frequency	Percentage (%)
01: Strongly Disagree	1	0.3
02: Disagree	13	3.6
03: Neither Agree nor Disagree	190	52.1
04: Agree	159	43.6
05: Strongly Agree	2	0.5
Total	**365**	**100.0**

The output shows a frequency of 190 (52.1%) neither agreed nor disagreed with being the highest, while strongly disagree 1(0.3%) was the lowest response. However, it is also evident that more respondents agreed that forest conservation projects had achieved some level of sustainability in the project site, as indicated by a total of 161(44.1%) of respondents who at least agreed.

Interviews showed projects were viewed as sustainable. The forester argued, "*developments in farmlands as a result of the skills obtained from the project activities helped to remove pressure from the natural resources*". A number of projects were provided as examples of how the community continued to benefit from the interventions long after the lapse of donor funding. Some of the beneficiaries became innovative with the ideas proving that local knowledge was working and only needed some level of challenge and very good results could be observed in the conservation work they continued to perform. The M&E Officer from TTWF noted, "*…the skill of using moisture-retaining compound for tree planting during the dry season helped in achieving a high rate of tree survival in the forest. The skill was helpful in community farmlands with impressive results during the period of depressed rainfall.*

Beekeeping activities were observed, evidenced by at least seven beehives in individual farmlands. There were also tree nurseries, which showed that the community had understood and practiced sustainability activities long after the lapse of project funding.

Thirteen documents were sampled and nine (9) attested to the sustainability of forest conservation projects. Monitoring and evaluation reports as well as progress reports showed forest conservation project activities such as tree planting, beekeeping and nursery development continued being implemented even after donor support to the projects had ceased.

The researcher sought to understand the spread of responses using mean and standard deviation. The response was presented in Table 3.

Table 3: Spread of responses

	N	Minimum	Maximum	Mean	Std. Deviation
SSFCP	365	01	05	3.41	0.584
Valid N (listwise)	365				

The total responses in the quantitative data were 365. The output showed a mean value of 3.41, which was rounded off to 3, meaning most respondents at least were neither agreeing nor agreeing. The results, having crossed 03, were tending towards 04, which means agree. The researchers noted a good level of sustainability.

3.2 Moderation of M&E on community empowerment and sustainability of forest conservation projects

To understand the moderation of M&E, linear regression analysis was conducted and output presented in Table 4: Model summary, Table 5: Statistical significance of regression model and Table 6: Coefficients of determination.

Table 4: Linear regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.652[a]	.425	.418	8.401	.425	66.438	4	360	.000
2	.663[b]	.439	.432	8.304	.015	9.454	1	359	.002

a. Predictors: (Constant), Income Generating Empowerment Activities, Knowledge and Skills Empowerment Activities, Conflict Resolution Empowerment Activities, Decision Making Empowerment Activities.

b. Predictors: (Constant), Income Generating Empowerment Activities, Knowledge and Skills Empowerment Activities, Conflict Resolution Empowerment Activities, Decision Making Empowerment Activities, Monitoring and Evaluation Practices

The results indicated r values of + 0.652 and +0.663 for models 1 and 2, respectively, which showed a strong positive linear correlation on both statistically significant models ($p < 0.05$).

The results indicated the R-square change (Model 2) of 0.015, which implied that Model 2 with monitoring and evaluation practices (moderating variable) positively enhanced the relationship by at least 1.5%. The result implied that forest conservation projects that incorporated monitoring and evaluation practices in addition to community empowerment activities were more likely to attain or increase the level of sustainability.

To determine the statistical significance of the regression model, the researcher analysed the output in Table 5 of the regression analysis

Table 5: Statistical significance of the model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18753.844	4	4688.461	66.438	.000[b]
	Residual	25404.759	360	70.569		
	Total	44158.603	364			
2	Regression	19405.673	5	3881.135	56.289	.000[c]
	Residual	24752.929	359	68.950		
	Total	44158.603	364			

a. Dependent Variable: Sustainability of Forest Conservation Projects
b. Predictors: (Constant), Income Generating Empowerment Activities, Knowledge and Skills empowerment Activities, Conflict Resolution Empowerment Activities, Decision Making Empowerment Activities
c. Predictors: (Constant), Income Generating Empowerment Activities, Knowledge and Skills empowerment Activities, Conflict Resolution Empowerment Activities, Decision Making Empowerment Activities, Monitoring and Evaluation Practices

In Model 1 the values were $F_{(4,360)} = 66.438$; $p < 0.05$. The results were statistically significant (Sig = 0.000). Model 2 values were $F_{(5,359)} = 68.950$; $p < 0.05$. The results were also statistically significant (sig = 0.000). The outputs in both models 1 and 2 ($P < 0.05$) were interpreted to imply a probability of only 1/100 that other methods could yield similar results. The P-value of less than 0.05 led to the rejection of the null hypothesis. The results show that the regression model could be used to predict the values for the dependent variable. The coefficients were fitted on the regression equation; $y = a + \beta_6 X_6 + \beta_7 X_7 + \beta_8 (X_1 X_2 X_3 X_4 X_5 X_7 + e)$. The coefficients are shown in Table 6.

Table 6: Linear regression coefficients

Model		Unstandardised Coefficients		Standardised Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	13.971	3.587		3.895	.000

	Knowledg and Skills empowerment Activities	.253	.061	.239	4.124	.000
	Decision-making Empowerment Activities	.734	.339	.616	2.165	.031
	Conflict Resolution Empowerment Activities	.324	.068	.298	4.734	.000
	Income Generating Empowerment Activities	-.484	.331	-.421	-1.459	.145
2	(Constant)	10.048	3.768		2.667	.008
	Knowledge and Skills empowerment Activities	.224	.061	.211	3.649	.000
	Decision-making Empowerment Activities	.678	.336	.568	2.020	.044
	Conflict Resolution Empowerment Activities	.274	.070	.253	3.945	.000
	Income Generating Empowerment Activities	-.502	.328	-.437	-1.533	.126
	Monitoring and Evaluation Practices	.210	.068	.172	3.075	.002

a. Dependent Variable: Sustainability of Forest Conservation Projects

Beta coefficients obtained in model 2 indicated that decision-making empowerment activities had a strong positive correlation in the model at 0.678. Conflict-resolution empowerment activities had a weak positive correlation in the model at 0.274. Knowledge and skills empowerment activities also had a weak positive correlation of 0.224, while income-generating empowerment activities had a moderately strong negative correlation in the model at -0.502. Income generating empowerment activities had a negative value implying that in this model, it reduces or negatively affects the sustainability of forest conservation projects.

The results showed some degree of variance between model 1 without moderating variable (monitoring and evaluation practices) and model 2 with moderating variable. In model 1 knowledge and skills empowerment activities indicated $T_{(359)} = 4.124$; $p < 0.05$ while in model two the result was $T_{(359)} = 3.649$; $p < 0.05$. This indicated a slight reduction in the contribution of knowledge and skills empowerment activities to the dependent variable when monitoring and evaluation practices were introduced as a moderator variable. However, in both cases (models 1 and 2), the results were statistically significantly different from zero, which implied that knowledge and skills empowerment activities could be used to predict the values of sustainability of forest conservation activities in the regression model.

Decision-making empowerment activities in model 1 had a result of $T_{(359)} = 2.165$; $p < 0.05$ while in model 2 with moderating variable the result was $T_{(359)} = 2.020$; $p < 0.05$. There was a slight reduction in the contribution of the independent variable to the dependent variable. However, in both models, the results were statistically significantly different from zero, which meant that the independent variable could be used to predict the values of the dependent variable.

Conflict resolution empowerment activities in model 1 had a result of $_{T (359)} = 4.734$; $P < 0.05$. In model 2 the result was $T_{(359)} = 3.945$; $p < 0.05$. There is a reduction in the level of contribution of conflict resolution activities to the dependent variable. In both cases, the results were statistically significantly different from zero, implying that conflict-resolution empowerment activities could be used to predict the value of the dependent variable.

Income generating empowerment activities in Model 1 had a result of $T_{(359)} = -1.459$; $p > 0.05$ while in model 2 the result was $T_{(359)} = -1.533$; $P > 0.05$. There was a reduction in the contribution of the independent variable to the dependent one. However, in both cases, the results were statistically not significantly different from zero, implying that income-generating empowerment activities had no contribution to predicting the values of sustainability of forest conservation projects in the regression model.

Monitoring and evaluation practices had a result of $T_{(359)} = 3.075$; $p < 0.05$. The result was statistically significantly different from zero, implying monitoring and evaluation practices could be used to predict values of the dependent variable in the regression model. The regression model for moderating the influence of monitoring and evaluation practices on the relationship between community empowerment activities and sustainability of forest conservation projects is $y = a + \beta_6 X_6 + \beta_7 X_7 + \beta_8 (X_1 X_2 X_3 X_4 X_5 X_7 + e)$.

Literature corroborated research findings that monitoring and evaluation practices enhanced the relationship between community empowerment activities and sustainability of forest conservation projects, as observed by Behrendt and Franklin (2014), who noted that joint implementation of monitoring and evaluation practices improved communication, understanding and relationships among stakeholders which positively influenced project results including sustainability of forest conservation projects. Owuor et al. (2016) observed that informal field visits tended to bring out the project monitoring and evaluation team's and the community's cognitive abilities to identify issues in project work, which yielded better forest conservation project results and ownership. Community ownership of forest conservation project work and activities motivated community members to continue with activities even after official financial project support ended. Sulemana and Simon (2018) found out that the local community got higher levels of satisfaction and appreciation of forest conservation project activities when fully involved in monitoring and evaluation practices, including feedback meetings. Such high levels of satisfaction resulted in a desire to support continued activity implementation after donor funding which implied sustainability of forest conservation projects. Anderson (2015) observed that project knowledge amongst the local community was enhanced during monitoring and evaluation activities such as field visits, which enhanced forest project sustainability.

Interviews with the project manager from MAZIDO and the monitoring and evaluation officer from TTWF indicated that community members were involved at different levels in monitoring and evaluation practices. For instance, the monitoring and evaluation officer from TTWF reported, "…*it is difficult to involve community members in some activities like indicator development and data analysis has given the technical aspects required. However, we make every effort for individuals to participate to the greatest possible extent according to individual capacity.*" Those observations implied that projects carried out monitoring and evaluation practices and involved the community because of their prejudices and perceived differences in technical knowledge. The fears by project personnel and other stakeholders that local community members have inadequate capacity to perform some of the monitoring and

evaluation practices were in line with findings by Barbierato and Gribaudo (2014), who averred that semi-skilled personnel would hamper correct information collection and analysis. However, the collaborative working between the local community and the project personnel was considered beneficial to correct the interpretation of the technical aspects of the project as well as the context resulting in forest conservation project sustainability.

Monitoring and evaluation (M&E) document reports for different forest conservation projects showed that community members actively participated in monitoring and evaluation practices of forest conservation projects. This meant that the community got involved in monitoring and evaluation practices as well as community empowerment activities leading to increased project understanding and enhancement of sustainability. There were plans for monitoring and evaluation practices contained in project proposals, complete with budgets and timelines in two documents accessed from the KFS office. Those documents showed that the project team implemented monitoring and evaluation practices in the research area in conjunction with the local community.

4. Conclusion and Recommendations

The researcher concluded that monitoring and evaluation practices were important to the sustainability of forest conservation projects. It benefits community effort in achieving forest sustainability by at least 1.5%. This means that monitoring and evaluation practices not only help to gauge the progress and success of forest conservation projects but also increase sustainability. Researchers recommend the inclusion of monitoring and evaluation practices in projects to enhance sustainability. Monitoring and evaluation should never be an afterthought. Secondly, community members should always endeavour to participate fully in all monitoring and evaluation activities undertaken in forest conservation projects. This is because, by so doing, they reinforce that activity with valuable indigenous knowledge and resources in terms of manpower while at the same time learning the challenges and solutions bedevilling different forest conservation activities. Apart from increasing resources for monitoring and evaluation, the activities also ensure added benefits to the community by making the project activities more sustainable. Thirdly, given the benefits of monitoring and evaluation as indicated in this study, the donor community should consider supporting monitoring and evaluation practices as a mandatory requirement for financial support.

5. Conflict of Interest, Permission and Acknowledgements

References

Aarseth, W., Ahola, T., Aaltonen, K., Økland, A., & Andersen, B. (2017). Project sustainability strategies: A systematic literature review. *International Journal of Project Management*, *35*(6), 1071–1083. https://doi.org/10.1016/j.ijproman.2016.11.006

Ahmed, Y., Jamil, M., & Ashraf, M. Z. (2022). Monitoring & evaluation matrix for disaster risk reduction in rural settlements of Punjab. *An Analysis of Economic & Land Use Enclaves*. *19*(2), 9383–9390.

Allen, C., Metternicht, G., & Wiedmann, T. (2016). National pathways to the Sustainable Development Goals (SDGs): A comparative review of scenario modelling tools. *Environmental Science and Policy*, *66*, 199–207. https://doi.org/10.1016/j.envsci.2016.09.008

Alsop, R., & Heinsohn, N. (2005). Measuring empowerment in practice: Structuring analysis and framing indicators. *World Bank Policy Research Working Paper No. 3510. Available at: http://siteresources.worldbank.org/INTEMPOWERMENT/Resources/41307_wps3510.pdf [Accessed 22 May 2014]* (Issue February).

Anderson, M. (2015). Challenges to implementing integrated pest management in schools : what we have learned from field visits. *Applied Environmental Education and Communication*, 14(1), 3-13. https://doi.org/10.1080/1533015X.2014.998795

Asige, M. L. ., & Omuse, O. D. . (2022). Influence of Post-Harvest Technology on Food Security in Narok East sub-County, Kenya. *Interdisciplinary Journal of Rural and Community Studies, 4,* 1-15. https://doi.org/10.51986/ijrcs-2022.vol4.01

Barbierato, E., & Gribaudo, M. (2014). Performance evaluation of NoSQL big-data applications using multi-formalism models. *Future Generation Computer Systems*. 37, 345-353. https://doi.org/10.1016/j.future.2013.12.036

Beckley, T., Parkins, J., & Stedman, R. (2002). Indicators of forest-dependent community sustainability: The evolution of research. *Forestry Chronicle*, 78(5), 626–636. https://doi.org/10.5558/tfc78626-5

Behrendt, M., & Franklin, T. (2014). A review of research on school field trips and their value in education. *International Journal of Environment and Science Education*, 3, 235–245. https://doi.org/10.12973/ijese.2014.213a

Caniglia, G., Luederitz, C., von Wirth, T., Fazey, I., Martín-López, B., Hondrila, K., König, A., von Wehrden, H., Schäpke, N. A., Laubichler, M. D., & Lang, D. J. (2021). A pluralistic and integrated approach to action-oriented knowledge for sustainability. *Nature Sustainability*, 4(2), 93–100. https://doi.org/10.1038/s41893-020-00616-z

Cattaneo, L. B., & Goodman, L. A. (2015). What is empowerment anyway? A model for domestic violence practice, research, and evaluation. *Psychology of Violence*, 5(1), 84–94. https://doi.org/10.1037/a0035137

Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone Publishing.

Evangelista, P., Santoro, L., & Thomas, A. (2018). Environmental sustainability in third-party logistics service providers: A systematic literature review from 2000-2016. *Sustainability (Switzerland)*, 10(5), 1-34. https://doi.org/10.3390/su10051627

Government of Kenya (GoK). (2005). *Laws of Kenya, the Kenya Forests Act, 2005*. http://www.kenyaforestservice.org/images/MMMB/forests act no.7 of 2005.pdf

Himberg, N., Omoro, L., Pellikka, P., & Luukkanen, O. (2009). The benefits and constraints of participation in forest management: The case of Taita hills, Kenya. *Fennia*, 187(1), 61–76.

Rajat, J., Jefwa, J., & Mwafaida, J. (2017). Survey on indigenous food plants of Kaya Kauma and Kaya Tsolokero in Kilifi County, Kenya. *Journal of Life Sciences*, 11(2), 82–90. https://doi.org/10.17265/1934-7391/2017.02.004

Kadurenge, B. M., & Nyonje, R. O. (2017). In Search for an alternative stakeholder-participation model. *International Journal of Humanities and Social Sciences*, 7(1), 124–138.

Kerrigan, D., Kennedy, C. E., Morgan-Thomas, R., Reza-Paul, S., Mwangi, P., Win, K. T., McFall, A., Fonner, V. A., & Butler, J. (2015). A community empowerment approach to the HIV response among sex workers: Effectiveness, challenges, and considerations for implementation and scale-up. *The Lancet*, 385(9963), 172–185. https://doi.org/10.1016/S0140-6736(14)60973-9

Kyalo, D.N, Mulwa, A.S, & Nyonje, R. . (2012). *Monitoring and evaluation of projects and programs: A handbook for students and practitioners* (2nd ed.). Aura Publishers.

Nicol, D., Thomson, A., & Breslin, C. (2014). Rethinking feedback practices in higher education: A peer review perspective. *Assessment and Evaluation in Higher Education*, 39(1), 102–122. https://doi.org/10.1080/02602938.2013.795518

Njoroge, N. N., Wambugu, L. N., Wanyoike, J. N., & Gathiru, M. K. (2016). Effectiveness of empowerment evaluation approach in community programs. *International Journal of Business and Social Science*, *7*(6), 194–200. http://www.ijbssnet.com/journals/Vol_7_No_6_June_2016/18.pdf

Owuor, F. O., Rambo, C. M., Nyonje, R. O., & Odundo, P. A. (2016). *Influence of human resource capacity for monitoring and*. *4*(5), 45–59.

Samsu, S., Kustati, M., Perrodin, D. D., Ritonga, M., Kosim, M., Rusmini, R., & Suwendi, S. (2021). Community empowerment in leading pesantren: A research of Nyai's leadership. *International Journal of Evaluation and Research in Education*, *10*(4), 1237–1244. https://doi.org/10.11591/IJERE.V10I4.21833

Song, Y., Zhang, Y., Song, X., & Swiderska, K. (2016). Food and agriculture; Climate change Smallholder farming systems in southwest China exploring key trends and innovations for resilience funding acknowledgement. In *Iied* (issue September). https://doi.org/10.1002/esp.3897

Steele, J., Dredge, D., & Scherrer, P. (2017). Monitoring and evaluation practices of volunteer tourism organisations. *Journal of Sustainable Tourism*, *25*(11), 1674–1690. https://doi.org/10.1080/09669582.2017.1306067

Sulemana, M., & Simon, K. K. (2018). An assessment of stakeholder participation in monitoring and evaluation of district assembly projects and programmes in the Savelugu- Nanton Municipality Assembly, Ghana. *Ghana Journal of Development Studies*, *15*(1), 173–195. https://doi.org/10.4314/gjds.v15i1.9

Todorov, T. S. (2014). Evaluating project and program management as factor for socio-economic development within EU. *Procedia - Social and Behavioral Sciences*, *119*, 819–828. https://doi.org/10.1016/j.sbspro.2014.03.092

Todorović, M. L., Petrović, D. T., Mihić, M. M., Obradović, V. L., & Bushuyev, S. D. (2015). Project success analysis framework: A knowledge-based approach in project management. *International Journal of Project Management*, *33*(4), 772–783. https://doi.org/10.1016/j.ijproman.2014.10.009

Zimmerman, M. . (2000). Empowerment theory: Psychological, organisational and community levels of analysis. In *Handbook of Community Psychology* (pp. 43–59). Kluwer Academic.