



## INCOME GENERATING INITIATIVES AND SUSTAINABILITY OF PROJECTS IN KENYA

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**ABSTRACT:** *This study explored the extent to which income generating empowerment initiatives influence sustainability of projects. Income generating initiatives are aimed at creating wealth and improving livelihoods. Such initiatives can be found in all sectors of the economy. This study took place in Voi sub-county, Kenya. It targeted eight projects implemented between 2006 and 2015. Quantitative data was collected from 4,138 household heads, while qualitative data was collected from 14 staff from two NGOs and four (4) Staff from Kenya Forest Service (KFS). Decision to collect quantitative data from 365 respondents resulted from the use of the Yamane formula. Six respondents purposively selected provided qualitative data. Other sampling techniques used were systematic and cluster sampling. The F-ratio obtained was  $F_{(1,351)} = 161.955$ ;  $p < 0.05$ . The null hypothesis was rejected. The conclusion of the study was that income-generating initiatives positively support sustainability of projects.*

**KEYWORDS:** Income Generation, Project, Community, Sustainability, Forest, Conservation.



## INTRODUCTION

The main purpose of income-generating initiatives is to create wealth and enhance community livelihoods. All sectors of the economy have income-generating activities that may range from short-term to long-term (Montanari, 2019). In forestry, the development of nature-based income-generating activities has an environmental dimension with a key objective of empowering the local community, especially the vulnerable. Some examples of income-generating activities in forestry include bee keeping, and butterfly farming (Sultanova et al., 2019). Some income-generating activities are supported by legislation, for example, the forestry legislation in Kenya which prescribes the type of income-generating activities allowed in protected forests [Government of Kenya (GOK), 2016]. This study sought to determine the extent to which income-generating initiatives influence sustainability of projects. The null hypothesis was that there was no statistically significant relationship between income generating initiatives and sustainability of projects

## LITERATURE/THEORETICAL UNDERPINNING

This section is divided into theoretical underpinning of the study and the empirical literature review.

### Theoretical Framework

This study relied on stakeholder theory because it offered an opportunity to work with all individuals whose contributions enable the success of the income-generating activities. Such stakeholders ranged from the government, the local community and also the donors who finance such projects. Further, there were other stakeholders whose actions affected the income-generating activities, such as competitors, policy and legislative framework, and the suppliers of some of the inputs.

The benefits of stakeholder theory include higher returns to the enterprises that emanate from ethical treatment that fosters close beneficial relationships. The good relationship between an income-generating activity and stakeholders translates into high returns (Li et al., 2020). When dynamic and evolving stakeholder interests are satisfactorily catered for in an income-generating activity, they gain confidence and trust in the firm that results in loyalty which supports sustainability of the activities vision (Bischoff, 2019). Enterprises that engage in stakeholder management strategies tend to enhance stakeholder experience and support which influence profitability (Ontita & Kinyua, 2020). A major downside of the stakeholder theory is inadequate contextual theory on how its incremental benefits outweighed its costs (Schaltegger et al., 2020). Further, some scholars argue that businesses do not have adequate resources to handle social challenges and the society should not expect institutions to engage in such undertakings (Huml & Cintron, 2021). The main purpose of an enterprise is to make profits for shareholders. However, stakeholder theory takes away focus of the income-generating activity by bringing in non-investor interests. Scholars question the ownership of the businesses and purpose when stakeholder theory is applied (Huml & Cintron, 2021).



## LITERATURE REVIEW

Income-generation is the process of raising income through different means. In the forestry sector, income-generating activities supplement adjacent community needs and livelihoods. The activities range from harvesting of wild fruits and resins to tourism and logging (Rotich, 2019). Tourism encompasses recreational activities such as sport fishing, mountaineering, cable cars, hiking, camping, canopy walks and bungee jumping among others (Shah & Irandu, 2022). In Kenya, Kakamega forest boasts of many women-led income-generating activities such as basketry. The activities improve community attachment to the resource thus boosting its management and conservation status because the beneficiary community becomes a group of volunteer gatekeepers, resulting in reduced illegal activities like unauthorized logging (Ondiba et al., 2020).

Some natural forest reserves in Kenya are demarcated into conservation and intervention or influence zones. In the conservation zone there are restrictions on harvesting of forest-based products. The intervention zone which extends up to 5 kilometres from the edge of the forest is a beehive of income-generating attested by the Ngare Ndare forest as well as Illingwesi in Northern Kenya (Ileri & Muriithi, 2020). To enhance sustainability of the activities, the groups rely on elaborate benefit sharing plans and regulations that support conservation status of the forest resources (Ileri & Muriithi, 2020). The study by Ondiba et al. (2020) explored the benefits of forest-based income generation to the forest resource while the study by Ileri and Muriithi (2020) considered the benefits that accrue to the forest adjacent community. In both studies, the benefits of the forest-based activities were explored from two different perspectives.

In Kenya, forest-based public-private partnership (PPP) is used to mobilize resources and expertise in support of income generation. Several ecotourism facilities in Arabuko Sokoke forest in Kenya, for example, were developed through PPP and the community continues to benefit from the investments (Chisika & Yeom, 2021). However, investments in forestry vary depending on intended scale of operation and local context. The hallmark of the activities is that they positively impact community livelihoods and empower them to handle the ever emerging economic challenges (Ileri & Muriithi, 2020).

In developing countries, carbon credit trade is the new frontier in forest-based income-generating activities that are beneficial to the environment through carbon sequestration and low discharge of greenhouse gases (GHGs). Forests and other natural vegetation are known to sequester and store large quantities of carbon (Ndung et al., 2022). The Kasigau REDD+ projects in Taita-Taveta County within the Mbololo forest ecosystem in Kenya, for instance, recorded high income between 2013 and 2019 owing to carbon value chains (Ndung et al., 2022). Community groups adjacent mangrove forest ecosystems, such as the Mida Creek conservation group at the Kenyan Coast, engage in other forms of income-generating activities like crab farming considered to be very lucrative (Warui et al., 2020). Crab fattening heavily relies on the mangrove forest ecosystem because of the invertebrates that flourish therein, a key feed for crabs in cages (Warui et al., 2020). The studies by Chisika and Yeom (2021) and Ndung et al. (2022) explored different financing mechanisms for income-generating infrastructure in forestry. The former study was on private-public partnership as a model for financing the activities while the latter dwelled on Carbon Credit Trade as a model for income generation. The study by Warui et al. (2020) on the other hand differed from the two because



it targeted raising incomes for the community (not infrastructure development) especially within the mangrove forest ecosystem through crab farming.

The ability of the community to undertake forest related income-generating activities with minimal external support is an indicator of community empowerment. Income improves an individual's social standing in society and their autonomy to make decisions on their daily activities (Kunjuraman, 2022). Economically empowered households manifest through asset ownership, diversified consumption patterns, improved health and nutrition, higher education as well as higher rates of self-reported satisfaction in daily requirements at household levels (Warui et al., 2020). At community level, empowerment indicators include increased employment opportunities at the forest adjacent villages, improved infrastructure within the CFA area and also improved institutional governance of the CFA, transparency and accountability and other legal entities formed to manage the income-generating activities (Kunjuraman, 2022). The study by Kunjuraman (2022) shows that increased income levels improve social standing of the community and the ability to make individual decisions on their affairs. However, the study failed to assess and report on any negative aspects associated with increased income levels in a community.

Some income generation activities in Arabuko-Sokoke forest at the Kenyan Coast include butterfly farming, a relatively new engagement in the area. Farmers trap butterflies for egg production in the Arabuko-Sokoke forest and transfer them to special enclosures within their farms (Shah & Ayiamba, 2019). Forest by-laws allow each interested farmer to trap a single butterfly at a time for egg production. Butterflies have high fecundity levels of approximately 200 eggs. In addition, farmers are allowed to collect feeding material for butterfly caterpillars from the forest (Shah & Ayiamba, 2019). Some project stakeholders prefer projects with income-generating components to enhance sustainability. Income-generating activities have many dimensions including the social dimension where they improve the well-being of the population, increase socio-economic integration, improve community solidarity and promote equal opportunities amongst different classes in society (Bansal et al., 2019). The studies by Shah and Ayiamba (2019) which showcased efforts by the community to improve income levels through butterfly farming were enhanced by Bansal et al. (2019), who demonstrated that incomes earned from those ventures were particularly beneficial in promoting equity in society.

There are instances where income generation fails to result in individual empowerment which can be attributed to many factors including globalization, digital era challenges, financial crises and political issues (Franco et al., 2021). The myriad of challenges that occasionally face income generation from early stages are classified into external environment related, and internal such as financial, organizational, operational, human resource and marketing issues (Franco et al., 2021). Climate change for instance has proven to be a major source of disturbance to most income-generating activities. Extreme temperatures, storms and wildfires have the capacity to completely wipe out gains made in forest-related income-generating activities (Kling et al., 2021). Instances of loss occasioned by different challenges have negative impacts on sustainability of forest related income generation activities. Rotich (2019) observed that challenges related to illegal grazing in forests as well as forest degradation affect community nature-based income-generating activities like ecotourism. Other initiatives like tree nurseries establishment and management suffer especially when over abstraction of water takes place. The research by Franco et al. (2021) was similar to those of Kling et al. (2021) and (Rotich, 2019) because they all explored the challenges to income-generating activities. Some



of the issues raised by the scholars include external shocks such as climate change, globalization and anthropogenic factors. However, the three studies have some gaps because they failed to explore the extent to which management of such shocks was likely to result in higher benefits to the community.

## METHODOLOGY

This study took place in Voi sub county of Kenya which is approximately 340 kilometres from Nairobi and about 120 kilometres from Mombasa city. This study relied on the pragmatism research paradigm because it promotes the use of more than one approach in research. It seeks to overcome the difficult subject of fact and reality and emphasizes the practical aspects of research (Kelly & Maya, 2020). Pragmatism research philosophy blends positivism and interpretivism paradigms within the scope of the research. It was advocated by John Dewey who sought to shift philosophy away from abstract anxieties redirecting it to practical human experiences (Ormerod, 2021). Pragmatism uses both deductive and inductive reasoning to arrive at conclusions as opposed to positivism which relies on deductive reasoning, while interpretivism is dependent on inductive reasoning for its conclusions (Kellogg, 2021). Pragmatism advocates for inclusiveness, pluralism and complementarity of different approaches which is the power of two paradigms in a single study and being pragmatic in its approach seeking to establish middle ground in the course of scientific inquiry (Ormerod, 2021).

The study used survey research design for quantitative data and ethnography for qualitative data collection. Cross-sectional study design was used because of its ability to collect large amounts of data from different individuals at a specific time. The self-reported questionnaires used in the research made it possible to collect required data in the shortest possible time as many respondents provided data almost at the same time.

The study targeted eight (8) projects implemented in the project site between 2006 and 2015. However, data was collected from 4,138 household heads, 14 staff from two NGOs Taita Taveta Wildlife Forum (TTWF) and Management of Arid Zones Initiatives and Development Options (MAZIDO), and four (4) staff from Kenya Forest Service (KFS). The 4,138 households had a total of 28,966 community members who were within five (5) villages of Mbololo and Ngolia wards. Yamane Formula (1968) shown below was used to establish the required sample size, which was determined to be 365 individuals.

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

The study used stratified sampling technique followed by systematic sampling technique to select the sample from the sampling frame. Instruments used to collect data were questionnaire, interview guide, document analysis guide and observation guide. The questionnaire for quantitative data used Likert scale with values ranging from one (1) which meant strongly disagree to five (5) which meant strongly agree. Subject matter experts were used to ascertain validity of research instruments while Cronbach alpha results of greater than 0.7 obtained





showed the instruments were reliable. Regression analysis was used to analyse quantitative data while qualitative data was analysed thematically. The null hypothesis was rejected in case the P-value obtained was equal to or less than 0.05.

## RESULTS/FINDING

### Questionnaire Return Rate

The study administered 365 questionnaires out of which a total of 353 were returned, translating to 96.7% return rate.

### Test for Normality

Normality of data was determined using the Shapiro-Wilk test. Table 1 shows the findings.

**Table 1: Test for normality**

	Shapiro-Wilk		
	Statistic	Df	Sig.
Sustainability of projects	.992	353	.061
Income generating initiatives	.992	353	.051

**Source:** *Field Data (2024)*

The P-values for all the variables were above the alpha level ( $P > 0.05$ ). In Shapiro-wilk test, when  $P > 0.05$ , the data is considered to be normally distributed. The findings implied that data was normally distributed and suitable for inferential analysis.

### Study Findings

The study used descriptive and inferential statistics to analyse data.

**Table 2: Descriptive statistics of income generating initiatives on sustainability of projects**

	N	Mean	Std. Deviation
Income Generating Initiatives	353	2.73	0.813
Sustainability of projects	353	2.84	0.714
Valid N (listwise)	353		

**Source:** *Field data 2024*

**Table 3: Linear regression model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.555 <sup>a</sup>	0.309	0.307	9.172

a. Predictors: (Constant), Income Generating Initiatives

**Table 4: Statistical significance**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13623.489	1	13623.489	161.955	0.000 <sup>b</sup>
	Residual	30535.114	351	84.119		
	Total	44158.603	352			

a. Dependent Variable: Sustainability of Projects

b. Predictors: (Constant), Income Generating Initiatives

**Table 5: Linear regression coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	T	
1	(Constant)	24.550	3.660		6.708	0.000
	Income Generating Initiatives	0.638	0.050	0.555	12.726	0.000

a. Dependent Variable: Sustainability of Projects

The findings in Table 1 show that data was normally distributed and therefore fit for inferential analysis.

The results of descriptive statistics in Table 2 indicate clustering of data around the mean because the standard deviation for income generating initiatives and that for sustainability of projects were small.

In Table 3, the regression model summary results show an R value of +0.555 which is a moderate positive linear correlation between income-generating initiatives and sustainability of projects. The R<sup>2</sup> obtained, which is the coefficient of determination of value +0.309, was interpreted to mean that at least 30.9% of variations in sustainability of projects was accounted for by income-generating empowerment activities in the model.

In Table 4, the F-ratio shows  $F_{(1,351)} = 161.955$ ;  $p < 0.05$ . The P-value obtained of less than 0.05 in this model means the null hypothesis, that there was no statistically significant relationship between income-generating initiatives and sustainability of projects, was rejected.



In Table 5, the output shows unstandardized B coefficients of +0.638 for income-generating initiatives and a significance level of 0.000. The results show that income-generating initiatives can be used to predict sustainability of projects using the regression line presented as Sustainability of Projects ( $y$ ) = 24.550 + 0.638 $X_1$  + e.

## DISCUSSION

Literature established that community engagement in income-generating empowerment activities was a sign of community empowerment which had a positive influence on the sustainability of projects (Shariful-Islam & Mainuddin, 2015). This is in line with research findings that established that income-generating initiatives influences sustainability of projects. Erbaugh and Oldekop (2018) also noted that benefits that accrue from income-generating initiatives in forests enhances the local community appreciation of the resource and the activities undertaken within it, which positively influences sustainability of projects.

The study findings show that community members engaged in income-generating initiatives including fish farming, ecotourism and bee keeping. There was evidence of tree nurseries established as income-generating initiatives within the community farmlands in the research area. Additionally, document analysis showed that civil society as well as the Kenya Forest Service (KFS) supported income-generating initiatives in different ways, including training and provision of seed capital. Results showed that community members were engaged in income-generating empowerment activities in the research which was supported by literature that established that bee keeping and farm forestry were among income-generating activities in forest areas (Hohenthal et al., 2015).

Interview with KFS Forester indicated that community members participated more actively in activities that had economic returns. Further, income-generating initiatives occasionally attracted local resources where community members contributed or invested their own resources for improved returns in the income generating initiatives. The forester reported that “... *the local community has been very active in bee keeping activities which were allowed within the forest under the Participatory Forest Management Agreement. The activity is also vibrant on the community farmlands where community members mainly use traditional beehives.*” The Project Manager from the Management of Arid Zones Initiatives and Development Option (MAZIDO) also said that there were many income-generating initiatives that were suitable in different sections of the community farmlands around the forest. Some of the initiatives that he mentioned included fish farming which had the potential to supply and satisfy demand in the nearby Voi town market. He said “... *new initiatives such as butterfly farming are likely to earn dollars to this community, thus changing lifestyles and social status. There was basketry which was mainly suitable in the dry areas occupied by the community and also beads making whose market would easily come from the ecotourism venture that was proposed in the forest area.*” Additionally, there were opportunities for marketing the produce in the nearby tourist hotels within Voi town and Mombasa city which assured the local community of continued market as they engaged in the income-generating activities within the forest area.





Income-generating initiatives expose the local community to different cultures and technology which help in securing additional gainful employment opportunities in the adjacent areas. The TTWF Monitoring and Evaluation Officer reported that “... *the project site had three cases of young Kenyans who benefited from employment in nearby institutions, courtesy of being engaged in income-generating empowerment activities.*” The findings are in line with those of Erbaugh and Oldekop (2018) who noted that exposure to income-generating initiatives improved individual experience and institutional governance. In addition, increased income levels from the forest-related income-generating initiatives helps to improve the social standing of those involved within the community. Community members whose socio-economic status changed substantially acquired higher social status which serves to encourage other community members to emulate them, thus supporting sustainability of projects. Shariful and Mainuddin (2015) concurred that an increase in incomes enhances social status which attracts other community members to join in income-generating initiatives in the projects.

Document analysis showed evidence of training on bee keeping and tree nurseries establishment conducted through support of projects. Projects such as the biodiversity conservation programme supported by Global Environment Facility (GEF) had initiated many income-generating activities aimed at reducing pressure on the forest resource from the adjacent community (GoK, 2013). Some of the income-generating initiatives supported, as documented in the project evaluation report, included energy saving cooking stoves, ecotourism and butterfly farming in Mbololo forest reserve. These findings show that the local community got involved in income-generating initiatives which contributed to sustainability of projects.

Document analysis further indicated that income-generating initiatives were among planned project activities in most projects implemented in the area. TTWF had 3 projects with income-generating components while MAZIDO had implemented 2 projects. There were budgets set aside to finance income generating initiatives such as basketry as well as training with the aim of improving community livelihoods to reduce the need for exploitation of natural resources such as forest trees or over-abstraction of water for farming purposes. Additionally, there was documented evidence of a multipurpose co-operative society formed and registered in the area called “MATUKU” multipurpose cooperative society to support the local community in marketing produce from income initiatives. The multipurpose cooperative society was a clear indication that the community was engaged in income-generating initiatives in the area. A business plan document was also accessed for the ecotourism venture that the local community had developed with the aid of the local civil society organizations especially MAZIDO and TTWF in conjunction with the KFS.

Observations in the field showed the physical structure of the “MATUKU” multipurpose cooperative society which showed that, indeed, the community engaged in income-generating initiatives since the cooperative society would not be set up in the absence of such activities. The researcher also came across bee hives in different locations of the research site which was evidence of bee keeping activities conducted by community members in the research site. Other income-generating activities that were observed in the research site included tree nurseries that were communally owned and a private tree nursery in an individual’s farmland. The tree nurseries provided seedlings for planting in selected sites within the forest and in the farmlands while at the same time providing income for the members involved in the tree nurseries activity.



## IMPLICATION TO RESEARCH AND PRACTICE

The findings of this research imply that it is important for new projects to consider issues post implementation that help the projects to remain sustainable and beneficial to the community. The study has shown that income-generating initiatives are a key ingredient that catalyses sustainability of projects as the stakeholders continue to reap benefits that would not be possible in the absence of the projects.

## CONCLUSION

This research concludes that income-generating initiatives positively support sustainability of projects. Any project that seeks to remain sustainable beyond the lapse of funding period should incorporate income-generating initiatives. The government should support project implementers to develop sustainable projects for the sake of environmental stability.

## FUTURE RESEARCH

There should be further research to establish whether there is any connection between gender and performance of income-generating initiatives within the projects.

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