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THE INFLUENCE OF DECISION-MAKING ON SUSTAINABILITY OF PROJECTS IN KENYA

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Abstract

This research assessed the nexus amid decision-making and sustainability of projects. The concept of decision-making calls perusing of surroundings to understand different options for informed decisions. Theory of Change was used in the study because it shows the sequence of how inputs get converted to outcomes and impact within projects. The study was undertaken in Mbololo forest within Voi Sub County in Kenya. It used cross-sectional survey for quantitative data and ethnography for qualitative data collection. A total of 365 respondents were drawn from 4138 household heads. Six respondents for qualitative data were selected purposively. Descriptive and inferential statistics were used to analyse quantitative data while themes were helpful in qualitative data. The null hypothesis was rejected because of a statistical significance of $F_{(1,351)} = 167.075$; $p < 0.05$. It was inferred that decision-making has a bearing on sustainability of projects.

Key Words

Project, Sustainability, Decision-making, Theory, Forest, Community

1. Introduction

Decision-making as a concept partly refers to the practice of selecting an option amidst many alternatives for ones good. It draws attention to perusing the surroundings and probing different alternatives get best deductions intended at making operating conditions more favourable and seizing available business openings. There is a great variation in the manner of decision making at individual and group levels. Different levels of experience, expertise and cultures affect the quality and speed of decision-making by groups (Dong, Zhang, and Chen, 2018).

Collective decision-making calls for consensus among different stakeholders and selection of best alternatives (Xu and Liao, 2015; Dong, Zhang and Chen, 2018). Decision-making by consensus requires more time and can have effect on success of activities because of missed opportunities which can negatively influence sustainability (Kadurenge, Nyonje, Ndunge, 2017). The widely held opinions of individuals guides decisions where more than one individual is involved. In cases of minority dissenting opinions they get an opportunity to influence the course of events and if unsuccessful decisions are made taking into account the popular opinions (Xu and Liao, 2015). The danger of such decisions is that occasionally those of contrary views tend to derail the course and speed of activities implementation which does affect sustainability.

This study seeks to establish the contribution decision-making to sustainability of projects. Different projects have been initiated and implemented but the benefits lapse as soon as the funding

period lapses. Amongst many other reasons for this scenario, this study was aimed at ascertaining the actual value of decision-making in sustainability of projects. The significance of the study is that it will help businesses and other project managers to adequately consider different decision making approaches in the course of project implementation to ensure sustainability.

2. Theoretical background and Literature

The study relied on the Theory of change (ToC) which is a vibrant, critical thinking process that makes the project process clear and transparent to all stakeholders buttressing strategic thinking (Reinholz & Andrews, 2020). Theory of Change was originated by Auguste Comte in the period between 1798 and 1857 (Maye & Enticott, 2020). Weiss, in his writing at the Aspen Institute and the round table change popularized Theory of Change (Reinholz & Andrews, 2020). It entails a continuous course of reflection to explore variations and the manner in which the variations occur and the implications of such changes to the project context and individual or group of project stakeholders (Maye & Enticott, 2020). Theory of Change provides a coherent causative sequence that starts with project contributions, intermediate outcomes to impact (Mclellan, 2020).

Theory of Change approach is built around the understanding that there is a direct link between inputs and outcomes subject to specific assumptions of the project activities (Gready & Robins, 2020). ToC requires quantitative as well as qualitative results monitoring to identify and understand sequence of events (Rolfe, 2019). ToC assumes a logical flow of events, which in practical projects implementation are never linear. Outputs result from utilization of project resources (funds and personnel among others). The utilization of the outputs results in outcomes including behavioral changes that include increase in knowledge and pace of project work and change of attitudes towards project activities among others (Rolfe, 2019). Project outcomes lead to project impact, a lasting effect of project activities on a community. The outcome may manifest through reduced poverty levels in community, conserved forest ecosystem and sustainability of project activities (Guo et al., 2020).

ToC approach adheres to some principles that help project implementers deliver intended project results (Brackett et al., 2019). The principles include a focus on the often-ignored process linking project activities to outcomes. The second principle is encouraging learning which is distinct from the process of accountability. The purpose of learning is to strengthen capacity, adjust project implementation strategy, research or building and sustaining trust amongst stakeholders (Brackett et al., 2019). In learning, definition of the target including the community, project implementation team or project funders is very important. Thirdly, ToC is locally led to avoid the top down approach that excludes knowledge and views of the local community (Leiber, 2019). The last principle is the "think compass and not road-map approach" which recognizes the need to find direction from any given point within the project cycle. A road map is static while compass remains relevant to user in whatever position even when the project situation dictates deviation from the initially planned course (Douthwaite et al., 2020). The compass guides users to desired locations through the haze of multifaceted systems, determining the direction in the course of movement (Brackett et al., 2019). This is significant because Theory of Change approaches recognize and admit that 'social environments and practices are in a continuous state of fluidity, with emergent concerns, unanticipated dangers and amazements that emerge up at all times (Leiber, 2019).

ToC overcomes the constraint of Logical Framework Analysis (LFA) which ignores stakeholders and their networks (Oberlack et al., 2019). In results measurement, ToC seeks to explain how the impact of a project comes about through considering all the causal steps. Douthwaite et al., (2020) noted that ToC helps clarify project context, develop a unified way of

understanding project activities while positively tackling differences amongst stakeholders and strengthening project stakeholder's relationships through isolating opportunities for cooperation and negotiation. ToC further strengthens adaptive project administration ensuring alertness and responsive to contextual variations in addition to providing a united way for strategic decision-making, communication and reporting (Oberlack et al., 2019).

In line with ToC, the project inputs ranging from finances, labour including technical and community labour required for implementation of the project are converted to outputs that lead to the intermediate results, which results in long-term impact to the community or forest. Achievement of project sustainability entails realization of desired results in the project intervention. Figure 1 is a diagrammatic presentation of ToC.

2.1 Decision-making

Decision-making is a systematic process involving outlining the opportunity or challenge, collecting required information and data, interrogating options, selecting most appropriate action and executing the selected course of action (Chen, Zhang, and Dong, 2015). Different project decisions are made at individual level and community level. Community level decisions bring into focus the varying individual experiences, educational backgrounds, culture and viewpoints (Chen et al., 2015). There are many ways for decisions-making such as consensus –based, command and expertise (Xu and Liao, 2015). Consensus entails seeking highest possible agreement amongst community members in an issue which seeks to put together individual options into a collective opinion then ranking them to obtain most acceptable view amongst all collective opinions (Chen et al., 2015). It could also refer to a decision arrived at when the majority agree on a common course while offering minority ample opportunity to ventilate on the issues at hand and influence the direction of the process leading to a final decision supported by majority members (Xu and Liao, 2015).

Forest community member's individual and collective choices can be influenced by several parameters such as demographic diversity and cognitive diversity (Shepherd and Rudd, 2014). These factors have been defined differently by scholars and may include fertility rates and migration as well as individual dispositions such as expertise in certain fields that may be determined objectively (Shepherd and Rudd, 2014). Belief system and consequences for specific project decisions also influences forest community member's manner of arriving at decisions. Where a CFA member thinks a particular decision conflicts with his value system then that decision is likely to be delayed or alternative sought (Nestadt, Kamath, Krasnow, Nestadt, Bakker and Samuels, 2016). Community neighbouring the Kaya forests in the coastal strip of Kenya find it difficult to support decisions that are injurious to the forest resources because of customary and religious reasons (Rebecca and Linda, 2013). This can also be influenced by a community members expectations of the level to which the decision positively or negatively affects the individual or CFA. Social norms and the available support system as well as rewards and consequences may have tremendous effect on the type of decisions arrived at by individual CFA members (Nestadt et al., 2016). The norms may affect the direction and bearing of the forest community decisions since any decision against social norms attract negative repercussions. Policy setting is of great significance when CFA decisions are made because it legally dictates the direction to be followed (Kastner and Stern, 2019).

The capacity to determine the direction and speed of activities implementation within forest resources without external support or when outsiders participate in the project work they do so as subjects to the local community's terms can serve as a measure of individual development (Snijder,

Shakeshaft, Wagemakers and Calabria, 2015). Local knowledge to make decisions on who leads the CFA and for what period, marketing outlets for the CFA products and also kind of capacity building to be incorporated for CFA membership and who benefits from the same is considered to impact project sustainability. Additional stakeholders who join the CFA activities for different reasons have a bearing on the sustainability of projects. The local community having been empowered to decide on stakeholder management including who joins at what time and with what power has great impact on the sustainability of the projects (Greene, 1988; Gustafsson, Ivner, and Palm, 2015)

According to Kastner and Stern (2019) initial methodologies by economic experts thought communities would be guided by facts to make decisions on their daily operations. Some of the considerations that were considered included cost-effectiveness and communal acceptability. Later it was observed that circumstance are very different in real life situations which complicates decision-making. Kastner and Stern, (2019) noted that decisions were made by individuals taking into consideration their individual circumstances. Based on this understanding, it means occasionally decisions are made before all facts and information was exhausted which puts into question such decisions. The extent to which an individual is engrossed in an issue determines the depth to which they interrogate relevant information prior to arriving at decisions. This call for cost-benefit analysis prior to decision making (Xu and Liao, 2015). Important issues to the community such as tree nursery location occasionally benefitted those adjacent such facilities due to cultural interaction with visitors and infrastructural improvements. Such benefits occasionally overshadow actual issues that ought to be considered before such decisions are made by the group. In most cases the community relies on their assessment of expected benefits and maximize positive impacts while eschewing any negative issues within their (Xu and Liao, 2015; Kastner and Stern, 2019).

A study by Li and Ahlstrom (2013) avers that conventionally emotions and decision making had no connection. However, it is notable that occasionally moods determine the kind of decisions made on different projects (Li and Ahlstrom, 2013). An individual's decision-making is affected by their risk averseness and psychological constructs such as loss aversion (Schulte-Mecklen~beck, Johnson, Russo, Sullivan and Willemsen, 2017). The extent to which different constructs and influences affect an individual differs at different times (Trianni, Cagno, and Farné, 2015). Shepherd and Rudd (2014) noted a variation between different individual and group decisions. Projects require strategic non-routine decisions which can be pervasive. Such project decisions may transcend different project sections with significant repercussions sustainability (Shepherd and Rudd, 2014).

The internal and external contexts have a bearing on the kind of decisions made on projects. Occasionally the pace of activities, stakeholders involved and resources deployed to facilitate project operations are detected by the context. Shepherd and Rudd (2014) argued that hostile environments were abound in project environments affecting timelines and quality of outputs. Hostile environments are likely to complicate information acquisition and processing. Sometimes such environments bring in very dynamic and unstable conditions that projects success and sustainability (Trianni et al., 2015). Unstable project environments are likely to usher in new project requirements, completion, new stakeholders, new technology and shifting legislative guidelines (Nestadt et al., 2016). Scarcity of information as well as obsolete information hamper decision making thus affecting project sustainability (Trianni et al., 2015; Shepherd and Rudd, 2014).

2.2 Sustainability of projects

Sustainability entails utilization of resources to satisfy todays requirements and those of future generations (Purvis, 2019). Sustainable development caters for the current needs without diminishing the prospects of meeting tomorrow's needs (Mansell & Philbin, 2020). Climate change challenges forces bureaucrats to pay special attention to measures that curb its driving forces (Ruggerio, 2021). The major challenge is how to balance economic needs with environmental sustainability because many regions of the world rely on extraction of natural resources, which compromises environmental sustainability.

Sustainability in forestry is about supplying the reasonable requirements of the community neighbouring forests, taking into consideration the health of the resource and its ability to supports future demands (Mansell & Philbin, 2020). Adoption of Sustainable Development Goals (SDGs) shows the seriousness of world leaders in this endevour (Ruggerio, 2021). The findings on sustainability as espoused by Mansell and Philbin, (2020) requires meeting the current needs without compromising future needs are slightly different from the views of Wentling et al. (2021) who in addition to human needs considers the need for the continued flourishing of the forest resource. The consideration of the forest resource by Wentling et al. (2021) are ingenious because in the event the health of the resource is compromised, the future needs of the community will also get compromised.

Sustainability of forest projects is significant because it partly entails spatial and biophysical components of the environment. Socio-cultural requirements and aspirations of forest adjacent population dictates that land management be accorded a lot of attention because it carries with it many economic connotations and forms a way of life (Wentling et al., 2021). The propensity of forest adjacent community to blend significant rites and ceremonies with important occasions within their agricultural schedules demonstrates that land and by extension sustainable forest management is considered as a way of life (Marcello et al., 2020). Forest conservation projects implemented in different areas for instance the Marakwet region in Kenya incorporates traditional knowledge as way of taping into local capital thus ensuring sustainability of the forest (Wanjohi et al., 2020). Protection and management of Kaya forests at the Kenyan coast is intensely entrenched in customary Mijikenda culture. It's integrity and purity is assured by the assembly of Kaya elders backed by a system of cultural prohibitions and rules aimed at conserving the forests (Keida, 2022). The local sacred forest management system practices incorporated into forest conservation projects entails a compromise between conservation objectives and local community culture thus forestalling possible conflict of interests on either sides. Such a compromise ensures a strong buy-in of the forest adjacent community thus enhancing project sustainability (Keida, 2022). However, occasional commercial interests bolstered by legal system that permit extraction of forest resources challenges the local forest management system. Many tropical forests including eastern arc chain of mountains to which Mbololo and Mwambirwa forests belong (study sites) are home to many plant and animal species some endemic hence the need for continued protection (Adebiyi et al., 2020). Some scholars including Wanjohi et al. (2020) consider incorporation of cultural practices into project activities to achieve sustainability of forest conservation projects while Keida, (2022) advocates for a compromise between cultural aspects and project objectives to attain sustainability. Despite similarities of the two studies in terms of blending cultural practices with scientific practices to achieve sustainability of projects, both studies did not balance current and future community needs as argued by Mansell and Philbin., (2020).

Environmental sustainability forms an important aspect of projects as noted by Fatima et al. (2021) in their study which rated different aspects of sustainability such as resources, benefits

to community and environment. According to Fatima et al. (2021), environmental sustainability is more important because all other aspects hinge on the integrity of the environment. However, the study did not adequately address the significance of good project management as an aspect of sustainability because unless management is good even the environment will be destroyed rendering the project unsustainable. To improve project sustainability, a number of methods are used such as agroforestry and maintenance of fire lines (Chisika et al., 2020). Community remedy the high costs associated with tree planting through development and management of own tree nurseries (Ojijo et al., 2022). While Chisika et al. (2020) argues in favour of agroforestry as a mechanism for enhancing sustainability of projects (Ojijo et al., 2022) decried challenges of costs especially for seedlings which is remedied by individual tree nurseries. Despite the fact that the scholars were objective in their views, they failed to consider other challenges to sustainability of projects such as external shocks engendered by changes in global economy and currency fluctuations as well as effects of climate change.

Extinction of some tree species is witnessed in many areas because some traditional cultivars are no longer available (Chisika et al., 2020). Disregard for traditional knowledge on plants and shrubs risks complete loss of such knowledge (Ruggerio, 2021). There is need to strike a balance between older generation and the younger generation with a view to encouraging knowledge transfer. The challenge of forestry practices such as farm forestry being considered outdated by the younger generation further complicates the process of knowledge transfer. Further, there is need to debunk the view by younger generation that success is achievable in urban areas and that practices like farm forestry are for the older generations.

Bench marks or indicators are necessary for determining the extent to which a forest project is sustainable (Stelzenmüller et al., 2021). The indicators are categorized as social, economic and ecosystem indicators (Mutta et al., 2021). Social indicators are specific measures of social interactions of a community. Economic indicators mostly refer to the measures of economic status of the population adjacent to a forest ecosystem while the ecosystem indicators include the health of the forest ecosystem (Stelzenmüller et al., 2021). Continuation of the forest related project activities way beyond the project-funded phase forms an important indicator of a forest project sustainability. Social indicators include sole or clusters of measures associated with communal wellbeing of people. The forest indicators are specific sets of data gathered to inform policy in relation to a forest ecosystem (Andole & Kenichi, 2020). Scholars categorize different strategies for enhancing project sustainability including; training which develops skills base of the project implementers and other stakeholders; choice of stakeholders with unique competences and roles; incorporating sustainability of forest conservation at design stage and inclusion of benefits enhancement schemes including income generation (Kamwilu & Duguma, 2021).

Stelzenmüller et al., (2021) argued that good indicators of project sustainability take a long-term view of the project and incorporates economic, social and biological aspects, took care of both intra and inter-generational equity, have a link between all project aspects, monitors inputs and takes care of the built and financial capital within the forest ecosystem. Forest conservation project indicators are categorized according to the resources, process, outputs, impact and exogenous indicators (Kamwilu & Duguma, 2021). However, occasionally an indicator fails to capture in totality, richness and complexity of a system or forest conservation project as it only provides a "slice" of the reality. Indicators only provide a certain degree of information and not entire information on different aspects of forest projects. The indicators of sustainability alluded to by scholars such as Mutta et al. (2021) and Stelzenmüller et al. (2021) which include social and

economic aspects of a project were inexhaustive because they failed to capture the process and exogenous indicators (Kamwilu & Duguma, 2021).

The objective of this study was to establish the extent to which decision-making affects sustainability of projects. It hypothesized that there was no statistically significant relationship between decision-making and sustainability of projects

3. Methodology

3.1 Data sample

The study sample for quantitative data was obtained from 4,138 household heads from whom a sample of 365 was selected using Yamane formulae. Sample for qualitative data was obtained from 18 staff from three organizations. Six respondents for qualitative data were selected purposively while cluster and systematic sampling was applied to select the sample for quantitative data.

3.2 Research design and location

The study used cross section descriptive design to collect and analyse quantitative data. Qualitative data was collected using ethnography. All data was collected in the respondent's natural settings. The instruments used for data collection included questionnaire, observation guide, document analysis guide and interview guide. A likert scale type of questionnaire was used for qualitative data collection where a scale of 05 meant strongly disagree and 01 strongly agree. Data were analysed descriptively and inferentially using regression analysis. The hypothesis was tested at 95% confidence level and the null hypothesis rejected incase the alpha obtained was less than or equal to 0.05. Mbololo forest within Voi sub county which lies in the Southern-Eastern part of Kenya approximately 360 Kms South-East of Nairobi city and about 200Kms North-West of Mombasa city at latitude 3.295 and longitude 38.461 was study site (Otieno et al.,2021).

4. Study Findings

The study findings are presented starting with descriptive results followed by inferential results.

Descriptive results

Table 1: Descriptive results of decision making and project sustainability

	N	$\bar{x}$	ð
Sustainability of forest conservation projects	353	2.8418	.71425
Decision making	353	2.7563	.74336
Valid N (list wise)	353		

Source: Field data (2024)

Linear regression analysis results obtained were;

Table 2: Linear regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.561[a]	0.316	0.314	8.318

a. Predictors: (Constant), Decision-making
Source: Field data 2024

R = +0.561 indicates a moderate positive linear association between decision-making and project sustainability.

Table 3: Statistical significance results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13918.405	1	13918.405	167.075	0.000[b]
	Residual	30240.197	351	83.306		
	Total	44158.603	352			

a. Dependent Variable: Sustainability of Projects
b. Predictors: (Constant), Decision-making
Source: Field data 2024

$F_{(1,351)} = 167.075$; $p < 0.05$; reject null hypothesis.

Table 4: Linear regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	24.422	3.614		6.758	0.000
	Decision Making Empowerment Activities	0.669	0.052	0.561	12.926	0.000

a. Dependent Variable: Sustainability of Projects
Source: Field data 2024

Decision-making can predict sustainability of projects using the regression line; Sustainability of projects (y) = $24.422 + 0.669X_2 + e$

5. Discussion

The responses shown in Table 1 are concentrated around the mean evidence by the small standard deviation. Further, data analysis showed that decision-making has some degree of impact on project sustainability. The findings were corroborated by Xu and Liao, (2015) who observed that community decision-making can be a lengthy process but its outcome empowers the individuals involved in the process of selection amongst different options and agreement on outcomes. Project

activities are intended to remain sustainable after lapse of project funded phase with community members leading implementation and benefiting from the results. Community culture when in agreement with project activities results in long-term sustainability (Xu and Liao, 2015). Decisions arrived at by the community in the course of projects implementation are likely to yield higher returns when the local people make own compromises thus reducing chances of conflict which results in project sustainability (Nestadt et al., 2016). Scholars such as Snijder et al., (2015) noted that decisions on projects led by local community had less chances of wrangles which led to higher chances of attaining sustainability.

Interviews with the Project Manager from Management of Arid Zones and Development Options (MAZIDO) revealed that there were scheduled CFA elections implying decision-making on leadership. The Project Manager reported *"…support of project activities financially benefitted the community in many way. However, those benefits occasionally caused conflicts as members fought over them. Leaders were therefore expected to mediate over the conflicts and ensure group cohesiveness. In cases where the conflicts were not well resolved the group haboured reservations which resulted in failure to re-elect the leaders who were viewed as biased of corrupt. In 27 the elections in the CFA replaced about 70% of the former team, a testament that the community made own decisions on leadership.* Greene, (1988) argued that where individuals faced conflict of interests they would be unable to take up leadership positions or make firm decisions on behalf of the group because of biases. This partly explains the reason as to why decision-making regarding leadership can be a tedious exercise despite its benefits when appropriately executed.

Decision-making at community level including election of CFA leadership and marketing of forest based produce can be influenced by different conditions such as subjectivity caused by perceived personal or group benefits or inadequate information. The Project Manager from MAZIDO argued that "*…sometimes community members made decisions that had less bearing on the direction of project objectives mainly because they targeted certain benefits in the project."* The views were corroborated by Kastner and Stern (2019) who noted that early approach economists assumed that community members made rational decisions based on available data that was scrutinized and conclusions arrived at based on their cost-effectiveness. However, real life conditions do not afford individual all the information required to make rational decisions which leaves CFA members making decisions subjectively. This explains why individuals made different decisions under similar conditions. Kastner and Stern, (2019) noted occasionally individuals were deliberately subjective in decision making for self-benefits.

The CFA made decisions on when and where to sale their products based on prevailing market conditions and information. The forester in Mbololo forest noted that *"… personal experiences and exposure had a lot of bearing on the aggressiveness and risk appetite for different CFA members in seeking out marketing outlets for their produce".* Some CFA leaders were more adventurous than others when weighing between options for different activities trait meant that they would reach decision on where to sale produce earlier than others. This is in line with other studies that found out that individual character and traits affected how individuals made decisions (Schulte-mecklenbeck et al., 2017).

Review of documents revealed that there were more than two CFA meetings held to discuss scheduled elections. There were records of group leadership meetings as well as entire CFA membership that made decisions on mode of voting during CFA elections. CFA leadership guided and directed group activity including project activities which means suitable leaders elected were likely to make decisions that benefited CFA membership resulting in sustainability of projects. Gustafsson et al., (2015) noted that individual benefits that accrued from specific activities had a

lot of influence on individual decision-making. Based on the results, a large percentage of respondents were in agreement that decision-making regarding CFA leadership influenced sustainability of projects. Secondary data confirmed that members made decisions on various issues of the CFA including selection of beneficiaries for capacity building.

A report from the Kenya Forest Service (KFS) office indicated that CFA membership was involved in decisions-making regarding members to participate in an exchange visit that was supported by one of the projects. The exchange visit to a neighboring forest could only accommodate a limited number of members due to financial constraints. The decision on participation was made by the CFA leadership and ratified by the membership which meant full ownership and peaceful operations because all members accepted the decisions.

From observation there were more project activities on farmland of CFA leaders as opposed to ordinary members. This scenario shows that leaders benefitted more as a result of skewed decision making for personal gain. Farm forestry on individual farmlands meant that the community had benefitted from the project training and resources in support of the activities within their farms.

6. Conclusions

The study concluded that decision-making influenced sustainability of projects. This is because the null hypothesis was rejected. Projects that ensure decision making empowerment take place amongst its beneficiaries are more likely to remain sustainable than when decision-making is not accorded attention.

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