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PLANNING AND MANAGEMENT

### EFFECT OF COMMUNITY INVOLVEMENT ON EFFECTIVE IMPLEMENTATION OF WIND POWER PROJECTS IN KENYA

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### ABSTRACT

**Purpose of the Study:** The purpose of the study was to investigate the impact of community involvement on the effective implementation of wind power projects in Kenya. It aimed to examine the relationship between community participation and the successful execution of renewable energy initiatives, particularly in the context of limited electricity access in the country. The study sought to provide valuable insights for policymakers, project managers, and stakeholders, with the ultimate goal of promoting sustainable energy development and enhancing the quality of life for the people in Kenya.

**Methodology:** Using a descriptive survey research design, data was collected from 128 stakeholders representing community leaders, project managers, donors, and government agents. The study employed this quantitative approach to gather relevant information and analyze the extent of community involvement in wind power projects. Regression analysis was conducted to determine the statistical relationship between community engagement and project implementation success, providing empirical evidence to support the study's findings.

**Findings:** The study revealed that community involvement is a critical factor for the successful implementation of wind power projects in Kenya. Through the data analysis, a significant and positive relationship (r=0.192, p<0.05) between community involvement and project effectiveness was established. The coefficient of determination (R-squared) indicated that community involvement explains 12.9% of the variations in the implementation of wind power projects. These statistical results highlight the importance of engaging local communities to achieve favorable project outcomes.

**Conclusion:** It can be concluded that community involvement plays a pivotal role in ensuring the successful execution of wind power projects in Kenya. The level of engagement and cooperation from local communities significantly impacts project outcomes, indicating that considering the needs, concerns, and perspectives of these communities is vital for achieving sustainable and successful renewable energy initiatives.

**Recommendations:** Stakeholders, including project developers and government authorities, should educate community leaders about the importance of wind power projects and involve them in the decision-making process from the outset. Early engagement can help build trust and support for the projects. Project planners should communicate transparently with local communities, addressing their concerns and educating them about the minimal negative impact of wind power projects on their lifestyles and the environment. Open communication fosters cooperation and reduces potential conflicts during project implementation.Efforts should be made to ensure that the local community directly benefits from wind power projects. This could involve initiatives such as job creation, skill development, and revenue sharing, which can enhance the community's sense of ownership and support for the projects.

#### Keywords: Community involvement, wind power projects, Kenya

#### **BACKGROUND OF THE STUDY**

The effective implementation of wind power projects in Kenya faces several obstacles, among which the issue of community involvement stands out prominently. Many of these wind power projects are located in rural and often marginalized communities. For such communities, these projects can bring significant benefits, such as job creation, infrastructure improvement, and access to electricity (Kelly, 2007). However, the engagement of these communities in project development has often been lacking or ineffective, leading to resistance, miscommunication,

and other challenges that hinder project implementation (Baba, 2006). Despite the clear socioeconomic benefits that wind power projects can bring to local communities, community engagement during the project development phase is often inadequate. In Kenya, for example, a report by the Africa Energy Yearbook (2015) highlights that changes in local governance can lead to the replacement of stakeholders who were initially involved and informed about the project, thereby creating a disconnect with the local community.

The issues of land acquisition and compensation further complicate community involvement in wind power projects. In many instances, landowners demand higher compensation for their land used for such projects, leading to prolonged disputes that derail project implementation (Khawaja, 2013). Moreover, community members often perceive these projects as intrusions into their land and way of life, creating resistance and sometimes leading to social conflicts (Wang & Li, 2011; Zervos, 2007). Understanding the dynamics of community involvement and its impact on the implementation of wind power projects is crucial for their success. A study by the World Energy Council (2003) emphasizes the importance of obtaining necessary permits and engaging with the right community members during the project development phase. This often requires project developers to navigate complex social dynamics and political structures, necessitating a deep understanding of local contexts.

Community involvement is not just a matter of overcoming obstacles to project implementation; it also plays a vital role in ensuring that the benefits of wind power projects are equitably distributed within the community (Zwikael Shimizu & Globerson 2005). These benefits include direct employment opportunities, as well as indirect benefits such as local development and improved energy supply and security (Kelly, 2007). Hence, determining how community involvement affects the effective implementation of wind power projects in Kenya is a critical objective. This involves understanding the unique socio-political context of the communities where these projects are located, the challenges faced in engaging these communities, and the strategies that can be employed to enhance community involvement and mitigate related issues. This understanding will not only help to expedite the implementation of wind power projects but also ensure that they contribute effectively to local development and sustainability.

#### STATEMENT OF THE PROBLEM

Kenya faces a slow and delayed implementation of renewable energy (Rambo, 2013). According to Least Cost Development Plan 2010-2030 report, the implementation rate of majority of wind power project still remains as low as 53% for instance the Kinangop Wind Power in Nyandarua County has been frozen after running into strong headwinds tied to land acquisition. This project was proposed in 2012 and was scheduled to be completed by mid-2015 and supply to the grid (Herbling, 2016). Lake Turkana Wind Power project low implementation rate has been contributed by local communities who have alleged that the projects violate the community lands rights (LTWP, 2014).

Despite the remarkable potential for wind energy expansion, implementation factors cause delays in achieving projects potentiality (Kiplagat, 2011). The implementation rate of Kinangop wind park in Nyandarua County has been frozen after running into strong headwinds tied to land acquisition. This project was proposed in 2012 and was scheduled to be completed by mid-2015 and supply power to the grid (Herbling, 2016). Lake Turkana wind power project low implementation rate has been contributed by the local communities who have alleged that the project violates the community land rights (LTWP, 2014). Implementation delays is mainly caused by lack of community involvement, management, donors, social & environmental challenges (WB, 2012). The delay of project implementation affects every stakeholder in the economy. It delays the government a source of revenue. Project delays prolong the investors payback period and Denay the citizen the much-needed energy consumption (Ogari, 2012).

Previous studies on factors affecting the effective implementation of projects have been done but not in a comprehensive approach especially on wind sector. Kiara, (2013) conducted a study on factors affecting the implementation of infrastructure development projects in renewable energy sector in Kenya. Maynard, Lovecraft, Rose, & Chapin (2010) studied on factors influencing the development of wind power in rural Alaska communities. Githenya, & Ngugi, (2014). It is therefore evident that there is a knowledge gap that this study will intend to fill by studying how community involvement affect effective implementation of wind power projects in Kenya.

#### **RESEARCH OBJECTIVE**

To determine how community involvement, affect effective implementation of wind power projects in Kenya.

#### LITERATURE REVIEW

#### THEORETICAL LITERATURE REVIEW

The study was based on Stakeholders Theory. Stakeholders Theory was originally detailed by R. Edward Freeman in the book Strategic Management. Freeman, Wicks, &Parmar, (2004) The Firm is a system of stakeholders operating within the larger systems of the host society that provides the necessary legal and market infrastructure for the Firm's activities. The purpose of the Firm is to create wealth or value for its stakeholders by converting their stakes into goods and services". This view is supported by Blair (1995). This theory states that managers should make decisions that take account of the interest of all the stakeholders in the Firm. Stakeholders. In order to succeed and be sustainable over time, executives must keep the interests of customers, suppliers, employees, communities and shareholders aligned and going in the same direction (Abuzeid, 2009). In the traditional view of the firm, the shareholder view, the shareholders or stockholders are the owners of the company, and the firm has a binding fiduciary duty to put their needs first, to increase value for them (Phillips, 2007).

However, stakeholder theory argues that there are other parties involved, including governmental bodies, political groups, trade associations, trade unions, communities, financiers, suppliers, employees, and customers. Sometimes even competitors are counted as stakeholders - their status being derived from their capacity to affect the firm and its other morally legitimate stakeholders. The nature of what is a stakeholder is highly contested (Miles, 2012), with hundreds of definitions existing in the academic literature (Miles, 2011). The Theory takes account of a wider group of constituents rather than focusing on shareholders and in contest of this study the theory informs community, donors and government. Stakeholders in the wind power project industry invest huge sums of capital into construction projects with expectations of getting value for their money from the final product. In other words, clients' and stakeholders' have high expectations. Further, the wind implementation process entails

and consumes huge figures in terms of finances, materials, human capital and technology. The economic benefits that are derived from very efficient wind sector that is delivering are numerous both to the investors, developers and the country in general.

The Meaningful contribution in development projects largely depends on the community spontaneous participation on it. Furthermore, to make any development program a success, involvement of cross-section of people into it is a necessary precondition. In Most African societies traditionally and culturally people, particularly

socially enlightened class and female folk are non-participatory in nature, (Wild and Marshall 1999; Bagaka, 2008). The socially enlightened class is self-cantered and always tries to avoid involvement into the existing participatory practices rather thinking it as an unnecessary hassle. The female folk on the other hand, traditionally and religiously engaged themselves into household works and always try to express unwillingness to be involved into local development projects. Such type of attitude has become a part of the tradition.

#### **CONCEPTUAL FRAMEWORK**

A conceptual framework in Figure 1 shows the relationship between community involvement and the effective implementation of wind power projects in Kenya, emphasizing how active engagement fosters ownership, transparent communication, and social and economic benefits, ultimately contributing to sustainable development and improved livelihoods.

#### **Community Involvement**

- Resource mobilization by community
- Community project monitoring
- Community project Acceptance

#### **Figure 1: Conceptual Framework**

#### **EMPIRICAL REVIEW**

Effective Implementation of wind power projects in Kenya

- Quality of projects
- Time frame of projects
- Cost of the projects

Khwaja, (2013) uses primary data on development projects in Northern Pakistan to provide empirical support to illustrate the effects of community participation on project performance. His findings do provide evidence supporting the theoretical claim, that greater community participation in non-technical decisions is associated with higher project outcomes. Katz and

Sara (2007) analyze the performance of water systems in a variety of countries. They find that the performance of water systems was markedly better in communities where households were able to make informed choices about the type of system and the level of service they required, and where decision making was genuinely democratic and inclusive. In contrast, projects which were constructed without community supervision and where project management was not accountable to the community, tended to be poorly constructed by private contractors. Mading (2013) conducted a study on the factors affecting community participation in Geothermal project implementation .A case of Menegai Geothermal power project in Kenya argued that the level of success that a business or a company may realize in its projects implementation is level of involvement that it gives to all the stakeholders in the project .study concluded that there is need to provide community members with sufficient information that involves in the area , study further concluded that in order to improve sustainability the company should create and implement an outreach plan to address and manage community concerns

Chambers, (2014) conducted a study on Rural development, Putting the last first, he noted that community development requires the involvement and participation of local residents in identifying the strategies they wish to use to improve their quality of life. Participation is seen as developmental, educative, and integrative and as a means of protecting freedom. One of the key assumptions of participation is that local residents will be more supportive of the project, and therefore increase the likelihood of its success, if residents have input in the decision-making process. Also, local residents probably have a better knowledge about assets and needs of the community. Finally, public participation is considered the centre-piece of the democratic process. One of the distinguishing characteristic of community development is that it involves the creation of local organizations (CBOs) to help build assets. These organizations offer several advantages for carrying out place-based programs as they have extensive contacts and information about the neighborhood. They are also controlled by local residents (Green and Haines, 2008).

Ogari, (2012) conducted a study on influence of community participation in the sustainable implementation of health projects: a case of Borabu Division, Nyamira County. The study used descriptive research design. The study found out that through participation, local people identify their needs as well as the relevant goals of a program. Timely, well planned, and well

implemented public involvement programs have contributed to the successful design, implementation, operation, and management of projects. Community members, when given an opportunity to be informed and involved in the revitalization process, are or can be a critical factor to a project's success. Community members' contribution in decision making helps in the revitalization planning process and better understand the process and support a project they had input in. The idea of people's participation in development means improving the potential of the previously neglected rural poor, enabling them to make decisions for their own welfare. The concerned stakeholders should ensure effectiveness and efficiency of the training and capacity building programs by addressing the weaknesses or constraining factors. This study focused on influence of community participation in the sustainable implementation of health projects: a case of Borabu Division, Nyamira County on community participation as the only variable thus presenting a conceptual gap.

Fulgham& Shaughnessy, (2008) suggested community involvement in project design can result to different types of project success: Attitudinal success most likely when the project creates or enhances social capital (Social capital), when communities participate in project initiation, establishment, and daily management (Participation), and when benefits are equitably distributed without elite capture (Equity); behavioral success most likely when the project invests in building capacity of local individuals and institutions (Capacity); ecological success most likely when the project engages positively with cultural traditions and governance institutions (Engagement), builds capacity in communities (Capacity), and when communities participate in project initiation, establishment, and daily management (Participation) and economic success most likely when the project invests in capacity building (Capacity).

Webler, Tuler, and Krueger, (2011) on their study on what is a good public participation process; Five perspectives from the public, argued that effective public participation is achieved by making the decision making process transparent and responsive to public input, so that participants can see how their input is considered and weighed by the decision makers.Project implementation requires increased public participation in decision making but a number of questions have been raised by the experience of some communities.

Shukor, Mohammed, Sani, & Awang, (2011) conducted a review on the success factors for community participation in solid waste management. They argued that community

participation can be seen as a process in which community members are involved at different stages and degrees of intensity in the project cycle with the objective to build the capacity of the community to maintain services created during the project after the facilitating organizations have left. Community participation throughout the whole project, thus from project design and implementation to evaluation, ensures the reflection of community priorities and needs in the activities of the project and motivates communities into maintaining and operating project activities after the project is completed.

#### METHODOLOGY

The research design for this study was a descriptive survey research design, aimed at describing and analyzing the concerns related to the implementation of wind power projects in Kenya. The study utilized questionnaires as the primary data collection instrument, comprising both closed-ended and open-ended questions. The target population consisted of 128 stakeholders from four wind power firms in Kenya, including community leaders, donors, project managers, and government agents. A census approach was employed, with all 128 respondents being included in the sample. Data collection involved administering semi-structured questionnaires, and the validity and reliability of the instruments were ensured through a pilot testing process. The collected data were analyzed using quantitative techniques, such as descriptive analysis and inferential statistics, and were presented using tables and charts.

#### **RESULTS AND DISCUSSIONS**

#### **Response Rate**

A total of 128 questionnaires were administered for the study. Among these, 112 questionnaires were properly filled and returned, resulting in an overall successful response rate of 87.5%, as presented in Table 1. Mugenda and Mugenda (2003) and Kothari (2004) have stated that a response rate of 50% is sufficient for a descriptive survey study. Additionally, Babbie (2004) asserted that return rates of 50% are acceptable for analysis and publication, 60% is considered good, and 70% is regarded as very good. Based on these perspectives from renowned scholars, the 87.5% response rate achieved in this study is considered adequate.

Response	Frequency	Percent
Returned	112	87.5%
Unreturned	16	12.5%
Total	128	100%

#### Table 1: Response Rate

#### **Reliability of Pilot Study**

The reliability of an instrument refers to its ability to produce consistent and stable measurements. Bagozzi (1994) explains that reliability can be seen from two sides: reliability (the extent of accuracy) and unreliability (the extent of inaccuracy). The most common reliability coefficient is Cronbach's alpha which estimates internal consistency by determining how all items on a test relate to all other items and to the total test- internal coherence of data. The reliability is expressed as a coefficient between 0 and 1.00. The higher the coefficient, the more reliable is the test. The cronbach alpha was calculated in a bid to measure the reliability of the questionnaire. This was done by subjecting the thirteen (13) questionnaires to respondents that were randomly selected. All the variables were reliable since their Cronbach alpha was above 0.7 which was used as a cut-off of reliability for the study. Table 2 shows the reliability results.

#### **Table 2: Reliability**

Variable	No of Items	Respondents	α=Alpha	Comment
Community Involvement	4	13	0.877	Reliable

# Influence of community involvement on effective implementation of wind power projects in Kenya

#### **Descriptive statistics**

This section presents the descriptive results on statements on community involvement in wind power implementation. Descriptive statistics were obtained through running the statements of each objective using descriptive custom Table and presenting in percentages. The mean and the standard deviations were obtained through running the descriptive statistics. In this study, community involvement in wind power project implementation was measured by four

questions. The respondents were asked to give their opinion regarding community involvement in wind power Project implementation. Specifically, they were asked to rate on a scale of 1 to 5 1=Strongly disagree, 2-Disagree, 3-Neutral, 4-Agree and 5-Stronly agree. The analysis is on Table 3. The highest of the mean was 5 while the lowest was 1. Therefore, a mean of 1=Strongly disagree, 2disagree, 3-Neutral, 4-agree and 5-Strongly agree.

Table 3:	Commu	nity	Invol	lvement
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Statements	Strongly Disagree	Disagree	Neutral	agree	Strongly agree	Mean	Std. Dev.
Community involvement in the project implementation makes the community feels part and parcel of project	4.5%	7.1%	8.9%	50.9%	28.6%	3.92	1.03
Community involvement increase Community receptivity by member of community	4.5%	10.7%	13.4%	35.7%	35.7%	3.88	1.15
The community members involve in internal project monitoring arrangement to check project progress, identify problem and achievement of milestone	11.6%	4.5%	17.0%	38.4%	28.6%	3.68	1.26
Community involvement create sense of project ownership by community <b>Average</b>	7.1%	8.9%	4.5%	57.1%	22.3%	3.79 <b>3.82</b>	1.11 <b>1.14</b>

According to results in Table 3, majority of the respondents who represented 50.90% of the respondents agreed that Community involvement in the project implementation makes the community feels part and parcel of project, 28.60% strongly agreed, 8.90% were neutral, and 7.10% disagreed while only 4.50% strongly disagreed. In general, 79.50% agreed with the involvement in the project implementation makes the community feels part and parcel of project. Results also indicated that 71.40% agreed that community involvement increase Community receptivity by member of community, 67.00% agreed that they the community

members involve in internal project monitoring arrangement to check project progress, identify problem and achievement of milestone, while 79.40% of the respondents agreed that community involvement create sense of project ownership by community. On a five-point scale, the average mean of the responses was 3.82 which mean that majority of the respondents agreed with most of the statements; however, the answers were varied as shown by a standard deviation of 1.14. The highest of the mean was 5 while the lowest was 1. Therefore, a mean of 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree. Therefore, average mean of the responses was 3.82 which mean that majority of the respondents agreed with most of the statements.

## Relationship between Community Involvement and implementation of Wind Power Project in Kenya.

Regression analysis was performed by using the composites of the two variables. The data was input to the SPSS software. Results were then presented in Tables 4, 5 and 6.

Indicators	Coefficients
R	0.359
R Square	0.129
Adjusted R Square	0.121
Std. Error of the Estimate	0.262241

#### Table 4: Model Fitness

The results presented in Table 4 present the fitness of model used in the regression model in explaining the study phenomena. Community involvement was found to be satisfactory variables in implementation of wind power in Kenya. This is supported by coefficient of determination also known as the R square of 12.9%. This means that community involvement explain 12.9% of the variations in the dependent variable which is implementation of wind power projects. This results further means that the model applied to link the relationship of the variables was satisfactory.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.12	1	1.12	16.279	0.000
Residual	7.565	110	0.069		
Total	8.684	111			

 Table 5: Analysis of Variance

Table 5 provides the results on the analysis of the variance (ANOVA). The results indicate that the model was statistically significant. Further, the results imply that the independent variable community involvement is good predictor of implementation of wind power projects. This was supported by an F statistic of 16.279 and the reported p=0.000 which was less than the conventional probability of 0.05significance level. Regression of coefficients results in Table 6 shows that implementation of wind power projects and community involvement are positively and significant related (r=0.192, p<0.05).

#### **Table 6: Regression of Coefficients**

	В	Std. Error	t	Sig.
(Constant)	2.834	0.184	15.428	0.000
Community Involvement	0.192	0.048	4.035	0.000

The specific model was;

Implementation of Wind Power Projects =2.834+0.192 X1

Where X1 is Community Involvement in Project Implementation

The first objective of the study was to determine how community involvement, affect effective implementation of wind power projects in Kenya. Results in Table 6 show that there is a significant relationship between community involvement and effective implementation of wind power projects in Kenya. This finding is in consistent with that of Khwaja, (2013) that greater community participation in non-technical decisions is associated with higher project outcomes. Mading, (2013) on their study also found that the level of success that a business or a company may realize in its projects implementation depends on community members with sufficient information that involves the area.

#### **Correlation Analysis**

The correlation analysis results in table 7 revealed that there was a positive and a significant relationship between Community Involvement and the implementation of wind power projects (r=0.359, p=0.000). This finding suggests that as levels of Community Involvement increase, the implementation of wind power projects also tends to increase. It implies that communities that are actively involved and engaged in wind power projects are more likely to see successful implementation and adoption of such projects.

Variables		Implementation	Community Involvement
Implementation	Pearson Correlation	1.000	
	Sig. (2-tailed)		
Community Involvement	Pearson Correlation	0359**	1.000
	Sig. (2-tailed)	0.000	
* Correlation is significant at the	0.05 level (2-tailed).		

#### **Table 7: Correlation analysis**

#### CONCLUSION

It is concluded that there is a positive and significant relationship between Community Involvement and the effective implementation of wind power projects in Kenya, as evidenced by the regression results. This implies that an improvement in community involvement leads to a positive variation in the successful execution of wind power projects in the country. Furthermore, the findings were substantiated by the responses to statements concerning community involvement, with an average mean of 3.82 on a five-point scale, indicating that the majority of respondents agreed with the importance of community engagement. The study's overall conclusion is that when a community actively participates in an activity, it is more likely to have a meaningful say in that activity. On the other hand, non-involvement of the community poses a challenge to project implementation. One common issue observed is the exclusion of the community from the project's decision-making process, which can adversely affect the strategy, pace, and community support for the projects. Therefore, fostering

community involvement emerges as a critical aspect for ensuring the successful implementation of wind power projects in Kenya.

#### RECOMMENDATIONS

The study recommends that before the project is started, community heads should be educated about the importance of wind power projects to avoid the locals from the mistrust that occurs with the project implementation without proper consultation from them. They should also be made aware that wind power project activities that have no negative impact on their lifestyles or the environment. Further this study recommends that the local community should be made the first direct beneficiaries from the projects.

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