

# Rationale for Decision-Making Processes in Enhancement of Community Participation for Sustainable Mangrove Management in Lamu, Kenya

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## Abstract

Decision-making is the process of deciding between two or more options in order to take the most appropriate and successful course of action in order to achieve sustainable mangrove management. However, the distinctiveness of mangrove as an ecosystem, and thus the attendant socio-economic and governance ramifications, causes the idea of decision making to become relatively distinct from other decision making process. As a result, the purpose of this research was to evaluate the impact that community engagement plays in the decision-making process as it relates to the establishment of governance norms for sustainable mangrove management in Lamu County. In this study, a correlational research design was applied, and the researchers employed a mixed techniques approach. The target population was 296 respondents. The research used questionnaires and interviews to collect data. A descriptive statistical technique was utilized to perform an inspection and analysis on the data that was gathered. The findings indicated that having awareness about governance standards is beneficial during the process of making decisions. In addition, the findings demonstrated that respondents had the impression that the decision-making process was not done properly. On the other hand, the participants pointed out the positive aspects of the decision-making process and agreed that the participation of both gender was essential for the sustainable management of mangroves. Based on these data, it appeared that full community engagement in decision-making is necessary for sustainable management of mangrove forests.

## Keywords

Community Engagement, Sustainability, Decision Making Process, Lamu

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## 1. Introduction

Degradation of mangroves due to human activity poses a concern, necessitating conservation and protection measures. More than 1.6 billion species rely on mangroves for survival, and millions of people depend on mangroves for their livelihoods [1]. Mangrove ecosystems are well known for their habitat functions for commercially valuable fish and crustaceans, as well as for effective sediment trapping, nutrient recycling, and erosion protection of shorelines. Mangrove forests also provide a variety of products such as food, fuel, wood, timber, honey, wax, and tannins [2]. Furthermore, mangroves have aesthetic, historical, and cultural values in addition to their ecological importance. Mangroves, on the other hand, have been declining at an alarming rate in recent years. Since 1980, there has been a global reduction of approximately 25%, and the mangrove area today is less than 15 million ha [1]. In general, mangroves are under threat and urgent sustainable measures are needed.

Involving local communities in decision-making is a critical component of sustainable mangrove management [3]. Notably, community participation is critical for sustainable mangrove ecosystems, as mangroves have a close relationship with local community livelihoods. Thus, the concept of community-based mangrove management has become essential as a result of the precarious state of mangrove ecosystems as well as the widespread adoption of decentralized governance practices in a large number of developing countries [4]. The rationale behind community participation lies in the potential for local communities to become involved in the completion of essential activities such as resource identification, prioritization of development, choice and adaptation of appropriate technologies to formulate and implement sustainable management practices [2].

The decision-making process in sustainable mangrove management is seen as a crucial stage in improving governance standards by inviting community input [5]. Decision-making processes are important because they outline the steps that provide for the community participation in the management of mangroves sustainably. The depth of decision-making processes accounts for the dynamics and interactions that are evidenced in the community participation for natural resources in the setting of governance standards focusing on transparency, equity, accountability, and inclusivity [6] [7] [8].

Recent institutional decisions have either been made unilaterally or have taken the shape of a top-down approach; nevertheless, the decision-making processes must allow for community participation, which promotes ownership and enhances feedback on decisions that have been made [9]. In order for communities to feel as though they have ownership over the decisions that are made about natural resources, there must be a procedure in place that follows governance criteria such as accountability and transparency. This accountability, transparency, equality and inclusiveness, and public participation, which are a key requirement of the Kenyan Constitution (article 10) and the forestry law, should

guarantee that decisions address areas of bias and discrimination in the consumption, access, and management of natural resources by making sure these issues are taken into account [10] [11].

In spite of the ecological and economic significance of mangroves, this ecosystem in Lamu County has been degraded, primarily as a result of human activity. In order to manage natural resources in intricate ecological and social structures in a way that is both successful and sustainable, it is essential to take into account the various perspectives, values, and areas of expertise held by various stakeholders. Doing so enables one to make educated decisions by determining which perspectives are held in common and which are contentious. The government and non-governmental organizations in Kenya have tried many community programs over the past four decades, with varying degrees of success in enhancing decision making processes for mangrove management [12]. Importantly, the Forest Conservation and Management Act (section 4), as a core principle, upholds public participation and community involvement in the management of forests, including mangroves which are classified as public forests. In light of this context, the purpose of this research is to investigate whether, and how residents of Lamu County reach consensus on the setting of governance standards for sustainable mangrove management.

## 2. Methodology

The study used a correlational research design with a mixed methods approach that included both quantitative and qualitative data [13]. Purposefully chosen respondents for Key Informant Interviews included community members engaged in mangrove activities; Kenya Forestry Research Institute officers; Kenya Forestry Service Officers; the Government Chief of each location; and Officials from Non-Governmental Organisations operating in the region. They were selected because they play a key role in community participation. The Yamane sampling formula was used to determine the sample size for the study, which were 296 households in a population of more than 10,000. Key informant interviews, focus group discussions, and surveys were used as the data collection techniques. Focus groups and key informant interviews were helpful for triangulating the quantitative data gathered. To assure the validity and dependability of the sampled population, the survey was carried out utilizing mobile software called KOBO collect, which provides GPS coordinates. R-Statistics was used to analyse the data, which was then presented in graphs, tables, and frequencies. Correlation tests were run to demonstrate the significance of the variables. Themes that centred on the decision-making process in setting and implementing governance standards for sustainable mangrove management were utilized to guide the content analysis of the qualitative data.

The study was carried out in the Kenyan coastal county of Lamu, which was chosen for its extensive mangrove cover (61% of Kenya's total), biological uniqueness for carbon sinks, and biodiversity habitat.

### 3. Results

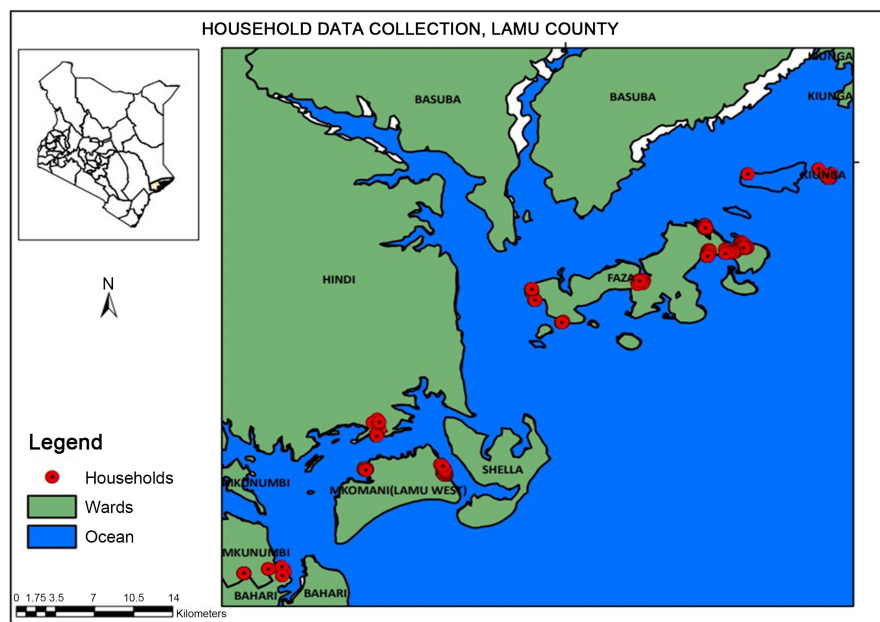
The findings showed that at least 293 (99.0%) out of a possible 296 guided surveys were completed accurately. The result suggests that the majority of the individuals who were expected to participate in the study did so, with only three individuals failing to complete the questionnaires. This response rate agrees with [14] who posited that researchers should strive to achieve a return rate of at least 60% of the research instruments. The data gathered can then be generalized to represent the opinions of the respondents in the target population.

#### 3.1. Role of Decision-Making Process through Community Participation in Setting of Standards for Sustainable Mangrove Management in Lamu County

The main objective of the study was to examine how the decision-making processes affect community participation in the sustainable mangrove management. The study findings were discussed under the following subheadings; governance standards setting, perceptions on decision make process, perceived benefits on the decision-making methods, and perceptions on gender inclusion role in decision making process on governance standards on mangrove management.

#### 3.2. Role of Decision-Making Processes in Governance Standards Setting for Sustainable Mangrove Management in Lamu County

Results in **Figure 1** revealed that the respondents who had no knowledge of governance standards (with a mean of 1.20 represents strongly agreed) towards the role of decision-making process through community participation as opposed to



**Figure 1.** Map of Lamu county on the Kenyan coastal strip (Source: Owner, 2023).

respondents with knowledge (with a mean 1.50 represents strongly agreed) on existence of decision-making process for sustainable mangrove conservation and management as shown below (Figure 2).

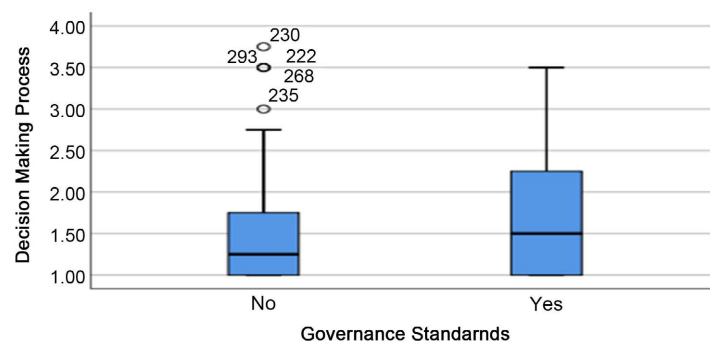
These findings were consistent with the findings of a study carried out by [15]. In that study, the researchers found that individuals with a low level of knowledge engage in decision-making processes that have a higher number of cycles, a higher number of alternatives, a higher number of criteria, and a longer duration when compared to individuals with a high level of knowledge. In addition, the findings of this study are in agreement with those of a study that was conducted by [16]. That study found that the level of community knowledge impacts the level of public participation in the process of county integrated development planning. Moreover, the study findings are also in line with [17] who described the community as the custodians of environmental resources that fell within their areas and therefore any successful intervention to conserve and protect the environment (and mangrove forests in particular) must necessarily involve them.

### 3.3. Perceptions on Decision Making Process on Mangrove Management

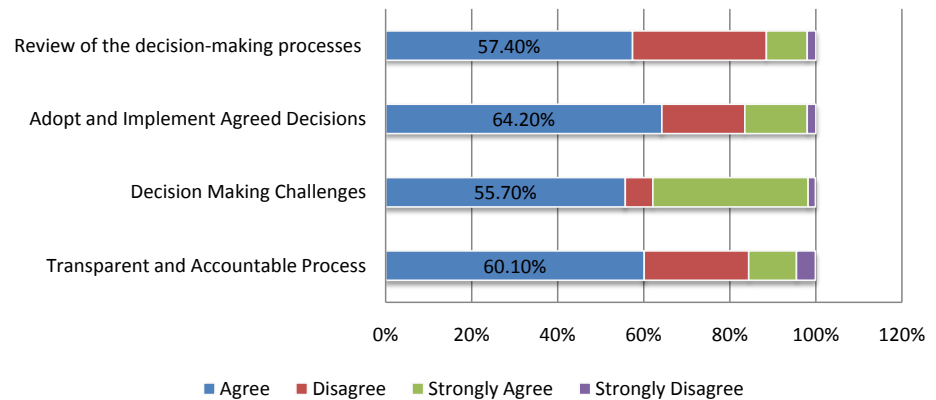
According to Figure 3 below, the majority of respondents (64.20%) believed that the decision-making process should be reviewed while (57.40%) thought that the stakeholders should approve and implement agreed decisions. While 60.10% agreed that the decision-making process is transparent and accountable and should be supported, 55.70% claimed that they faced insurmountable obstacles during the process.

These findings indicated that there is no consensus among the stakeholders regarding the effectiveness of the current management of the mangroves in Lamu. The key informants for this study disclosed that unsustainable mangrove management posed a real and serious threat. The village elder stated:

*“Most of the people here are not involved in the decision-making process. The government and NGOs just start programmes to manage mangrove forest without involving the community.”*



**Figure 2.** Role of decision-making process through community participation in governance standards setting for sustainable mangrove management in Lamu county.



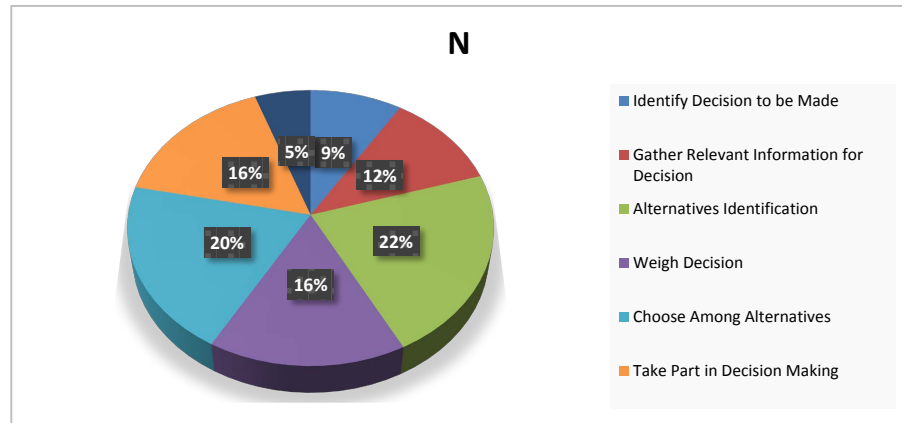
**Figure 3.** Perceptions on decision making process on mangrove management using community participation in Lamu county.

This statement was countered by officers from the Kenya Forestry Research Institute who stated that in order to create mangrove management programs, they must consult the community during the decision-making process. As a result, all relevant parties are involved in the decision-making process and the management of mangrove resources.

These findings were consistent with the study done by [18], which concluded that communities would most likely participate in instances where regulation was weak, or the community had a cultural connection with the resource in question. Further, a study done by [19] concluded that communities who were disenfranchised of their resources and depended on the environment for sustenance were likely to ask for more stake in any natural resource management programme, regardless of whether such participation is required or not. Notably, study by [20] mentioned that is essential for all different actors to ensure community participation from the earliest phases of decisions making process since it encouraged a deeper sense of ownership and secured community interest in sustainable mangrove management. He added that decision making processes must be transparent and accountable in all stakeholders through multilateral consensus grounded in scientific information and local knowledge. Therefore, communities must acquire full involvement by both the government and the NGOs in decision-making for sustainable mangrove management.

### 3.4. Perceived Benefits on the Decision-Making Stages on Governance Standards on Sustainable Mangrove Management in Lamu County

The findings of the study showed that there are number of participating stages for decision making process in sustainable mangrove conservation were reported. These includes identifying decision to be made (9%); gathering relevant information for decisions (12%); alternative decision identification (22.0%); weighing the decision (16.0%); choosing among alternatives (20.0%) and taking part in decision making (16.3%) as shown in **Figure 4** below.



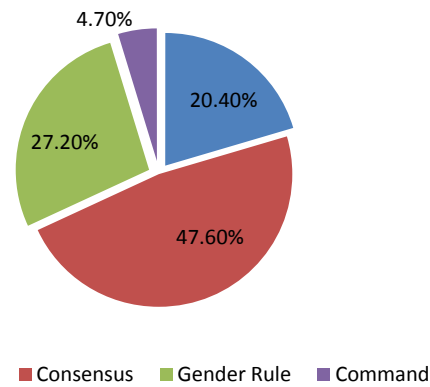
**Figure 4.** Perceived decision-making stages in governance standards setting on sustainable mangrove management in Lamu county.

These results suggested there is no full participation in any decision-making stages. These results are consistent with [21] which revealed that a stronger sense of control over one's environment enables the power bearer to pay closer attention to environmental rewards and, as a result, engage in more goal-directed conduct. The results concur with those of [22], who contend that elevated perceptions of engagement boost the sensation of control that comes with overseeing community projects. Participation in decision-making increases the sense of community ownership over the natural resources which enhance better management practises.

### 3.5. Perceptions on Decision Making Methods for Better Mangrove Management in Lamu County

The study sought to establish the perception of the respondents on decision making process. The findings show that the majority of respondents (47.60%) indicated that consensus was extensively applied in the process of decision making. About 27.20% of respondents thought that the gender rule was the best approach. On the other hand, 20.40% of respondents favoured the use of the majority rule, while 4.77% stated that the command rule was also considered throughout the decision-making process as shown in **Figure 5** below. The gender rule, in this case, refers to upholding gender equality, or where that is not possible, upholding gender equity. This is enshrined in the Constitution of Kenya which prohibits gender-based discrimination (article 27).

The findings showed that when setting governance standards for sustainable mangrove management, the decision-making process prioritized the role of community participation. This finding was consistent with the findings by [23], who found that good governance defines the decision-making process from the start. It clearly defines roles and responsibilities for all stakeholders. People can focus on understanding the issues and identifying good solutions once these are defined. The findings are also consistent with the findings by [24], who established that many stakeholders in community resource management prefer consensus



**Figure 5.** Participation in the decision-making methods on governance standards on sustainable mangrove management in Lamu county.

decision making as a method of reaching agreement on some decision by all members of a group, rather than a majority or a select group of representatives. [25] agrees with the findings, arguing that women should be encouraged to participate in decision-making by following the gender rule.

In addition, because mangroves are legally public forests, they are required to comply with the community participation provisions of the Forest Conservation and Management Act (No. 34 of 2016), which was passed to implement the Constitution, and to regulate the conservation and management of forests [1] Indeed, one of the guiding principles for this forest law is public participation and community involvement in the management of forests (section 4). Further the constitutional values and principles of governance, which are mandatory during implementation of any law including the forestry statute, include requirements to observe inclusiveness and equity (article 10).

The High Court of Kenya, which is the constitutional court, stated in the case that concerned mangroves—Mohamed Ali Baadi and others v Attorney General and 11 others [2018] eKLR—that the government and project proponents should work to create community ownership of project decisions by integrating the community in all phases of the project cycle. This was stated in the context of integrating the community in all phases of the project cycle as it increases the confidence in the project and makes it more transparent. According to the Court, deliberative democracy is a crucial component in the execution of the citizen-centered approach since it enables numerous groups to participate in the decision-making process and serves as a forum for such participation. For this reason, encouraging local communities to take part in public participation produces an environment that is conducive to a citizen-centered approach. This is because knowledgeable citizens place a higher value on the process, and they contribute much more to decisions that have an effect on them. This can be accomplished through gaining a deeper awareness of the needs of specific populations and the ways in which those needs influence their level of participation through education, training, and community profiling.

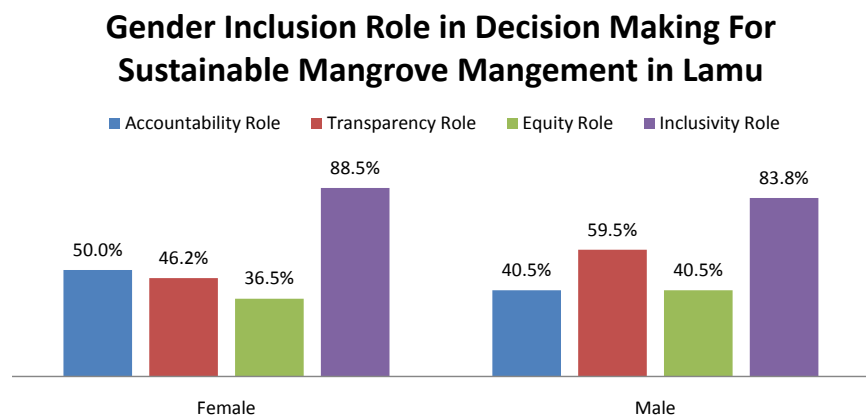


### 3.6. Perceptions on Gender Inclusion in Governance Standards in Decision-Making Process for Sustainable Mangrove Management in Lamu County

According to the findings, the majority of women (88.5%) and men (83.8%) agreed that gender inclusion promotes inclusivity. About 50.0% of women and 40.5% of men stated that gender inclusion promotes transparency in decision making, while 36.5% of women and 40% of men believe that gender inclusion promotes gender equity in decision making process as shown in **Figure 6** below.

The study found that gender equality in decision-making process is respected when setting governance standards in sustainable mangrove management in Lamu County. These findings are in agreement with the findings by [26] who established that gender equality and diversity are recognised to have beneficial effects on organisations, institutions and the overall economy. According to Profeta, gender inclusion is the notion that all services, opportunities, and establishments are open to all people and that male and female stereotypes do not define societal roles and expectations. This view is supported by [27] who argue that mainstreaming gender equity and social inclusion in projects leads to better development outcomes including faster economic growth, reduced corruption and more sustainable natural resource management.

Importantly, the Constitution of Kenya (article 27), decrees that every person is equal before the law, and that men and women have the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres. However, due to socio-cultural practices and continued patriarchal stratification of society, the gender rule mostly takes the form of equity, rather than equality [28]. To aid in realization, the Constitution has laid down the principle that in realizing gender equity, which means that that not more than two-thirds of participants the members of elective or appointive bodies shall be of the same gender [29]. This has been translated, at society level, to mean that during community processes of decision making or consultations, there should be at least one-third of one gender (for instance women) present



**Figure 6.** Perceptions on gender inclusion role in decision making in governance standards setting for sustainable mangrove management in Lamu county.

and activity participating in the process. Since mangroves are public forests, and decision making involves public agencies like Kenya Forest Service, observance the gender rule is imperative.

This means that participation in community decision making processes should avoid offending the Constitution that prohibits discrimination on the basis of gender. The National Mangrove Ecosystem Management Plan is also clear on importance of gender equality, affirming that in its implementation, there must be equitable representation of all groups in meetings and decision-making processes, including establishing gender balance during composition of the various sub-committees and in management activities [30].

#### **4. Conclusion**

Mangrove ecosystems are well known for their habitat functions for commercially valuable fish and crustaceans, as well as for effective sediment trapping, nutrient recycling, and erosion protection of shorelines. Mangrove forests also provide a variety of products such as food, fuel, wood, timber, honey, wax, and tannins. Furthermore, mangroves have aesthetic, historical, and cultural values in addition to their ecological importance. However, mangroves have been declining at an alarming rate in recent years. Participation from the local community in the decision-making process can be beneficial to the success of mangrove management programs. Through community participation, local communities are given the opportunity to assist with important activities such as the identification of resources, the establishment of priorities, the selection of technologies, and the implementation of sustainable management approaches. For effective management of mangroves, community input is necessary in decision-making. It is generally agreed that improving governance standards requires putting more emphasis on the decision-making process involved in sustainable mangrove management. It is necessary to have a process in place that complies with the standards of governance, such as accountability and transparency, in order to provide people a feeling of ownership over the decisions that are made about natural resource management. The findings indicate that having awareness about governance norms is beneficial during the process of making decisions and inclusion of all stakeholders is very necessary for sustainable results in managing mangroves. In addition, the findings demonstrated that respondents had the impression that the decision-making process was not perfect. On the other hand, the participants pointed out the positive aspects of the decision-making process and agreed that the participation of both sexes is essential for the sustainable management of mangroves. Based on these data, it appears that full community engagement in decision-making is necessary for sustainable management of mangrove forests.

#### **Recommendation**

Based on the findings in the foregoing analysis, it is recommended that community-level decision making processes should be coupled with transparency, ac-

countability, inclusivity, and equity to achieve sustainable mangrove management. The ownership, and the perception of ownership of the decision-making processes by the community members is equally important. In the decision-making stages there should be more community participation of at least more than half in each stage this will bring positive results in sustaining Kenyan mangrove forests. It is also very important to follow the right methods in decision making hence merging the gap between the community and other stakeholders in mangrove management processes.

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### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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