



# Engaging with Coastal Ecosystems: Communities' Perception of Mangroves in Kigamboni, Tanzania

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## Abstract

Mangroves are among the coastal ecosystems that benefit the environment and communities. How communities interact and relate with this vital resource is critical for sustainability. This study aimed to explore community members' perceptions of mangroves. A qualitative approach was applied. Data were generated through interviews, focus group discussions, and observation. Twenty-nine (29) informants from three communities in Kigamboni district were involved in the study. Data analysis was done using content analysis. Findings indicate that community members possessed valuable knowledge of the ecosystem benefits of the mangroves. Such benefits include the provision of habitat, feeding, and breeding services, acting as a natural protector of the coastal area, and improving water quality. Respondents also mentioned several ways in which they utilized the mangroves. Additionally, though some community members participated in mangrove management, the study revealed a limited involvement of community members in mangrove conservation. This study calls on mangrove managers to consider coastal communities' knowledge and perceptions and use it as capital for involving them in mangrove conservation for improved resource management.

## Introduction

Coastal ecosystems are among the productive ecosystems that offer valuable benefits to national economies and the well-being of local communities. (Primavera, 2000; Alongi, 2008; Mukherjee et al., 2014). However, these ecosystems are under pressure from human activities (Pricillia et al. 2021). Studies have shown that human activities are degrading coastal ecosystems. Such activities include converting areas to agricultural use, seawater pollution, and the exploitation of resources (Mitra and Zaman 2015; Howard et al. 2017). Degradation of mangrove forests means losing their ecosystem services, which in turn affects local communities that depend on them (Quevedo et al., 2020). The deteriorating condition of the coastal areas has attracted the attention of scientists, practitioners, and policymakers to conserve and restore these ecosystems through blue carbon projects worldwide (Pricillia et al., 2021; Okafor et al., 2020).

Tanzania is rich in coastal ecosystems, particularly mangroves, seagrasses and coral reefs. However, as in other countries, ecosystems face significant threats from natural and anthropogenic factors (Mwansasu 2016). Additionally, balancing mangrove conservation and human demands on services provided by mangroves is very challenging (Nyangoko et al., 2022). As a result, mangrove



degradation continues to be reported in various areas of mangrove cover in the country (Njana et al., 2018; Monga et al., 2018; Nyangoko et al., 2022).

It has been recognised that local people possess valuable perceptions and knowledge regarding the ecological system with which they interact (Berkes et al., 2000; Mungai et al., 2019). Such local perceptions offer valuable insights for environmental conservation efforts (Garcia et al., 2014; Bulengela et al., 2020; Nijamdeen et al., 2023; Jennings et al., 2024). For example, Jennings et al. (2024) assert that coastal residents can provide valuable knowledge rooted in a deep understanding of local ecosystems, cultural practices, and historical background. Considering local perceptions and translating them into mangrove management regulations can effectively guide sustainable management (Nijamdeen et al., 2023).

In the context of Tanzania, studies have been conducted to explore community perceptions of mangroves (Mwansasu, 2016; Quinn et al., 2017; Njana et al., 2018; Nyangoko et al., 2022; Mohamed et al., 2023, 2024). However, these studies focused on limited societies, namely Chwaka and Menai Bays in Zanzibar and Rufiji Delta in the Coast region. There is limited knowledge of the perception of mangroves in the mainland areas of Tanzania, such as Kigamboni. Local perception and understanding are contextual- different cultural groups may perceive and interact with ecological systems differently (Berger and Luckmann, 1966; Putnam, 1997). Thus, this study is vital in exploring the perceptions of local coastal communities regarding mangroves.

In this study, we examine the perceptions of coastal communities regarding mangroves. We approach the analysis based on the local people's worldview. To achieve this, we apply a cultural perspective. Cultural perspective is built on the view that cultural values and social constructions of nature are at the centre of the relationship between people and nature (Posey, 1999; Awuah-Nyamekye, 2009; Lukaszewicz et al., 2013; Li et al., 2016). In his study of the Akan indigenous, for example, Awuah-Nyamekye (2009) shows how this community's religion and culture have been shaping how their community perceives the environment and how they relate to it. This study considers that understanding cultural beliefs and values that shape people's perception of their natural world, particularly the mangroves, is central in people's interaction with the resource and for strategising management options.

## **Methodology**

### *Study Design*

This study was explorative. The study employed a qualitative approach to explore the local community's perception of mangrove ecosystems. This approach makes it possible to assess everyday community life from the participants' perspective (Berg, 2001). Data were generated in two months, from April to May 2025. The researcher relied heavily on in-depth interviews, focus group discussions and observation for all data collection.

### *Study site*

This study was conducted in three communities in Kigamboni District, Dar es Salaam region. These communities are Ferry, Vijibweni, and Pembamnazi, located along the coast of the Indian Ocean. (Figure 1). Kigamboni is one of the districts with dense mangrove cover in Dar es Salaam (Mwanja et al., 2024). Ferry is a significant and vital landing site where several activities occur, such as boat landings of fish, boat building and mending. Vijibweni and Pembamnazi are key areas in Kigamboni with mangrove forests. Thus, these communities are assumed to be the most salient locations to provide a rich and vital understanding of mangrove ecosystems.

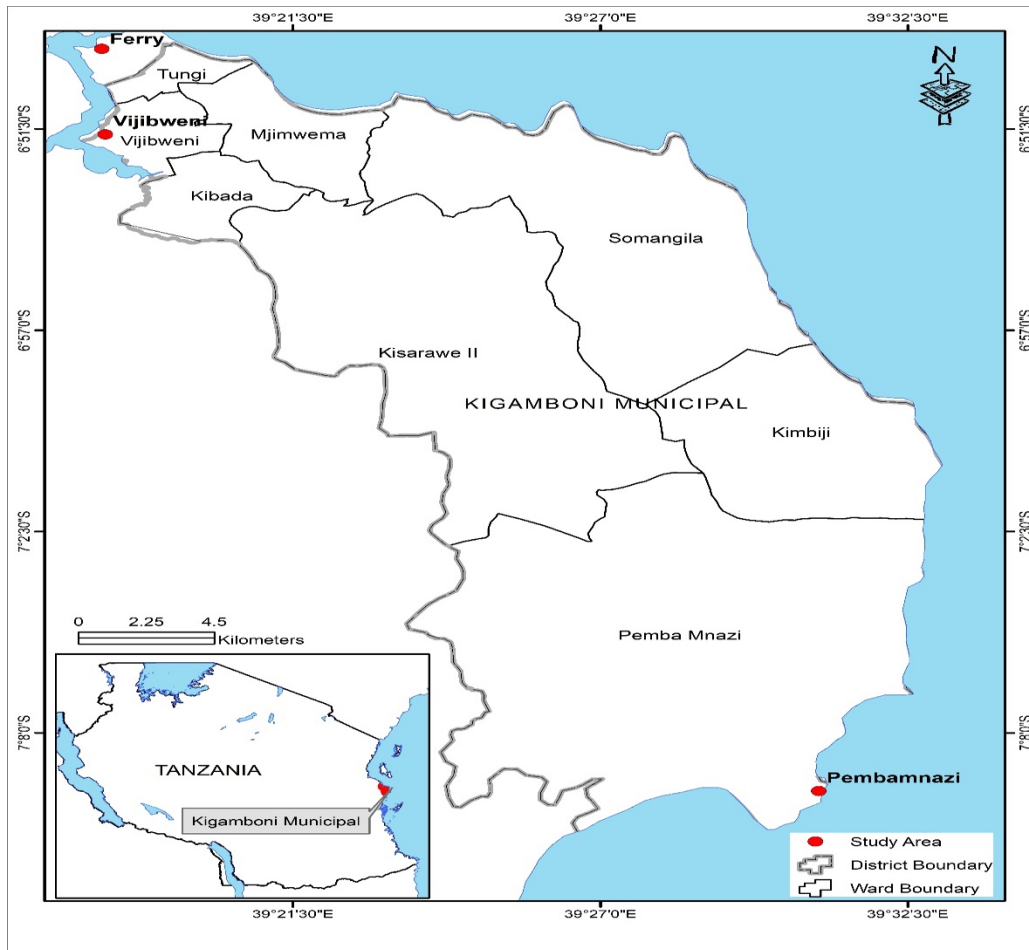


Figure 1: Map showing the study sites

### Study population

The study targeted boat owners, fishers, fish processors, community members, and environmental officers as the primary informants. Community leaders and elders were also included based on the assumption that they possess critical historical information about their communities and the fisheries. We interviewed adults aged 18 years and above.

### Sampling and sample size

This study applied purposive sampling. Informants were purposively selected for the study. Researchers considered community members who have experience in the areas. Thus, individuals who had stayed in the areas for five years or more were included in the study. It was assumed that such people knew about the area and could provide vital experience. In qualitative research, sample size is determined by saturation (Berg, 2001). However, researchers anticipated having 35 informants. During interviews, a saturation point was reached with 29 informants.

### Data collection

Twenty-nine (29) interviews were conducted in the three study communities over two months, March and April 2025. Discussions focused on fishers/boat owners, fish processors, community members and community leaders. Three Focus Group Discussions (FGDs) were conducted, one for each



community. FGDs were conducted during the second phase of fieldwork. Participants for each focus group were selected from individuals who participated in interview sessions. Focus group discussions aimed to explore the shared experiences of community members.

Observation was also utilised throughout the entire data collection process. Observation focused on major livelihood activities, how people interacted with the mangroves, fish processing, and boat building.

*Table 1: Number of interviews, distribution among study sites and categories of informants*

Location	Target group	Method	Gender of respondents	
			Male	Female
Vijibweni	Fishers/Boat owners	Interview	5	0
	Fish processors	Interview	2	1
	Community members	Interview	1	1
	Community leaders	Interview	1	0
	Mixed	FGD	6	1
Pembamnazi	Fishers/Boat owners	Interview	4	0
	Fish processors	Interview	1	1
	Community members	Interview	1	1
	Community leaders	Interview	0	1
	Mixed	FGD	7	0
Ferry	Fishers/Boat owners	Interview	4	0
	Fish processors	Interview	1	1
	Community members	Interview	1	1
	Community leaders	Interview	0	1
	Mixed	FGD	6	2

*Source: Field data, April 2025*

*Data analysis*

Several steps were followed in the data analysis. Data were analysed manually using a content analysis approach. A grounded theory approach to data analysis facilitated open coding and a constant comparison methodology. The process involved carefully reading data to gain an in-depth understanding and then identifying key concepts and emerging themes (Hammersley and Atkinson. 1997). Data were compared and contrasted to explore similarities and differences in how community members perceived mangrove ecosystems and the utilisation of the mangroves. Some emerging themes include the *environmental benefits of mangroves, community benefits of mangroves, community participation and cultural benefits.*

*Ethical Considerations*

Before data collection, researchers obtained research permits from the Dar es Salaam regional office, which were then channelled to the lower levels. Researchers ensured informed consent by providing clear explanations of the study's objectives to the informants and ensuring that each participant understood their participation was voluntary and that the information they shared would remain confidential and be used solely for this study. To ensure confidentiality, pseudonyms were used.



## Results

This section presents themes and subthemes that emerged in the data on the community's perception of mangrove forests. The presentation is divided into three themes: the perceived benefits of mangrove forests, the utilisation of mangroves, and community involvement in mangrove protection.

### *Perceived Ecosystem Service of the Mangroves*

Lotilisomunities in Kigamboni interacted with the ocean resources to use the ecosystem services, such as mangroves, and accumulated valuable knowledge about the resources. The interactions with the communities revealed that the mangrove forest provided several ecosystem services.

*Provides habitat:* In interviews with community members, it was reported that mangroves are a vital habitat for fish, birds and other organisms. Respondents believed that though some fish species like to spend most of their lives in deep waters, sometimes they want to enjoy the calmness of the mangroves. Thus, mangroves are fundamental to most fish species and other seafood. In a focus group discussion with fishers, some had the following to say:

*Mangroves form a basic home for most sea species. If you carefully observe the mangrove, you will agree with me that several organisms live in the mangrove. Some can be easily seen, and others not. This tells us that when we think of cutting even a single mangrove, let us think about the lives of other organisms (FGD/fishers/ Pembamnazi/April 2025).*

Another member of the group added that:

*I have been fishing for crabs for more than 15 years now. If you ask me about where I fish or where I get a better catch, I will tell you about the mangroves. Most crabs reside in the mangrove forest. One can indeed find crabs on open beaches, but the very habitat of crabs is the mangroves. So, mangroves are a critical resource to crabs and many other species (FGD/fishers/ Pembamnazi/April 2025).*

*Service for feeding and breeding:* Community members perceived mangroves as providing essential services for feeding and breeding organisms. It was mentioned that various fish species and other marine organisms consume mangrove leaves. Mangroves also provide a conducive environment for breeding multiple species, such as crab, prawn, and lobster fish (find English names), to mention a few. In an interview, one respondent has the following to say:

*As an experienced fisherman, I have observed that most ocean organisms, such as fish, breed in cool and calm environments, often found in mangroves. Several fish species, such as lobster fish, crab, and prawn, like to breed in mangroves. As a fisherman, I always ask myself, what if the mangroves were not there? Lower and lower catch... You see... so mangroves are essential (IDI/community member/ Vijibweni/ March 2025).*



Figure 2: Mangrove conservation at Vijibweni: @researcher, 2025.

*Act as a natural protector of coastal areas:* In interactions with respondents, it was reported that the ocean produces strong waves and currents that substantially impact beaches. Respondents mentioned mangrove forests as one of the most effective forces to buffer ocean waves and currents. Mangroves were perceived to slow down and absorb the energy of waves, reducing erosion (*inazima nguvu za wimbi*). Mangroves were also perceived as protecting buildings in nearby coastal communities by reducing wind speed. In an interview with Ndingwa, a retired fisherman, he noted that:

*Mangroves are unique trees. They are powerful to the extent that they can slow down the strong energies of waves. Mangroves have strong roots that bind the soil, preventing it from being washed by tides and waves. Areas that are covered by mangroves are rarely eroded, but it is very common to find land loss in areas with open coastal areas. Mangroves also trap materials carried by rivers or tides. Such sediments build up the coastline (IDI/fishers/Pembamnazi/April 2025).*

*Recreational:* Respondents also mentioned recreational services as one of the benefits of mangrove forests. It was noted that mangrove forests have a natural beauty that attracts people to visit and enjoy the place. Some respondents pointed out that some mangrove forests are homes of beautiful birds, which everyone would like to visit and see. In interviews with community members in Pembamnazi, one respondent had the following comment:

*In busy and populated cities like Dar es Salaam, people would love to go out and enjoy places like this. Observing and walking through mangroves is good. For example, in Pembamnazi, we have a magnificent mangrove forest with beautiful birds that people would like to see. Recently, some people have started visiting here and enjoying the place". (IDI/community member/Pembamnazi/April 2025).*



The above quote implies that community members perceived mangrove forests not only as providing tangible services, such as wood for energy or building materials, but also as places where people, especially those from highly populated areas, could enjoy nature and rejuvenate. This reveals how community members perceive mangrove forests, which are often overlooked for their direct or economic benefits.

*Water Quality Improvement:* Mangroves were also perceived as contributing to improved water quality. Respondents were asked to explain in what ways mangrove trees help enhance the quality of water. Respondents shared a view that "*mizizi inafonza ule uchafu na kuufanya chakula*" (lit., *the roots absorb the dirt and turn it into food*). It was further noted that, with time, this process improves the water quality in the areas. Juma had the following to add:

*We have observed that mangroves improve the water quality in an area. As a member of the Vijibweni community, I have observed that people have cleared mangroves in this area over the past 10 years. As the population increased, more pollutants were discharged into the ocean near the Kurasini Bridge. Later on, people were encouraged to replant mangroves in the area. With time, the environment improved. People who visited the place before the replanting of mangroves will tell you that there is a significant change in the quality of the area (IDI/community member/Vijibweni/April 2025).*

### **Utilisation of Mangroves**

There were several ways in which community members in the study areas utilised mangrove ecosystem services.

*Source of Seafood:* Fishing in the mangroves was perceived as one of the significant activities in the study areas. Interaction with respondents revealed that mangroves provide habitation to most species and form fishing grounds, especially for crabs, prawns and mangrove snappers. Fishing was considered a source of income and not merely for family meals. Respondents noted that the Kigamboni district is located in Dar es Salaam City. This city was perceived as an essential market for seafood. Kidomela, a crab fisher, had the following to comment:

*As a crab fisher, I can say that mangroves have changed my life. You know, crabs like to stay in mangroves rather than in open areas. So, I usually have a good catch here. I am one of the people who want to conserve mangroves because of the benefits that I get. We have a strong market here due to the city's population (IDI/community member/Ferry/April 2025).*

*Firewood and Charcoal:* Traditionally, mangroves have been a good source of firewood and charcoal in Kigamboni. Mangroves were perceived as a reliable energy source due to their slow-burning properties. It was noted that, although new energy sources for domestic use, such as natural gas, have been introduced, mangrove wood for cooking remains significant in Kigamboni. Uummy, a fish processor at the ferry area, commented that-

*I was born here in Kigamboni. The use of mangroves for cooking has been there – I grew up using mangroves for firewood. This has been ongoing for a considerable time. The government has been struggling to stop this for a long time now. I should acknowledge that the use of mangroves for firewood has declined, although it is still prevalent (IDI/fish processors/Ferry/April 2025).*



Through observation in the study area, the researcher could observe the use of mangrove firewood. This was seen in some homes and fish processing areas. Mangrove firewood was used to fly fish in fish processing. Flying fish were the dominant fish processed in the study area.

*Construction Materials:* Mangrove poles and timber were used for building homes and boats. The researcher was informed that the durability and resistance to rot make mangrove wood an ideal material for construction purposes in coastal areas, such as Kigamboni. It was reported that, with urbanisation, people are moving away from traditional mud houses (nyumba za udogo) that use mangrove poles. However, the use of mangrove poles in construction is still significant. Respondents said that mangroves were mainly used in the construction of septic tanks. On the other hand, fishing done using timber boats and mangrove timber was mentioned to be the best timber for boat construction. In an interview with Fishers, Ally had this to say:

*Mangrove provides the most complicated wood in the coastal areas. This tree has been liked by people for various purposes, such as house and boat construction. If you talk to boat builders (fundi jahazi), they will tell you that mangrove is the number one choice for boat building and mending. As a fisherman and owner of a boat, I benefit a lot from mangroves. I have two ships built using mangrove timber, and they are excellent. Mangroves are a source of pride for coastal communities (IDI/fishers/Pembamazi/May 2025).*

Although respondents recognised the benefits they derive from mangroves, particularly firewood, charcoal, and construction materials, they admitted that their use was detrimental to the mangroves. This is because it involves cutting down of mangroves. They added that when many people do this, it is likely to affect the future of the mangroves.

#### *Beekeeping*

Research informants mentioned beekeeping as one of the ways they utilise mangroves. It was reported that, traditionally, communities in Kigamboni were not known to be beekeepers. However, with the introduction of the idea that beekeeping is possible in mangroves and that it supports mangrove conservation, people slowly began to buy into the concept. Beekeeping in mangroves is done by small community groups who join their effort for mangrove conservation and improving their livelihood through beekeeping. When this study was conducted, two groups were in place in various locations along the Kigamboni coastline. During interviews, Pula, a mangrove beekeeper, had this to say:

*I am a crab fisherman. I have been fishing for about twenty years now. When my friends and I realised that beekeeping can be done in mangroves. We approached the forest officer in the Kigamboni district and requested permission to start beekeeping. We started this five years ago. What I can say about beeking is that it pays a lot (inalipa sana). Honey is a product that generates significant revenue. Once you have honey, I cannot ask you where to sell it. The market is open, waiting for you. Production is also cheaper; get some beehives. One bee enters your beehives, and you sit down and wait to harvest (IDI/fishers/Vijibweni/May 2025).*

*Provision of cultural services:* Mangroves in the study areas provide economic benefits and essential cultural services to local communities. Respondents informed the researcher that, for generations, some mangrove areas in Kigamboni were considered sacred places that our forefathers used for worship purposes. In such places, traditional rituals, prayers and offerings were performed. Such activities would be for Thanksgiving, to spirits, and to request better catches or protection from illness and natural disasters. Again, it was mentioned that some mangroves were used for herbs. Respondents acknowledged the changes, such as the introduction of modern religious beliefs, which



have diminished traditional beliefs. Despite such influences, it was reported that these cultural practices are still in place, although only a few people participate. During the interview, one elder commented that:

*The mangroves are not just trees to use –they are part of our history. My grandfather taught me how to fish among these roots, and we believe the spirits of our ancestors still protect this place (IDI/community member/ Pembamnazi/May 2025).*

This quote captures the emotional and cultural connection that community members in the study areas have with their natural environment, particularly the mangrove trees. This connection binds people with resources through generations. In Kigamboni, traditional cultural practices play a significant role in protecting mangroves. In discussions with respondents in the study areas, it was reported that cultural norms had long restricted access to and led to the cutting of mangroves in Kigamboni. However, respondents acknowledged that with the introduction of modern religion (*dini mpya*) respect for traditional values and customs has dramatically declined.

### **Community involvement in mangrove protection**

This study also explored how community members were involved in mangrove protection. Respondents were asked to explain how they participated in the protection of mangroves. Respondents had diverse responses on this. Some reported they were involved in protecting mangroves, while others said they were not. Through interactions with respondents, it became evident that most community members in Vijibweni, Ferry, and Pemba Mnazi were not involved in mangrove protection. However, a few were perceived as being involved. This study further explored how community members were involved. It was reported that community members were involved in four ways. First, some community members mentioned that they had been involved in mangrove protection through information and education campaigns (*kupatiwa elimu*), as Minza, a fish seller at the ferry area, mentioned

*We have been educated about the importance of mangroves and the need for all community members to protect them. I recall attending several meetings at Mjimwema. I can say that community members in this area have been educated about mangrove protection (IDI/community member/ Vijibweni/ April 2025).*

The above quote suggests that community members were involved in a mangrove protection education campaign. However, in interaction with respondents, there was concern about weak law enforcement. Respondents emphasised the need to strengthen law enforcement to reduce mangrove degradation. It was also reported that the Kigamboni district had facilitated community groups that engaged in beekeeping in mangroves to protect them and generate income through this activity. It was reported that there were two mangrove beekeeping groups, as district natural resources personnel made it:

*Having observed mangrove degradation in the district, we strategised ways to address the challenge. We conducted several meetings with different communities in Kigamboni to discuss ways to improve mangroves and, at the same time, ensure community members can meet their basic needs. We finally came up with the idea of beekeeping. (IDI/district personnel/ Kigamboni/May 2025).*

It was noted that beekeeping has vastly improved mangrove conservation efforts in the study area. Respondents called the government to emphasise and support beekeeping projects because the activity was friendly to mangroves. Additionally, respondents reported engaging in other livelihood



activities in addition to beekeeping. Such activities include seaweed farming projects in some areas, crab mud fattening and sea cucumber farming.

Community members also reported being involved in mangrove protection through restoration activities. The researcher was informed that such initiatives aimed to restore mangroves in areas harshly affected by degradation. Areas such as Pembamnazi and Tundwi Songani were mentioned to have been restored. In an interview, Nyanda, a retired fisherman at the ferry, had the following to comment:

*I can say that the government have done its best to restore mangroves in Kigamboni. I am one of the community members who participated in mangrove restoration in Tundwi Songani. I cannot say that most community members were interested in participating in the activity. Still, at least many people realised the need to participate in the activity. If you visit the areas where restoration has taken place, you will be impressed by the beauty of the mangroves. I encourage people to continue with restoration (IDI/community member/ Pembamnazi/ April 2025).*

## **Discussion**

This study aimed to assess the perception of coastal communities regarding mangrove ecosystem services. Through interactions with the communities in Kigamboni, we found that community members have a valuable understanding of the mangroves. As indicated in the findings, community members reported that mangroves provide habitat for many species, serve as food and breeding sites, improve water quality, and act as natural protectors of coastal areas. Such knowledge has great potential for improved mangrove conservation if it is combined with management strategies. This is because community members central to mangrove conservation already understand the environmental benefits of mangroves. Thus, this marks a starting point for sustainable mangrove management. Available literature has highlighted the value of local knowledge for strategising mangrove management that has local support (Longépée et al., 2021; Jadin and Rousseau, 2022; Grimm et al., 2024; Bulengela, 2023). Emphasis has been placed on the role of Local knowledge in helping to inform planning, implementation and monitoring associated with restoration and conservation projects (Gramm et al., 2024).

Community members also utilised mangroves in various ways. This includes fishing activities for firewood and charcoal, as well as construction materials, beekeeping, and cultural services. The utilisation aimed to meet their needs and improve their well-being. Although mangroves benefited the communities, respondents acknowledged that some uses of mangroves were threatening their future. Such uses include firewood, charcoal, and construction. This acknowledgement can be viewed as an asset because sustainable utilisation options of mangroves, such as beekeeping and eco-tourism, have more potential to be accepted. After all, the community members already acknowledge the negative impacts of cutting mangroves. It is essential to note that such efforts should be complemented by the search for alternative sources of energy and construction materials to reduce dependence on mangroves. This is because studies have shown that the lack of alternatives leaves people with no choice but to invade mangroves to collect wood for their own consumption (Gramm et al., 2024).

Additionally, the preference for mangroves for construction needs to be considered. Studies have indicated that mangrove properties, such as resistance to rot and insects, influence the choice of mangroves (Scales, 2019). The findings of this study suggest that community members preferred the use of mangroves for house construction and boat building because of their resistance to rot. Therefore, alternatives should be considered.



This study's findings have also demonstrated how some community members have participated in mangrove conservation processes. This includes participation in education and sustainable livelihood programs, particularly beekeeping and restoration projects. However, it was reported that community members' involvement in mangrove conservation was limited. Informants noted that most community members felt they were not involved in conservation efforts. Available evidence indicates some improvement in mangrove conservation in Tanzania. The presence of regulatory bodies has been attributed to improved mangrove conditions. Such bodies include Beach Management Units, District Environmental Departments and Non-Governmental Organisations (Mwanja et al., 2024). In the context of Kigamboni, although community members acknowledged the efforts made by the government and NGOs in managing the mangroves, they believed that much still needed to be done. Respondents emphasised local people's engagement, law enforcement, and capacity development for a better future for mangroves. These findings agree with previous studies such as Nyangoko et al., 2022; Mwanja et al., 2024), which emphasize community-led initiatives, alternative livelihood options, and strict law enforcement to strengthen long-term mangrove conservation and reduce overdependence on mangrove resources.

This study has also revealed that alternative sources of income that are friendly to mangroves played a vital role in protecting the mangrove. Beekeeping was one of the activities that community members engaged in. Previous studies have indicated that sustainable livelihood programs are key to improving livelihoods and minimising mangrove degradation (Barth et al., 2024).

The application of a cultural perspective to this study has merits. A cultural perspective emphasises that cultural beliefs and values shape people's perceptions of and interactions with nature (Lukasiewicz et al., 2013; Li et al., 2016). We used a cultural perspective to analyse how community members in the study areas perceived mangroves in terms of their ecosystem benefits, how they utilised mangroves and their participation in mangrove management. The findings of this study provide vital insights for the knowledge base and future management plans. Our findings further support the assertions of other scholars from cultural perspectives that coastal community members possess valuable knowledge regarding the resources they interact with, and that such knowledge and perceptions are practical for resource management efforts. For example, Lukasiewicz et al. (2013) revealed, in their study on the social construction of environment and water policy in Australia, the government's failure to consider the social values of the respective communities. This influenced the water policy. Treviño (2022) also indicated that community members assigned profound cultural importance and personal attachments to the mangrove ecosystem. Such a relationship motivated their readiness to participate in mangrove conservation.

This study employed a qualitative approach. The qualitative approach has limitations with generalisation. Thus, the findings of this study represent the ideas and knowledge of the communities in the Kigamboni district; they cannot be generalised to other places. Despite this limitation, the study revealed valuable knowledge that can be used to improve mangrove conservation.

## **Conclusion**

The findings of this study provided valuable insights into the perception of coastal communities regarding the mangrove ecosystem. Community members accumulated valuable knowledge on mangrove ecosystem services through their interactions with the mangrove. Additionally, though respondents acknowledged the presence of threats to mangroves, such as the falling of trees for construction and energy purposes, they demonstrated a positive and friendly relationship with the mangrove. This has been shown through the sustainable use of mangrove ecosystems for beekeeping, rituals, and worship. One notable challenge is the limited involvement of coastal community members



in conservation processes. As indicated in the findings, informants believed most people were not involved in mangrove conservation. This may have contributed to the degradation of mangroves in the study areas. Future management of mangroves can benefit by incorporating communities' knowledge and capitalising on the sustainable use of mangroves demonstrated by community members. This should go hand in hand with strategising alternative wood sources for building and energy to reduce dependency on the mangroves. Thus, from this context, we suggest that greater benefits for the future of the mangroves could be achieved through engagement between managers and community members who possess vital knowledge. Future research should focus on effectively engaging community members in mangrove conservation.

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