

Unlocking the Potential: Women Driving Sustainable Food Security in Lake Turkana's Fisheries, Kenya

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Abstract

Gender disparities persist in fisheries management, hindering the equitable development of the sector. This study explores the involvement of women in beach management units (BMUs) and fisheries activities in Lake Turkana, the world's largest desert lake, with implications for food security. Data from 200 respondents across eight purposively sampled BMUs were collected through questionnaires and analyzed using statistical methods. While women's representation in BMUs aligns with Kenya's one-third gender policy, they hold only 25% of executive positions, indicating leadership disparities. Women play a substantial role in fish processing and marketing within the fisheries value chain, contributing to food security. However, their opinions often go unrecognized, affecting their participation in decision-making. Factors influencing women's involvement in fisheries vary, with access to credit and fish markets being prominent. The study underscores the significance of enhancing women's engagement to ensure sustainable fisheries and improved nutrition in Kenya.

Keywords: Co-management, Fisheries, Food security, Gender, Lake Turkana, Women

Résumé

Les disparités de genre persistent dans la gestion des pêcheries, entravant le développement équitable du secteur. Cette étude examine l'implication des femmes dans les unités de gestion de plage (BMU) et les activités de pêche au lac Turkana, le plus grand lac désertique du monde, avec des implications significatives pour la sécurité alimentaire. Les données provenant de 200 répondants répartis sur huit BMU échantillonnées de manière ciblée ont été recueillies par le biais de questionnaires et analysées à l'aide de méthodes statistiques. Bien que la représentation des femmes dans les BMU soit conforme à la politique du tiers de genre du Kenya, elles ne détiennent que 25 % des postes exécutifs, ce qui indique des disparités en matière de leadership. Les femmes jouent un rôle substantiel dans la transformation et la commercialisation des poissons au sein de la chaîne de valeur des pêcheries, contribuant ainsi à la sécurité alimentaire. Cependant, leurs opinions sont souvent négligées, ce qui affecte leur participation aux prises de décisions. Les facteurs influençant l'implication des femmes dans les pêcheries varient, l'accès au crédit et aux marchés du poisson étant prédominants. L'étude souligne l'importance de renforcer l'engagement des femmes pour assurer des pêcheries durables et une meilleure nutrition au Kenya.

Mots-clés: Cogestion, Pêcheries, Sécurité alimentaire, Genre, Lac Turkana, Femmes.

Introduction

The fisheries sector plays an indispensable global role, providing nearly 20% of the world's protein intake and contributing up to 50% in certain developing countries (Béné *et al.*, 2015). In Kenya, this sector takes on even greater significance, supplying approximately 70% of animal protein for the communities residing around its major lakes (Ogello *et al.*, 2020). Achieving equitable and sustainable development within the fisheries sector necessitates the active participation and recognition of all social groups. However, the crucial contributions of women often remain undervalued in comparison to their male counterparts, despite forming a significant portion of the fisheries workforce (Harper *et al.*, 2013).

Recent research underscores the substantial role of women in global fisheries. They are not merely peripheral actors but play pivotal roles, particularly in the pre- and post-harvest phases (Bennett, 2005; Williams, 2008; Harper *et al.*, 2013). Their involvement ranges from fish processing to marketing, contributing significantly to the fisheries value chain. While women's involvement in actual fishing activities may be relatively lower than in other phases of the fisheries value chain, they are not absent from this critical aspect (Bennett, 2005). Some women actively engage in fishing, contributing directly to the catch and their households' income (Nenna, 2012).

Despite these essential responsibilities, women's roles continue to be marginalized and under recognized (FAO, 2019). While women in fisheries have often been associated with auxiliary roles, such as fish processing and marketing, it is imperative to recognize the multifaceted nature of their contributions. Recent studies have highlighted that women's involvement extends far beyond these roles and permeates various aspects of the fisheries sector. For example, women are known for their significant roles in fish processing and marketing (Harper *et al.*, 2013). They play a pivotal role in ensuring that the catch reaches consumers promptly, contributing to food security and economic well-being. Furthermore, women often excel in adding value to fish products through smoking, drying, and packaging, enhancing the overall quality and marketability of fish (Ogello *et al.*, 2020).

Women have emerged as leaders within the Beach Management Units (BMUs) in some instances, defying traditional gender roles (FAO, 2019). Their contributions extend to participating in BMU assemblies and even holding executive positions, albeit to a limited extent (Ogello *et al.*, 2020). However, gender disparities persist in leadership positions within BMUs, emphasizing the need for more inclusive policies and gender-sensitive approaches (FAO, 2019).

Several factors influence women's participation in fisheries activities, with access to credit, market availability, and transportation infrastructure playing pivotal roles (Ogello *et al.*, 2020). Access to credit is instrumental for women as it facilitates the acquisition of essential equipment for fish processing and storage (Choo *et al.*, 2008). Furthermore, the availability of fish markets is critical, as inadequate access to markets can lead to fish spoilage and a loss of economic opportunities (Frocklin *et al.*, 2013). Transportation infrastructure, including improved roads, can substantially ease the process of getting fish products to markets (Akpabio, 2005).

This study aimed to highlight the essential role that women play in Lake Turkana's fisheries. By providing a comprehensive overview of their involvement and the factors shaping it, we intend to underscore the need for more inclusive policies and gender-sensitive approaches within the fisheries sector.

Recognizing and enhancing the contributions of women in fisheries is not only a matter of gender equity but also a crucial step toward achieving sustainable fisheries and ensuring food security for Kenya's coastal communities.

Materials and Methods

Study Area. The study was conducted in Lake Turkana, located at the north of the eastern Rift Valley (35°50'-36°40' E and 2°27'-4°40'N), Kenya, renowned as the world's largest desert lake. Stretching over 250 kilometers in length and with a width ranging from 15 to 30 kilometers, this lake earned the prestigious UNESCO World Heritage designation back in 1997. The primary source of water inflow, accounting for more than 80%, is the Omo River in Ethiopia, as noted by Ricketts and Johnson (1996). The remaining inflow is sourced from the Turkwel River in Kenya and precipitation. Within the local community, the mainstays of the economy are fishing and pastoralism.

Sampling and Data Collection. To ensure a representative sample, eight Beach Management Units (BMUs) were purposively selected from Turkana County, covering various ecological zones and communities. A total of 200 respondents, predominantly women, were randomly selected for questionnaire-based interviews within the eight selected BMUs. These semi-structured questionnaires were designed to capture a comprehensive range of information regarding the socio-economic characteristics, roles, and factors influencing the participation of women in Lake Turkana's fisheries.

Data Analysis. Parametric and non-parametric statistical tools, aided by MINITAB version 14, were employed for data analysis. Descriptive statistics were utilized to summarize and present the demographic and socio-economic characteristics of the respondents. Chi-square tests were conducted to examine statistical associations between various variables, with a significance level set at $p \leq 0.05$.

Results

Socio-economic Characterization of Respondents. The mean age of women involved in fisheries activities around Lake Turkana is approximately 35 years. This relatively youthful demographic suggests that women enter the fisheries sector at a young age, potentially influencing their long-term involvement and commitment. In terms of marital status, the study reveals that 51% of respondents are divorced, 45% are married while 4% are single. The prevalence of divorced women underscores the significance of fisheries as a means of independent livelihoods and family support in the face of challenging circumstances around the lake. Education levels among the respondents indicate that 65% have no formal education, while 27% have completed primary education, and 8% have attained a secondary level of education. This educational disparity may influence women's understanding of BMU laws and their capacity to actively engage in co-management activities. When it comes to experience in fisheries activities, a significant proportion of women (56%) have accumulated 10-14 years of practical knowledge and skills in the sector. This extensive experience highlights the importance of traditional knowledge transfer and the early engagement of women in fisheries-related tasks. Furthermore, women in Lake Turkana's fisheries demonstrate a high level of social participation, as 56% of respondents are members of three to four other social organizations.

This extensive social network provides women with avenues for economic empowerment and the sharing of experiences, fostering their innovativeness (Onu and Madukwe, 2002).

Women's Participation in BMU and Fisheries Activities. Within the Beach Management Units (BMUs), women's representation aligns with Kenya's constitutional requirement of one-third gender participation, with women comprising 33% of BMU membership. However, this parity does not extend to leadership positions, as only 25% of BMU executive positions are held by women. Women actively participate in various BMU activities, with 74% attending education meetings, 70% participating in welfare meetings, and 62% joining BMU assembly meetings. These high attendance rates indicate their keen interest in accessing education support, social assistance, and participating in community decision-making. In contrast, women's participation is significantly lower in patrol meetings (10%) and donor meetings (8%). This disparity can be attributed to the fact that women are less engaged in fish production activities like fishing. Women's opinions within the BMUs are often undervalued, reflecting deeply ingrained cultural beliefs that prioritize men as opinion formers (Ogello *et al.*, 2020). This gender bias hampers women's active involvement in decision-making processes within the BMUs.

Women's Roles in Fisheries Activities. Women's involvement in fisheries activities is multifaceted, with distinct roles across the fisheries value chain. A substantial number of women (35%) are engaged in fish processing and marketing activities. This involvement is driven by the economic opportunity presented by these activities, which contribute to improved livelihoods and food security (Harper *et al.*, 2013). Although a smaller proportion of women (10%) are directly engaged in fishing, their participation in this essential activity contributes directly to the catch and household income (Nenna, 2012). A minority of women (6%) are involved in making and repairing fishing gear. This technical role showcases the diversity of women's contributions to fisheries activities.

Factors Affecting Women's Participation in Fisheries. The study identifies several factors influencing women's participation in fisheries activities. Access to credit: Access to credit facilities emerged as a significant determinant, with 37% of women indicating its importance. Credit facilitates the acquisition of essential equipment for fish processing and storage, enabling women to enhance their economic activities within the sector (Choo *et al.*, 2008). Market availability: The availability of fish markets is another critical factor, highlighted by 21% of women. Access to vibrant markets ensures that fish products reach consumers promptly, reducing the risk of spoilage and enhancing economic opportunities (Frocklin *et al.*, 2013). Transportation infrastructure: Adequate transportation infrastructure is essential for women in the fisheries sector. Nineteen percent of respondents emphasized the importance of transportation infrastructure, including improved roads, which enable efficient access to markets (Akpabio, 2005).

Discussion

The results of this study shed light on the crucial roles played by women in the fisheries sector around Lake Turkana and emphasize their significant contributions to food security, livelihoods, and the local economy. These findings not only underscore the importance of recognizing women's roles but also highlight the existing gender disparities within Beach Management Units (BMUs) and the fisheries value chain.

Socio-economic Characterization of Respondents. The relatively young age of women engaged in fisheries activities, with an average of 35 years, is noteworthy and aligns with global trends where youth are increasingly becoming involved in the sector (Béné *et al.*, 2019). This youthful demographic indicates the potential for the transmission of knowledge and skills to future generations, ensuring the sustainability of the fisheries sector. The prevalence of divorced women in the study sample suggests that fisheries serve as a crucial means of income and support for female-headed households. These findings echo the broader global context, where fisheries often provide a safety net for vulnerable households (Harper *et al.*, 2013). Furthermore, the low levels of formal education among the majority of women participants reflect the need for targeted interventions to enhance their capacity and understanding of BMU regulations and sustainable fisheries management (Harper *et al.*, 2013).

Women's Participation in BMU and Fisheries Activities. While the study indicates that women's representation in BMUs adheres to Kenya's constitutional requirement of one-third gender participation, the lower percentage of women in leadership positions (25%) raises questions about the barriers preventing their full participation (Ogello *et al.*, 2020). The high attendance of women at education, welfare, and assembly meetings underscores their strong interest in accessing education support and participating in community decision-making. However, their limited participation in patrol and donor meetings, activities often associated with fish production and management, suggests that women continue to face challenges in engaging in certain aspects of fisheries co-management (Bennett, 2005). The undervaluation of women's opinions within BMUs reflects deeply rooted gender biases and underscores the need for targeted efforts to ensure that women's voices are heard and considered in decision-making processes (Frocklin *et al.*, 2013).

Women's Roles in Fisheries Activities. Women's multifaceted roles within the fisheries value chain are critical for local food security and economic well-being (Béné *et al.*, 2019). Their active engagement in fish processing and marketing aligns with global trends where women play key roles in post-harvest activities (FAO, 2020). This involvement not only contributes to their economic empowerment but also ensures food security for their families (Harper *et al.*, 2013). Although a smaller proportion of women are directly engaged in fishing, their participation is a direct source of catch and household income. This challenges traditional gender stereotypes in fisheries and highlights the diverse contributions of women (Nenna, 2012). Furthermore, women's involvement in gear making and repair, although limited, demonstrates their technical skills and capacity to engage in various aspects of the sector. This diversification of roles can contribute to enhanced resilience in the face of changing fisheries dynamics (Bennett, 2005).

Factors Affecting Women's Participation in Fisheries. Access to credit emerged as a significant determinant of women's participation in fisheries activities. This finding underscores the importance of financial support mechanisms for women in the sector, enabling them to invest in equipment and infrastructure (Harper *et al.*, 2013). The availability of fish markets and efficient transportation infrastructure is crucial for women's success in the fisheries value chain. These factors ensure that fish products reach consumers in a timely manner, preserving quality and reducing post-harvest losses (Béné *et al.*, 2019). Addressing these key factors affecting women's participation in fisheries is essential for promoting gender equity and enhancing the sector's overall sustainability and productivity (FAO, 2020).

Policy Implications and Recommendations

To address the gender disparities highlighted in this study, policy interventions should prioritize the following:

- **Gender-sensitive BMU Leadership:** Efforts should be made to ensure that women have equal opportunities to hold leadership positions within BMUs through affirmative action and capacity-building initiatives.
- **Women's Empowerment:** Financial and educational support should be provided to enhance women's capacity to engage effectively in fisheries co-management and value chain activities.
- **Recognition of Women's Contributions:** Strategies should be put in place to recognize and value women's roles in fisheries, including their opinions in decision-making processes.
- **Access to Credit:** Accessible and affordable credit facilities should be made available to women in the fisheries sector to facilitate investments and business growth.
- **Market Access and Infrastructure:** Investment in fish market infrastructure and transportation systems is essential to ensure that women can efficiently access markets and maintain the quality of their products.

Conclusion

This study has illuminated the pivotal role of women in the Lake Turkana fisheries sector, underlining their substantial contributions to local food security, livelihoods, and the regional economy. While the gender representation in Beach Management Units (BMUs) adheres to Kenya's constitutional one-third gender policy, gender disparities persist, particularly in leadership positions within BMUs. Furthermore, women's opinions and voices are often overlooked in decision-making processes, hindering their full participation in fisheries co-management. Women's active engagement in fish processing, marketing, and certain aspects of fishing demonstrate their multifaceted contributions to the fisheries value chain. These activities not only empower women economically but also ensure food security for their families and communities. However, challenges related to access to credit, fish markets, and efficient transportation infrastructure remain significant barriers to women's participation and success in the sector.

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